

BUS 2257 - ACCOUNTING & BUSINESS ANALYSIS - FALL/WINTER 2024-25

Al Halbouni, Brown, Dunn, Eidenberg, Gillis, Molinaro, Shabbir, Welsh

NOTICE REGARDING COPYRIGHT

This custom course package contains intellectual property that is protected by copyright law. It is illegal to copy the material within this package without the written consent of the holder(s) of the copyright. This material has been copied under license or with permission from the copyright holder.

Resale or further copying of anything in this package is strictly prohibited.

Unless otherwise stated, Copyright ©2024, Ivey Business School Foundation. Ivey Business School is the leader in providing business case studies with a global perspective.

Table Of Contents

TERM ONE.....	6
Tartan Loungewear: An Introductory Transactional Accounting Exercise.....	7
Pergola Fish Finders Inc.....	10
Foote's Print and Design Shop Inc.....	16
Inventory Procedures Using the "T" Account System.....	18
Lakeshore Tea Company: Merchandising Operations.....	20
Kombucha Canada Inc: Merchandise Inventory Valuation.....	22
Barry's Batting Cages Ltd.....	25
Wilshire Sports Importers Ltd.....	28
Forest City Tennis Club - Pro Shop and Bar Lounge.....	35
Saskatoon Country Supplies.....	37
Mr. Fastball.....	43
Pacific Restaurant Supply Ltd.....	46
Up-In-Smoke Corporation.....	48
Bird's Eye View Ltd.....	52
Energy Vending, Inc.....	55
Accounting for Manufacturing Activities.....	62
Creative Chips (Abridged).....	76
Canfam Limited.....	79
H&L Pines.....	83
Thistle Links: An Equity Financing Exercise.....	85
Tempest Tech Incorporated.....	88
Stocks, Bonds, Trading Investments: A Summary.....	89
Duffinbear Inc.....	100
Introductory Note on Accounting for Leases.....	102

Table Of Contents Continued

Levuka Sport Fishing Inc.....	108
Equability by Jen Candle Company: A Manufacturing Inventory Exercise.....	112
BeanCountr Inc.: A Financing and Investing Exercise.....	119
Kesey's Mailboxes.....	122
Speedy-Couriers Limited.....	127
Travelling Thai Ltd.....	129
Arthur Brothers Construction Ltd.....	131
Stopagon Company.....	134
Robertson Maple Farm Inc.....	136
Terrific Tennis Balls: A Manufacturing Inventories Exercise.....	139
Vroom Inc.: A Financing and Investing Exercise.....	146
TERM TWO.....	149
Behavior of Costs.....	150
Zentein Nutrition Inc: Raising the Bar.....	183
Grow Green Program.....	190
Note on Marketing Management.....	196
RollUP Solutions Incorporated: Going to Market.....	220
Allswell Productions: A Tough Act to Follow.....	228
Cash Budgeting / Cash Management.....	237
Bluewater Football Association.....	249
Craft Farmacy: Expansion to Waterloo.....	254
Introduction to Managerial Accounting.....	259
Treasure Trophy Company.....	274
Hospitality Services — Eatery Challenges.....	279
Differential Cash Flow Model.....	290

Table Of Contents Continued

Cool Moose Creamery.....	298
Eastern Talon Transport.....	305
Spike's Indoor Beach Volleyball and Rock Climbing Inc.....	312
Statement of Cash Flows.....	325
Heeling Custom Athletic Shoes: Statement of Cash Flows.....	341
Alrich Farms: Cash Flow Analysis.....	345
Financial Ratio Analysis.....	351
TerraCycle Inc. (Abridged).....	374
Note on Financing Alternatives.....	384
Financial Planning - Projected Financial Statements.....	394
Adept Chemical Inc.....	410
Dicore International.....	422
Phil's Haulage.....	442



TERM ONE

For use only in the course BUS 2257 - Accounting & Business Analysis - Fall/Winter 2024-25 at Ivey Business School from 9/5/2024 to 4/4/2025.
Use outside these parameters is a copyright violation.

TARTAN LOUNGEWEAR: AN INTRODUCTORY TRANSACTIONAL ACCOUNTING EXERCISE

Martin Eidenberg wrote this exercise under the supervision of Ian Dunn solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2024, Ivey Business School Foundation

Version: 2024-02-23

During the COVID-19 pandemic, Trina Wolfson noticed that people were wearing more loungewear. In particular, she noted people's desire to wear trendy loungewear that looked liked formalwear when viewed from far away. One day when Wolfson was looking in her closet she saw some tartan¹ pieces that she had purchased on a trip to Scotland. So, she came up with the idea of combining the beauty of tartan with emerging loungewear fashion trends—loungewear with tartan accents.

After significant research, planning, and thought, on June 1, 2022, Wolfson incorporated Tartan Loungewear (Tartan) and deposited \$12,000² of her savings into the newly formed corporation's bank account in exchange for common shares. The business began operating out of a rented space, with the landlord requiring the first and last month's rent upon signing the rental agreement.

Wolfson's close friend owned a small, local clothing manufacturer and agreed to supply Tartan with basic, high-quality, well-fitting loungewear and associated accessories at a reasonable cost. Wolfson initially purchased \$7,600 worth of clothing inventory and \$520 worth of accessories inventory. Additionally, she spent \$600 on a basic computer for business use.

Tartan was successful in Wolfson's first fiscal year of operating the business as a side hustle.³ Given the significant demands on her time, Wolfson did not meticulously track Tartan's accounts. However, she did attempt to keep an accurate cash record (Exhibits 1 and 2). At Tartan's fiscal year end on May 31, 2023, Wolfson examined her accounting records in more detail, alongside a university friend who had obtained her Chartered Professional Accountant licence, in order to prepare financial statements.

Wolfson had started making in-person sales when the busy Christmas shopping season began in late 2022. As a result, on December 1, 2022, she purchased the point-of-sale (POS) equipment. The POS equipment had a four-year useful life, and the computer purchased at incorporation had a useful life of three years. Both the computer and the POS equipment would be depreciated using the straight-line method with no residual value.

¹ Tartan was a patterned cloth particularly associated with Scotland.

² All currency amounts are in Canadian dollars unless otherwise specified.

³ A side hustle referred to an individual building an income stream(s) in addition to their primary occupation.

Tartan offered customers the option to purchase gift cards on the company's website.⁴ At the end of the fiscal year, Wolfson noted that \$450 worth of gift cards had yet to be used. Gift card balances did not expire, but Wolfson expected that all outstanding balances would be redeemed in the next fiscal year.

In April 2023, Wolfson had made two additional orders for clothing inventory that remained unpaid at fiscal year end. One of these orders was for \$3,240 from Tartan's regular clothing supplier. Wolfson had also made a \$900 order from a new clothing supplier on a trial basis.

As Wolfson and her friend went through all invoices to retailers who purchased Tartan products, they found an unpaid invoice for \$2,200. As the retailer had been a loyal customer throughout Tartan's first year of operations and had always paid their invoices in full, Wolfson was confident that payment was forthcoming.⁵ Additionally, the pair of friends noted that there were two invoices that Wolfson had sent to retailers, totalling \$3,425, on which Wolfson had not yet begun work and Tartan had yet to receive payment.

On May 31, 2023, Wolfson conducted a physical inventory count. She found that \$4,390 worth of clothing inventory and \$205 worth of accessories inventory remained on hand.

Tartan's corporate income tax rate was 14 per cent of net income before tax.

REQUIRED

1. Record, using a super-T, all transactions, adjusting, and closing entries for the fiscal year ended May 31, 2023.
2. Prepare a statement of earnings and a statement of financial position for the same time period.

⁴ Cash receipts from online sales included gift card sales.

⁵ The loungewear had been delivered to the retailer on May 25, 2023.

EXHIBIT 1: CASH RECEIPTS

Online Sales	\$ 17,470
Retailer Sales	28,530
In-Person Sales	<u>8,920</u>
Total Cash Receipts	\$ 54,920

Source: Created by case authors.

EXHIBIT 2: CASH DISBURSEMENTS

POS Equipment	\$ 680
Clothing Inventory ¹	19,200
Accessories Inventory ²	1,160
Other Expenses	3,830
Rent ³	<u>11,050</u>
Total Cash Disbursements	\$ 35,920

Note: POS = point of sale; 1. Does not include payment made upon beginning the business for initial clothing inventory; 2. Does not include payment made upon beginning the business for initial accessories inventory; 3. Wolfson rented a room in which she conducted all aspects of her business' operations for \$850 per month.

Source: Created by case authors.

PERGOLA FISH FINDERS INC.

Graham Todd Roberts prepared this case under the supervision of John F. Graham solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 1992, Richard Ivey School of Business Foundation

Version: 2024-02-27

On April 1, 2004, Janet Pergola, owner of Pergola Fish Finders Inc., faxed her current cash records to a friend, Moe McCully, C.A. Along with the records, Janet scribbled the following information on the fax cover sheet: “Set up an automatic withdrawal, lots of bank memos. . . . Off buying marlin in Venezuela, thanks!”

REQUIRED

- a. Prepare a bank reconciliation for the month of March 2004, based on Exhibits 1 to 5. Assume any errors in recording are Pergola’s.
- b. Prepare, using journal entries, all necessary correcting entries, and the related account types to ensure Pergola’s ending cash balance is correct.

Exhibit 1**BANK RECONCILIATION
As at February 29, 2004**

Balance per company records, February 1, 2004	\$3,701.15
Add: Cash receipts	\$40,228.49
Less: Cash disbursements	<u>(39,707.75)</u> 520.74
Cash balance per company records, February 29, 2004	\$4,221.89
Less: Bank service charges for February	<u>(21.00)</u>
Adjusted cash balance per company records, February 29, 2004	<u><u>\$4,200.89</u></u>
Balance per bank records, February 29, 2004	\$4,301.78
Less: Outstanding cheques:	
Cheque #12	\$42.63
Cheque #18	<u>58.26</u> (100.89)
Adjusted cash balance per bank records, February 29, 2004	<u><u>\$4,200.89</u></u>

Exhibit 2**CASH DISBURSEMENTS JOURNAL**
March 2004

DATE	CHEQUE #	ISSUED TO	AMOUNT
March 2	27	Grosvenor Management	\$5,050.00
4	29	Billum, Bigg & Hyde	10,000.00
9	30	Mercury Import Leasing	903.54
10	31	African Queen Fishers	6,163.12
14	32	Biscayne Barges	1,079.62
14	33	Stevey D. Janitorial	43.12
15	34	Kings Dipsy Divers	3,124.56
17	35	Armstrong Packaging	4,565.43
18	36	Colledge Matts	55.78
22	38	C. Roche Deep-Freeze	1,321.46
25	39	Pricey Club	2,567.19
28	40	Clarkson Deliveries	669.66
30	41	St. James Lobsters	3,345.43
		Total	\$38,888.91
		Notes: Cheques #28 and 37 were voided; last cheque for March, #41.	

Exhibit 3
CASH RECEIPTS JOURNAL
March 2004

DATE	CHEQUE #	RECEIVED FROM	AMOUNT
March 2	12	Western Food Supply	\$5,263.48
4	34	Hoss's Hotels	1,248.35
7	23	Sidhartha Seafood	113.56
9	86	Zequil Food Suppliers	2,129.99
11	02	International Fish	1,339.00
14	43	Richard's Green	329.39
15	19	Diana's Finest Foods	3,789.32
16	07	Chez John	4,341.78
18	19	Salmon Emporium	10,456.23
22	98	Blackie Specialties	7,876.56
23	01	The Mouse Pad	4,453.92
25	74	Cajun Creations	2,223.38
28	99	Bigg Grocery Stores	865.23
30	13	Shoppers Experience	1,986.20
		Total	\$46,416.39

Exhibit 4

BANK STATEMENT
For the month ended March 31, 2004

DATE		CHEQUE #	WITHDRAWALS	DEPOSITS	BALANCE
		O/B			\$4,301.78
March	01	W/D	400.00		3,901.78
	04	27	5,050.00		(1,148.22)
	04			5,263.48	4,115.26
	05	29	10,000.00		(5,884.74)
	05			1,248.35	(4,636.39)
	08			113.56	(4,522.83)
	10	30	903.54		(5,426.37)
	10			2,129.99	(3,296.38)
	11	31	6,163.12		(9,459.50)
	12			1,339.00	(8,120.50)
	15	32	1,079.62		(9,200.12)
	15	33	43.12		(9,243.24)
	15			329.39	(8,913.85)
	16	34	3,124.56		(12,038.41)
	16			3,789.32	(8,249.09)
	17			4,341.78	(3,907.31)
	19	35	4,565.43		(8,472.74)
	19	36	55.78		(8,528.52)
	19			10,456.23	1,927.71
	20	P/D	1,050.49		877.22
	23	38	1,321.46		(444.24)
	23			7,876.56	7,432.32
	23			4,453.92	11,886.24
	28			2,223.38	14,109.62
	29	39	2,567.19		11,542.43
	30	40	966.66		10,575.77
	31	S/C	132.00		10,443.77
	31	NSF	2,223.38		8,220.39
	31	E/B			\$8,220.39

S/C = Service Charge W/D = Automatic Withdrawal
 NSF = Non-sufficient Funds P/D= Automatic Payroll Deduction

Exhibit 5**PERSONAL NOTES WRITTEN BY JANET PERGOLA
For the month ended March 31, 2004**

1. A new monthly automatic withdrawal for insurance was set up with the first withdrawal coming out on March 1, 2004.
2. In subsequent discussions with the bank, cheque #40 was actually issued in the amount of \$966.66 in payment for customer delivery services rendered by Clarkson Deliveries.
3. Bank service charges of \$132 include overdraft charges and \$20 NSF fee resulting from a customer's cheque that bounced. It was Pergola's policy to charge the customer for these NSF fees.
4. A cheque in the amount of \$2,223.38 from Cajun Creations was returned by the bank and was marked NSF.

FOOTE'S PRINT AND DESIGN SHOP INC.

Lynda E. White prepared this case under the supervision of Richard H. Mimick solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 1988, Richard Ivey School of Business Foundation

Version: 2023-03-07

Sally Foote was the sole shareholder of a private corporation, Foote's Print and Design Shop Inc. (FPDS), an outlet for custom-designed stationery products. FPDS had enjoyed moderate success over the past two years and Foote attributed this partially to the attention she paid to her customers and to their accounts. For example, generous credit terms of 3/15, n/45 were offered but only to her best clients who showed an acceptable credit rating. Also, Foote assessed all outstanding accounts every six months to ensure that this part of her business was operating smoothly.

On October 3, Foote set out to determine the accounts receivable position of FPDS for the six months ending September 30, 2014. She retrieved the partial Balance Sheet of FPDS as at March 31, 2014 as well as the selected information listed below.

PARTIAL BALANCE SHEET As at March 31, 2014

Current Assets:

Cash	\$ 1,033
Accounts Receivable	\$ 29,685
Less: Allowance for Doubtful Accounts	<u>2,400</u>
Total Current Assets	<u><u>27,285</u></u> <u><u>\$ 28,318</u></u>

Foote also calculated some additional information. Gross sales for the period were \$48,746 of which \$17,836 were for cash. Total discounts taken during the past six months by customers amounted to \$835 as credit terms offered were 3/15, n/45.

Before completing her task, Foote compiled the selected information listed below:

APRIL 4, 2014

G. Sinker called to complain of design errors on her business cards. She agreed to keep the cards in exchange for a \$25 reduction of her outstanding account.

MAY 24, 2014

Slate Real Estate, a major customer of FPDS, went bankrupt. Since Foote believed they would not be able to pay any of their \$304 outstanding account, she decided to write off the account.

JUNE 12, 2014

FPDS received a cheque as final settlement from Young Industries for 30 per cent of their \$870 account. On February 2, 2014, the account was determined uncollectable and was written off.

JULY 31, 2014

Foote received a call from one of her loyal customers, E. Poon, who was having financial difficulties. Foote agreed to convert her \$667 account to a 90-day, nine per cent per annum note.

AUGUST 4, 2014

J. Carter called and said he would be unable to pay his \$2,036 account. Foote remembered that Carter had been experiencing financial difficulty and decided to write off the account.

SEPTEMBER 25, 2014

Martha Floyd returned her order of stationery due to spelling errors. The order awaited rework and was to be completed on October 5, 2014 and delivered the day after. Martha had written a cheque for \$215 dated September 20, 2014 when the sale was made.

SEPTEMBER 30, 2014 At the close of business, the Accounts Receivable account totaled \$27,335.

Foote prepared the aging schedule below at the close of business on September 30, 2014.

	Amount	Percentage Estimated Uncollectable
Not yet due	\$ 16,230	2
1-30 days overdue	7,525	5
31-60 days overdue	2,600	15
61-90 days overdue	750	30
Over 90 days past due	<u>230</u>	50
	<u><u>27,335</u></u>	

REQUIRED

1. Record opening balances and all of the transactions and adjusting entries relating to the above selected information including all cash and credit activities for FPDS in T-accounts.
2. What is the Net Value of Accounts Receivable for FPDS as at September 30, 2014?

INVENTORY PROCEDURES USING THE T-ACCOUNT SYSTEM

Neil Campbell prepared this case under the supervision of Richard H. Mimick solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

Richard Ivey School of Business Foundation prohibits any form of reproduction, storage or transmittal without its written permission. This material is not covered under authorization from CanCopy or any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Richard Ivey School of Business Foundation, c/o Richard Ivey School of Business, The University of Western Ontario, London, Ontario, Canada, N6A 3K7; phone (519) 661-3208; fax (519) 661-3882; e-mail cases@ivey.uwo.ca.

Copyright © 1983, Richard Ivey School of Business Foundation

Version: 2013-03-06

In the T-account system, all transactions which affect merchandise inventory are entered directly and immediately into the inventory asset account, rather than into separate accumulator accounts (e.g., purchases). There are five items which normally comprise the net cost of acquiring merchandise inventories: purchases plus duties, and freight-in, less any purchase discounts, and purchase returns and allowances. The attached schematic diagram (see Exhibit 1) illustrates how these items are recorded using a simple inventory T-account.

The primary reasons for using this simplified single account approach for inventory are convenience, conservation of space on the super-T sheet, and the clarity resulting from having all these related transactions grouped together. Also, because it is assumed that all costs related to merchandise inventory are considered material in amount, these costs can be posted directly to the merchandise inventory account in the periodic system.

In addition, there is an important conceptual benefit from using this approach. At the end of each accounting period, the sum total of all entries in the inventory T-account will, by definition, equal the cost of goods available for sale (beginning inventory + purchases + duties + freight-in – purchase discounts – purchase returns and allowances) for the period. Furthermore, once the ending inventory is physically counted and costed, the insertion of the ending inventory balance generates a plug figure which represents the cost of goods sold expense for the period. This flow of costs from asset to expense is also illustrated in the following exhibit. Thus, one entry, rather than several, is required to adjust the inventory and cost of goods sold items at the end of each accounting period.

Exhibit 1**INVENTORY PROCEDURES USING THE T-ACCOUNT SYSTEM**

ASSETS	LIABILITIES AND EQUITIES
Inventory	
Beginning Inventory	
+ Purchases + Freight-in	
	– Purchase Discounts
	– Purchase Returns and Allowances
Cost of Goods Available for Sale	
	Cost of Goods Sold
Ending Inventory	
EXPENSES	REVENUES
Cost of Goods Sold Expense	
Cost of Goods Sold	

LAKESHORE TEA COMPANY: MERCHANDISING OPERATIONS

Martin Eidenberg wrote this exercise under the supervision of Ian Dunn solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2021, Ivey Business School Foundation

Version: 2024-02-27

Lakeshore Tea Company Inc. (Lakeshore) was launched by Anna Davis in 2019. The company operated as an herbal tea processor and supplier in Mississauga, Ontario. Davis imported herbs and tea leaves from a variety of sources across the globe. Over its first two years of operations, Lakeshore experienced significant growth and began supplying a variety of restaurants, health food stores, and small grocery outlets in the Greater Toronto Area. Apart from small orders from friends and family, which were usually paid for in cash, all of Lakeshore's sales were made on credit. Payment terms for all credit sales were 3/8, net 30.¹ Lakeshore shipped all orders FOB shipping point on the same day that the order was placed. Davis totalled cash sales and prepared the company's financial statements on a monthly basis.²

Lakeshore's April 30, 2021, statement of financial position included the following selected account balances:³

Accounts Receivable	\$ 4,469
Inventory	5,927
Accounts Payable	3,902

During May 2021, Davis recorded the following notes about Lakeshore's transactions:⁴

- May 1** Great Lakes Grocery purchased a large quantity of Lakeshore's product for \$2,834, on credit.
- May 3** Email received from Great Lakes Grocery with a complaint that multiple packages were improperly sealed. Agreed to reduce Great Lakes Grocery's account by \$230.
- May 4** Ordered supply of tea leaves from Mangrove Trading Co. in Colombo, Sri Lanka. The order totalled \$4,765 with terms of 10 EOM, FOB Mississauga.
- May 5** Received \$2,256 payment from Credit Valley Health-Mart for goods purchased on credit on April 24, 2021.

¹ All discounts were calculated on the invoice price net of returns and allowances.

² Financial statements were prepared using a periodic inventory system.

³ All currency amounts in CA\$ unless otherwise specified.

⁴ All credit terms were calculated from the date of ownership.

- May 7** Electronic funds transfer arrived from Great Lakes Grocery as payment for goods sold on May 1.
- May 8** Received electronic confirmation that the shipment from Mangrove Trading Co. had left.
- May 10** Paid Nairobi Organic Wholesale Ltd. for an order costing \$3,902, which arrived on April 27, 2021, with credit terms of 2/15, n/30.⁵
- May 11** Streetsville Health Food Co-op made a credit purchase of an assortment of Lakeshore's teas for \$756. Cost of the goods sold to the co-op was \$437.
- May 13** Sold \$4,229 of merchandise to Upper Canada Fine Foods (UCFF) on credit.
- May 14** Ordered a variety of herbs from Escarpment Herbs, Lakeshore's preferred local supplier. The herbs were shipped later that day. The cost of the order amounted to \$1,016 and shipping charges were an additional \$68. Lakeshore had always made use of the generous discount terms offered by Escarpment Herbs in past orders.⁶
- May 17** Signed for the arrival of the order from Escarpment Herbs.
- May 18** Two bags of herbs from the May 14 order were damaged. Returned the bags and Escarpment Herbs reduced Lakeshore's account by \$56.
- May 19** Informed by purchasing manager at UCFF that \$168 worth of product had been purchased in error. Goods were returned to Lakeshore this afternoon. Given that UCFF was a large and important customer of Lakeshore, UCFF's account would be adjusted accordingly.
- May 22** Cheque received from Streetsville Health Food Co-op for goods sold on May 11.
- May 25** Shipment received from Mangrove Trading Co. (ordered on May 4).
- May 26** Electronic funds transfer sent to Escarpment Herbs for full payment of amount owed.
- May 29** Received \$1,350 from UCFF in partial payment of its outstanding account with the remainder promised to be paid in June.
- May 31** Cash sales for the month amounted to \$1,138.

At the close of business on May 31, 2021, Davis performed a physical inventory count. Based on this count, the total cost of goods remaining on hand was \$6,027.

REQUIRED

1. Record, using a super-T, all opening balances, transactions, and adjusting entries relating to Lakeshore's merchandising operations for the month ending May 31, 2021.
2. Prepare the revenue and cost of goods sold sections as they would appear on Lakeshore's statement of earnings for the month ending May 31, 2021.

⁵ Shipping terms were FOB Destination.

⁶ Escarpment Herbs shipped all products FOB shipping point with credit terms of 5/10, n/45.

KOMBUCHA CANADA INC: MERCHANDISE INVENTORY VALUATION

Ian Dunn and Jordan Sills wrote this exercise solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2021, Ivey Business School Foundation

Version: 2023-05-24

Amelia Morgan was looking over her company's most recent sales report for April 2020. COVID-19, an infectious disease caused by a novel coronavirus, had spread rapidly around the world after first being identified in December 2019. Categorized in March 2020 as a global pandemic, COVID-19 had led many countries to initiate various forms of lockdowns to help slow the spread of the disease. These lockdowns had put enormous pressure on Morgan's business, Kombucha Canada Inc. (KCI). Restaurant closures and reduced pedestrian traffic had reduced KCI's sales. Morgan wanted to compile her financial results from the past year to determine the impact on her inventory. KCI's fiscal year ended on April 30, 2020.

KCI was located in Vancouver and sold kombucha to various restaurants and grocery stores around British Columbia, Canada. Kombucha was a fermented sweet tea that had multiple health benefits due to the culture of yeast and bacteria used to produce the beverage. Morgan had first tried kombucha on a trip to California and loved the product so much that she reached out to the owners to see if they wanted to expand into Canada. An agreement was signed a few months later that granted KCI exclusive rights to distribute certain brands of kombucha in Canada. With many connections also in Canada's food and beverage industry, Morgan was well positioned to grow KCI.

SUPPLIERS

Morgan remembered she started the year with 2,422 bottles of kombucha worth \$8,264. Morgan used three suppliers when purchasing the kombucha. The main supplier, Western Beverage (Western), located in Calgary, Alberta, Canada, offered credit terms of 5/15 net 30, and shipped free on board (FOB) from Calgary.

Morgan also used two smaller manufacturers located in the United States when needed. Tapped Washington (Tapped) was in Seattle, Washington, and offered credit terms of 3/10 net 15 and shipped FOB Seattle. The third supplier, Fry and Karry's Beverages (Fry), was in Los Angeles, California, and offered credit terms of 5 EOM and shipped FOB Vancouver.

All credit terms were calculated from the date of ownership.

SHIPPING

Kombucha needed to be delivered in a refrigerated truck, which increased the cost of shipping. KCI used a private shipping company when ordering from their supplier in Canada. Transportation charges were based on a per unit price of CA\$0.36.¹

A second shipping company was used for all orders from suppliers in the United States. Morgan knew the owner of this shipping company from a previous business relationship, and he offered her a set transportation charge that converted to an average of CA\$800 per order.

INVENTORY

Morgan made several purchases throughout fiscal 2020 (see Exhibit 1). On September 13, 2019, Morgan noticed a quality issue with some of the units from the September 6, 2019, order from Tapped and promptly returned 150 bottles of kombucha. Tapped offered to pay for return shipping and to refund any applicable duties.

A physical inventory count on April 30, 2020, revealed 9,237 bottles of kombucha on hand.

REQUIRED

To proceed with assessing the effect of the pandemic lockdowns on her inventory, Morgan needed to do the following:

- 1) Post all opening balances and inventory-related transactions in the ledger accounts (T-accounts) for fiscal 2020.
- 2) Calculate the total cost of each purchase to the nearest dollar and the cost per bottle of kombucha of each purchase to three decimals.
- 3) Determine the cost of goods available for sale, the ending inventory, and the cost of goods sold for the kombucha inventory using the first-in, first-out (FIFO) inventory valuation method.

Morgan knew that COVID-19 would have an impact on the future selling price of her kombucha. At the end of fiscal 2020, the net realizable value of Morgan's kombucha was \$3.20 per unit. She wondered what effect this net realizable value would have on her inventory valuation.

¹ All dollar amounts are in Canadian dollars (CAD) unless otherwise indicated.

EXHIBIT 1: PURCHASE SCHEDULE²

Supplier	Date Shipped	Units Ordered	Gross Price per Unit (\$)	Date Delivered	Date Paid
Western	2019-07-05	10,000	3.15	2019-07-10	2019-07-17
Western	2020-04-27	8,000	3.24	N/A	N/A

Supplier	Date Shipped	Units Ordered	Gross Price per Unit (\$)	Date Delivered	Date Paid
Fry	2019-04-30	5,000	3.30	2019-05-03	2019-05-20
Fry	2020-04-15	4,000	3.50	N/A	N/A

Supplier	Date Shipped	Units Ordered	Gross Price per Unit (\$)	Date Delivered	Date Paid
Tapped	2019-09-06	2,000	3.00	2019-09-13	2019-09-14

Source: Created by the case authors.

² Dollar amounts are in Canadian dollars (CAD); purchases outside Canada were subject to an import duty of 6.5% calculated on the total invoice price.

BARRY'S BATTING CAGES LTD.

Karim Mashnuk wrote this case under the supervision of Elizabeth M.A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2013, Richard Ivey School of Business Foundation

Version: 2020-01-29

It was November 3, 2012, and Rachel Barry had just completed her third year of operations of Barry's Batting Cages Ltd. (BBC), a popular batting cage in London, Ontario (see Exhibit 1). Barry was in the process of organizing her company's financials over the previous year and had compiled the following information.

FIXED ASSETS

Land and Building

On November 1, 2009, Barry had purchased a plot of land and a building that was suitable for the batting cages. The building was purchased for \$312,000, on the same day as the land, and it had a life expectancy of 30 years and a residual value of \$31,000. The building was depreciated using the straight-line method.

Batting Cages

On the first day of operations BBC had also purchased five batting cages for \$11,500 total. The cages had a residual value of \$150 each and were depreciated using the straight-line method, with a useful life of five years. On June 8, 2012, three of the cages needed repairs in order to fix some holes in the mesh fencing. These repairs cost a total of \$400 cash and did not extend the useful life of the cages.

Pitching Machines

On the same day the building was bought, BBC purchased five pitching machines in cash at a price of \$5,000 each. Each pitching machine had a life of 800,000 balls, with a residual value of \$300 each. The pitching machines were depreciated using the units-of-output method. On August 31, 2012, three pitching machines were traded in for newer models. Up to that point in the year, all five machines had pitched 76,540 balls each. The new pitching machines cost \$6,500 per machine, and BBC received a trade-in allowance of \$3,000 for each of the old pitching machines. The new machines had an expected useful life of one million balls each, with no residual value. Between the trade-in and fiscal year end, the new machines had each pitched 15,271 balls, while the old machines each pitched 13,456 balls.

Token Machine

In order to pay for the use of the batting cages, customers had to purchase tokens at an automated kiosk. This kiosk was purchased on the first day of operations for \$21,000, and it carried a residual value of \$1,200. The kiosk was depreciated using the double-declining-balance method over seven years. At the end of the year, the recoverable amount of the token machine had dropped to \$5,000.

REQUIRED

Working asset by asset, post all necessary opening balances, transactions and adjusting entries for the period from November 1, 2011, to October 31, 2012.

Exhibit 1

PARTIAL STATEMENT OF FINANCIAL POSITION
As at October 31, 2011

Long-Lived Assets

Land		\$230,000
Building	\$312,000	
Less: Accumulated depreciation	<u>18,734</u>	293,266
Batting cages	11,500	
Less: Accumulated depreciation	<u>4,300</u>	7,200
Pitching machines ¹	25,000	
Less: Accumulated depreciation	<u>5,395</u>	19,605
Token machine	21,000	
Less: Accumulated depreciation	<u>10,286</u>	10,714
Total long-lived assets		<u><u>\$560,785</u></u>

¹ Up to this point in time, all pitching machines had pitched an equal number of balls.

WILSHIRE SPORTS IMPORTERS LTD.

Karim Mashnuk wrote this case under the supervision of Elizabeth M.A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2013, Ivey Business School Foundation

Version: 2024-02-27

It was January 9, 2011, and John Wilshire, sole shareholder and manager of Wilshire Sports Importers Ltd. (WSI), had just received the company's bank statement at his Toronto, Ontario, store. This statement was the last piece of information needed for Wilshire to analyze WSI's fiscal 2010 performance. WSI, a premier soccer cleat¹ retailer/wholesaler, had experienced tremendous growth since its incorporation on January 1, 2008, and Wilshire was anxious to know whether the company's recent store expansion to Oakville, Ontario, on January 1, 2010, had been as profitable as he had predicted.

With fiscal 2009's statement of financial position (see Exhibit 1) in hand, Wilshire was ready to sift through the past year's records and record all necessary financial transactions relevant to fiscal 2010.

SALES AND ACCOUNTS RECEIVABLE

At the retail level, WSI's customer base consisted primarily of soccer teams that played the sport at a very competitive level. WSI also sold cleats wholesale, solely on credit, in the Greater Toronto Area (GTA). WSI offered credit terms of 3/10, net 30 throughout fiscal 2010. WSI accepted cash, debit or bank credit cards as forms of payment for all other customers. WSI shipped all soccer cleats FOB² destination.

WSI's gross sales for fiscal 2010 totalled \$568,710, 12 per cent of which arose from sales to GTA retailers. Of those sales, 60 per cent were paid in time to receive the discount. From WSI's remaining sales, 23 per cent were paid in cash and 77 per cent were paid with debit or bank credit cards.

Wilshire's assistant also maintained a detailed list of information pertaining to WSI's customers (see Exhibit 2). As of December 31, 2010, \$38,413 was outstanding from accounts receivable. Based on comparable companies' credit policies, Wilshire decided to estimate his uncollectible accounts using 7 per cent of outstanding accounts receivable at fiscal year end.

¹ Soccer cleats are shoes worn by soccer players.

² Free on board.

INVENTORY PURCHASES

Prior to establishing WSI, Wilshire had worked at The Soccer Star (TSS), his family's soccer store, located in London, Ontario. During his time at TSS, Wilshire coordinated the sale of premier soccer equipment to retailers out of the province. Once WSI was incorporated, Wilshire sourced the majority of his inventory from his family's workshop; he benefited from a family discount of 7 per cent if payments were made within 30 days. The discount was calculated on each purchase's gross invoice price.

At WSI, Wilshire wanted to promote a broad selection of soccer cleats, and he therefore contracted Soccer City to supply WSI's store with a variety of premier soccer cleats not offered by TSS. Any orders from Soccer City, based out of California in the United States, incurred a duty of 6 per cent of the gross invoice price. Soccer City extended credit terms of 3/10, net 30 to WSI.

Soccer City shipped FOB destination, while TSS shipped FOB shipping point. A flat shipping charge of \$43 was paid per order arriving from TSS. In the event of a return, the gross invoice price plus all applicable duties were refunded.

On January 2, 2010, while unpacking the last of the December 30, 2009, shipment from TSS, Wilshire discovered that 30 pairs of cleats had suffered irreparable damage. The shipping company's insurance policy would compensate TSS for the damage, and it offered WSI a refund of the purchase price for the 30 pairs of damaged cleats and offered to cover the return shipping. Since Wilshire had yet to pay the bill, WSI's account was credited accordingly.

On December 29, 2010, WSI received a shipment of 400 pairs of cleats from TSS; however, 200 pairs of those cleats had been scratched and damaged during delivery. On the same day, Wilshire returned the 200 pairs for a reduction (equal to the purchase price of damaged cleats) in WSI's outstanding account. TSS offered to pay the return shipping cost. Wilshire had maintained a list of WSI's purchase details in Exhibit 3.

WSI used the periodic inventory system and valued its inventory using the First In, First Out (FIFO) method. According to the physical count of the company's inventory, on December 31, 2010, a total of 553 pairs of cleats remained on hand.

LONG-LIVED ASSETS

Company Van

WSI owned a small company van, which was used to transport orders to the retailers in the GTA. The company's van had been purchased upon incorporation at a price of \$45,000 and had a residual value of \$10,500. Wilshire had assigned a useful life of 100,000 kilometres to the vehicle. On February 4, 2010, the van refused to start and was towed to the mechanic. It was repaired and returned later that day at a cost of \$700 cash. The repair did not improve the efficiency or extend the useful life of the van. Wilshire decided to stop using the van and sold it on April 3, 2010, for \$26,895 cash. The van had been driven 7,500 kilometres for the fiscal period up to the point it was sold.

New Company Van

Wilshire purchased a new van on April 5, 2010, for \$51,000 cash. He assigned a residual value of \$14,500 and a useful life of 115,000 kilometres to the new van. The new van was driven 26,300 kilometres for the fiscal period. At fiscal year-end, the new van was found to have a recoverable amount of \$38,000.

Store Equipment

The company's cash register and point-of-sale equipment were purchased upon incorporation at a price of \$1,100. Wilshire estimated its useful life to be three years, with a residual value of \$150. The equipment for the Oakville store was purchased on December 28, 2009, and had cost WSI \$1,400. It had an estimated useful life of five years and a residual value of \$120. The store equipment was depreciated using the straight-line method.

Computer

WSI's computer, which was purchased upon incorporation, was depreciated using the diminishing-balance method. It had been assigned a useful life of three years and a residual value of \$335. On June 29, 2010, the old computer was traded for a new one that was originally priced at \$1,195 but was on sale for \$980. The new laptop was given a useful life of four years and a residual value of \$250, and it was depreciated using the same method as the old computer. The old computer was traded in at a value of \$70.

EXPENSES

WSI hired one van driver who was paid each Thursday for the previous week's work. WSI's van driver had worked a total of 1,300 hours in fiscal 2010 at a rate of \$15.25 per hour. As of December 31, 2010, the driver had not yet been paid for 30 of these hours.

Wilshire fulfilled the role of store manager and had always hired one sales clerk during the summer season (April to September) at the Toronto store. Wilshire hired a store manager on January 1, 2010, for the Oakville store. A sales clerk was also hired in the spring for the summer season at the Oakville store.

All store managers and sales clerks received a salary and were paid on the last day of the month for the entire month's work. Salaries for fiscal 2010 totalled \$133,680.

The insurance policy for the Toronto location expired on December 31, 2010, having been paid in full on January 1, 2009, for a two-year period. When the Oakville store opened, WSI required a second insurance policy. The premium at the Oakville store was the same as that of the Toronto store's insurance policy; however, WSI's insurance provider offered a 5 per cent discount on the second policy. Wilshire decided to purchase only a one-year policy so that both policies would expire simultaneously at the end of the fiscal period. Wilshire organized the direct withdrawal of payment funds from WSI's account; this withdrawal took place on January 1, 2010, and insured the Oakville store for a period of one year.

Remaining operating expenses, paid in cash, (including regular vehicle maintenance and gas, telephone and Internet, rent, utilities, cleaning services, bank service charges and various miscellaneous expenses) totalled \$172,755 for fiscal 2010. This included a \$1,850 deposit for the last month's rent that was required upon

signing the rental agreement for the Oakville store. Wilshire had signed a rental agreement on January 1, 2010, with the building owner and intended to stay throughout fiscal 2011.

Wilshire had compared the company's cash records with the recently received bank statement for the month of December and had identified several discrepancies.³ A cheque paid on December 3, 2010, to WSI's cleaning service had been entered as \$717 on the bank statement but had been erroneously recorded as \$771 on the company's books.

Outstanding cheques totalled \$5,312, while deposits in transit totalled \$4,122. Service charges and interest revenue for the month of December 2010 were \$33 and \$47, respectively. WSI made a principal repayment of \$9,000 toward the bank loan at the end of each fiscal year. The bank charged interest at a rate of 4.5 per cent per annum on WSI's opening bank loan balance for the year. Both the principal and interest payments appeared on December's bank statement.

Furthermore, during fiscal 2010, Wilshire began researching ways to create a more supportive shoe that had orthotic benefits, but did not compromise performance. By December 2010, he had spent \$680 and was certain further research would show promising results.

With all the information now collected, Wilshire was ready to assess the company's profitability. WSI paid a corporate tax rate of 20 per cent, payable in the month of June of the following year.

REQUIRED

Using a super-T, post all opening balances and record all transactions, adjusting and closing entries for Wilshire Sports Importers Ltd. for the year ending December 31, 2010.

³ SSL reconciled and adjusted the company's cash balance on a monthly basis; however, December's reconciliation had yet to be completed.

EXHIBIT 1: STATEMENT OF FINANCIAL POSITION
(As at December 31, 2009)

ASSETS

Current assets:

Cash		\$27,967
Accounts receivable	\$28,744	
Less: Allowance for doubtful accounts	<u>2,012</u>	26,732
Note receivable ¹		5,832
Interest receivable ¹		17
Inventory		35,713
Prepaid insurance		1,400
Prepaid rent ²		<u>2,305</u>
Total current assets		\$99,966
Long-lived assets:		
Store equipment	2,500	
Less: Accumulated depreciation	<u>633</u>	1,867
Van	45,000	
Less: Accumulated depreciation	<u>11,283</u>	33,717
Computer	890	
Less: Accumulated depreciation	<u>495</u>	<u>395</u>
Total long-lived assets		<u>35,979</u>
Total assets		<u>\$135,945</u>

LIABILITIES AND SHAREHOLDER'S EQUITY

Current Liabilities:

Unearned revenue		\$900
Wages payable		456
Accounts payable		31,180
Income tax payable		23,050
Current portion of bank loan		<u>9,000</u>
Total current liabilities		<u>64,586</u>
Long-term liabilities		
Bank loan		<u>25,000</u>
Total liabilities		<u>\$89,586</u>
Shareholder's equity		
Common stock		20,000
Retained earnings		<u>26,359</u>
Total shareholder's equity		<u>46,359</u>
Total liabilities and shareholder's equity		<u>\$135,945</u>

¹ On December 15, 2009, WSI converted Colts Cleats Ltd.'s total outstanding account to a 90-day, 7 per cent per annum note. There were no other outstanding notes.

² Represents last month's rent on the Toronto store's rental agreement. WSI intended to stay in this location throughout fiscal 2011.

EXHIBIT 2: SALES AND COLLECTION DETAILS

January 15, 2010	WSI packaged and delivered a special order to customer S. Patheja. Patheja paid \$900 by credit card for the order on December 16, 2009. ¹
February 3, 2010	Wilshire received a cheque in the mail from F. Woods, whose account had been written off in the previous fiscal year. The cheque was in full settlement of the \$1,890 account.
March 25, 2010	Colts Cleats Limited (CCL), a credit customer based in Barrie, Ontario, declared bankruptcy. Wilshire decided to write off the entire amount owing.
April 25, 2010	K. Porter called to complain that her purchase of two pairs of cleats had been delivered in the wrong colour. Since Porter had already settled her account, but had not received the discount, she returned the cleats for \$300 in cash.
August 13, 2010	Toronto retailer J. Martin phoned Wilshire to request that his outstanding balance of \$8,000 be converted to a 60-day note. Wilshire agreed to do so at an interest rate of 6 per cent per annum.
September 5, 2010	Law Firm K&P Associates sent a cheque on behalf of its bankrupt client, Colts Cleats Limited (CCL). CCL was able to pay only 30 cents of every dollar owed on the total outstanding amount.
October 13, 2010	J. Martin paid his account in full.
November 15, 2010	A. McIsaac delivered a \$5,160 cheque, which represented a deposit on his custom order. The order was scheduled to be delivered on January 3, 2011.
December 29, 2010	Wilshire informed A. McIsaac that the entire order would be delivered a week later than originally anticipated and offered him an 8 per cent discount upon delivery of the finished boxes.

¹ Not included in total sales for 2010.

EXHIBIT 3: PURCHASE SCHEDULE

Supplier	Date Shipped	Cleats (pairs)	Gross price per pair	Date Delivered	Date Paid
TSS	December 22, 2009	321	\$97.000	December 30, 2009	January 4, 2010
Soccer City	February 13, 2010	617	101.000	February 20, 2010	February 25, 2010
Soccer City	September 14, 2010	215	96.783	October 1, 2010	October 16, 2010
TSS	December 19, 2010	400	103.619	December 29, 2010	—

Note: Credit terms were applied from the date of ownership.

FOREST CITY TENNIS CLUB — PRO SHOP AND BAR LOUNGE

This case was written by Richard Mimick and revised by Lindsay Brock under the supervision of Elizabeth M.A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2009, Richard Ivey School of Business Foundation

Version: 2024-08-06

In the spring of 2023, John Radford retired as the tennis pro of the Forest City Tennis Club, an exclusive indoor/outdoor club in London, Ontario. A special committee of the board of directors was formed to find a replacement for the combined job of tennis pro and owner of the pro shop and bar lounge. Nine persons had applied for the position, but the board's first choice was Mike "The Racquet" Blair. His qualifications and experience were excellent, and the committee believed his reputation as the two-time Canadian amateur tennis champion would enhance the status and prestige of the club.

After learning of the job offer, Blair accepted immediately. He was excited about the opportunity to invest his hard-earned savings into a business he knew and loved. On July 1, 2023, Blair incorporated the pro shop and bar lounge area and deposited \$100,000 into the corporation's bank account in exchange for common shares. Also on that day, Blair purchased an inventory of racquets, balls, clothes, shoes and accessories (i.e. the pro shop inventory) valued at \$16,340, liquor inventory valued at \$13,660, \$11,000 worth of fixtures and \$4,000 for glassware. The business was to receive all sales from the pro shop and bar lounge and would pay part-time help to sell goods and serve drinks.

Blair was an immediate success. He was readily accepted by all the members and was regarded as an asset to the club. Much of his time was spent instructing individuals while the better players anxiously awaited an opportunity to strike up a match with Blair. Given his busy schedule, Blair did not keep a close watch on his accounting records. He did, however, attempt to keep an accurate cash record and decided not to worry about the rest until fiscal year-end.

On June 30, 2024, Blair began to examine his records and notes. His cash records revealed the following:

Receipts	
Pro shop sales	\$53,700
Match fees	22,650
Instruction (lesson) fees	45,600
Liquor sales	64,550
Other revenue	3,050
Total	\$189,550

Payments	
Rent of pro shop and lounge ¹	\$19,500
New lounge fixtures (purchased June 1, 2024)	8,400
Pro shop inventory ²	26,650
Liquor inventory ³	14,400
Salaries and wages	103,500
Total	\$172,450

Blair was sure his bank account was correct, but he did not know what else he should record. He went to Gary Davis, a local chartered accountant and club member, to ask for help.

Davis began by examining the chequebook, invoices and other records Blair had accumulated in a shoe box. He found two outstanding bills: one for additional lounge fixtures of \$4,200 (purchased on June 1, 2024) and a \$2,000 invoice for the purchase of pro shop inventory (purchased on June 18, 2024), due in 30 days.

On June 30, 2024, Blair had 11 racquets in the shop, waiting to be restrung. Although he had done no work on the racquets and had not collected any money from customers, his normal rate for restringing was \$175 per racquet, including materials.

The members purchased liquor “chit books” or vouchers in the pro shop for use in the bar lounge. Although chit book cash receipts of \$64,550 were noted, \$650 of the chits had not been used as of June 30. These amounts could be carried over to the following year.

The fixtures purchased on July 1, 2023, had an estimated useful life of five years, whereas, the new fixtures would last an estimated eight years. Due to frequent breakage, glassware had a much shorter useful life of two years. These assets would be depreciated using the straight-line method with no residual value.

During the year, Blair instructed 606 sets of lessons for \$100 per set. He had also played 155 matches with members, charging \$150 per match. Blair had not yet received payment for four of those matches. Davis felt that the social pressures among the club’s memberships would ensure full payment for all debts owed.

On June 30, 2024, Davis helped Blair take a physical inventory count and found that there was \$17,880 worth of pro shop inventory and \$11,920 worth of liquor inventory.

Income taxes were calculated at a rate of 30 per cent of net income before tax.

REQUIRED

1. Record all transactions, adjusting and closing entries in T-account form for the year ending June 30, 2024.
2. Prepare an income statement and a statement of financial position for the same time period.

¹ Blair was required to pay rent to the club in the amount of \$1,500 per month for use of the space.

² Does not include payment made on July 1, 2023, for initial pro shop inventory.

³ Does not include payment made on July 1, 2023, for initial liquor inventory.

SASKATOON COUNTRY SUPPLIES

Christopher J. Bridgnell prepared this case under the supervision of Richard H. Mimick solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

Richard Ivey School of Business Foundation prohibits any form of reproduction, storage or transmission without its written permission. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Richard Ivey School of Business Foundation, The University of Western Ontario, London, Ontario, Canada, N6A 3K7; phone (519) 661-3208; fax (519) 661-3882; e-mail cases@ivey.uwo.ca.

Copyright © 1986, Richard Ivey School of Business Foundation

Version: 2013-03-06

COMPANY BACKGROUND

Saskatoon Country Supplies (SCS) was a small farm, hardware, and household supply store located southeast of Saskatoon, Saskatchewan. The company was owned by Richard Smith, a young entrepreneur who owned and operated a number of different enterprises in southern and central Saskatchewan. SCS carried a complete line of products which would normally be required in the operation of small independent farms and in most country homes. A list of the products available included animal feed, crop seed, lawn equipment, garden tools, and small household appliances.

FINANCIAL ACCOUNTING SYSTEM

Richard Smith did not personally manage the day-to-day operation of SCS, preferring to concentrate his efforts on expanding his other business interests. The administrative duties were the responsibility of Jim Tykoliz, the firm's general manager. However, Smith was very careful to establish a financial accounting system which minimized the possibility of employee theft and fraud.

Customers were required to pay for their merchandise with either cash or personal cheques. All sales were recorded on an electronic cash register, with a locked-in recording tape. The total on the cash register tape was verified by Smith against the cash and cheques received. All cash and cheques were deposited twice weekly into the firm's bank account. A late-hours deposit box was used for Saturday's deposits. A list of the August bank deposits is presented in Exhibit 1.

All bills were paid twice monthly, on the first and fifteenth day of each month. Tykoliz maintained an accounts payable ledger and prepared all cheques for signing. Smith personally signed each cheque. A list of the cheques issued during August 2004 is shown in Exhibit 2.

Richard Smith employed a local bookkeeper, Nina Irwin, to prepare monthly financial statements for all his enterprises. A statement of financial position for SCS as of July 31, 2004, is presented in Exhibit 3.

BANK RECONCILIATION

At the end of each month, Tykoliz prepared a bank reconciliation for Saskatoon Country Supplies. As he prepared to complete the August 31 bank reconciliation, Tykoliz examined the August 2004 Bank Statement (Exhibit 4) and the July 31 bank reconciliation statement (Exhibit 5).

REQUIRED:

1. Prepare a bank reconciliation statement as of August 31, 2004.
2. Record, using journal entries, all correcting entries, and the related account types as a result of the bank reconciliation.
3. How much cash will appear on the August 31, 2004, balance sheet for Saskatoon Country Supplies?

Exhibit 1**BANK DEPOSITS**
For the month of August 2004

DAY	DATE	AMOUNT
Saturday	August 3	\$ 7,162.65
Wednesday	August 7	4,355.90
Saturday	August 10	7,735.62
Wednesday	August 14	6,565.76
Saturday	August 17	8,786.18
Wednesday	August 21	8,996.12
Saturday	August 24	10,010.86
Wednesday	August 28	7,224.45
Saturday	August 31	<u>11,939.01</u>
Total		<u>\$ 72,776.55</u>

Exhibit 2**CASH DISBURSEMENTS**
For the month of August 2004

DATE	CHEQUE NUMBER	PARTICULARS	AMOUNT
August 1	5216	Merchandise Payment	\$ 24,198.20
	5217	Newspaper Advertising	639.70
	5218	Wages, T. Ziegelstein	285.95
	5219	Wages, K. Crompton	306.12
	5220	Gasoline	280.35
	5221	Void	—
		Subtotal	<u>\$ 25,710.32</u>
August 15	5222	Merchandise Payment	\$ 28,362.84
	5223	Telephone	117.94
	5224	Truck Repairs	317.96
	5225	Wages, T. Ziegelstein	245.10
	5226	Wages, K. Crompton	262.39
	5227	Salaries, J. Tykoliz	1,880.15
	5228	Government Taxes	3,165.77
		Subtotal	<u>\$ 34,352.15</u>
		Total August Cash Disbursements	<u>\$ 60,062.47</u>

Exhibit 3**STATEMENT OF FINANCIAL POSITION
As at July 31, 2004****ASSETS**

Current Assets:

Cash	\$ 14,354
Inventory	289,993
Prepaid Expenses	<u>15,153</u>

\$ 319,500

Long-lived Assets:

Land	\$ 24,180
Vehicles and Equipment	\$ 38,797
Less: Accumulated Depreciation	<u>18,030</u>
Buildings	\$ 85,191
Less: Accumulated Depreciation	<u>24,368</u>

\$ 20,767

60,823

105,770

\$ 425,270

Total Assets

LIABILITIES AND SHAREHOLDER'S EQUITY

Current Liabilities:

Bank Loan	\$ 165,500
Accounts Payable	33,698
Mortgage, Current Portion	<u>9,000</u>

\$ 208,198

Mortgage

43,250

Total Liabilities

\$ 251,448

Shareholder's Equity:

Common Stock	30,000
Retained Earnings	<u>143,822</u>
Total Shareholder's Equity	<u>\$ 173,822</u>

\$ 173,822

Total Liabilities and Shareholder's Equity

\$ 425,270

Exhibit 4

BANK STATEMENT
For the month of August 2004

DATE	DESCRIPTION	DEBIT	CREDIT	BALANCE
01	Balance Forward			4,791.89
01	Deposit		9981.31	14,773.20
02	Cheque #5219	306.12		14,467.08
06	Deposit		7,162.65	21,629.73
06	Cheque #5217	639.70		20,990.03
06	Cheque #5218	285.95		20,704.08
07	Deposit		4,355.90	25,059.98
12	Deposit		7,735.62	32,795.60
12	Cheque #5220	280.35		32,515.25
12	Cheque #5216	24,198.20		8,317.05
14	Deposit		6,565.76	14,882.81
15	Debit Memo, Mortgage Interest Payment	612.50		14,270.31
15	Debit Memo, Mortgage Principal Payment	750.00		13,520.31
19	Deposit		8,786.18	22,306.49
19	Cheque #5227	1,880.15		20,426.34
19	Debit Memo, NSF Cheque (Bill Jack)	76.76		20,349.58
19	Cheque #5225	245.10		20,104.48
20	Debit Memo, Service Charge	18.00		20,086.48
21	Cheque #5224	317.96		19,768.52
21	Deposit		8,996.12	28,764.64
23	Cheque #5222	28,362.84		401.80
23	Cheque #5226	262.39		139.41
26	Deposit		10,010.86	10,150.27
28	Deposit		7,224.45	17,374.72
30	Credit Memo, Interest		49.32	17,424.04

Exhibit 5**BANK RECONCILIATION STATEMENT
As at July 31, 2004**

Balance per Records:

June 30, 2004	\$536.22
Add: Cash Receipts	73,396.51
	<hr/>
Less: Cash Disbursements	\$73,932.73
July 31, 2004	58,211.59
	<hr/>
Add: Credit Memo, Interest Earned	\$15,711.14
	<hr/>
	32.28
	<hr/>
	\$15,743.42
	<hr/>
Less: Debit Memos, Mortgage Principal Payment	\$750.00
Debit Memos, Mortgage Interest Payment	621.42
Debit Memos, Service Charge	18.00
	<hr/>
Adjusted Balance	1,389.42
	<hr/>
	\$14,354.00

Balance per Bank:

Bank Statement Balance, July 31, 2004	\$4,791.89
Add: Late Deposit	9,981.31
	<hr/>
	\$14,773.20
	<hr/>
Less: Outstanding Cheque #5210	419.20
Adjusted Balance	<hr/>
	\$14,354.00

MR. FASTBALL

Scott P. Griffith prepared this case under the supervision of John F. Graham solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 1993, Richard Ivey School of Business Foundation

Version: 2022-05-17

Mr. Fastball was the lone supplier of automatic baseball pitching machines to amusement parks, baseball enthusiasts, and minor league baseball organizations in the North American prairies. On November 2, 2002, Wilson Martinez, sole shareholder of the firm, was looking over his records to determine how his new lenient credit policy had affected his bad debt account over the past fiscal year ending October 31, 2002.

The firm was known for its excellent delivery policy (FOB destination), a reliable product and incredible prices of \$1,400 to \$2,300 which Wilson was able to offer because of the firm's low overhead. However, because of the economic downswing early in the new millennium, Wilson thought that he had to offer more attractive credit terms to generate additional sales. Previously, in order to avoid the hassles of credit, Martinez had offered a five per cent discount on all cash sales (which according to company policy had always been recorded as a sales discount), along with credit terms of 1/10 n/30. His terms for this past fiscal year were: five per cent discount on cash sales and credit terms of 3/10 n/60. The credit policy paid off since Wilson sold a record 305 machines totalling \$610,600 in gross sales. Seventy per cent of these sales were on credit. Of the credit sales, 30 per cent of the accounts were paid in time to receive the discount. All transactions were in Canadian dollars.

Wilson collected his files which included a partial balance sheet from fiscal 2001 (see Exhibit 1) and a detailed listing of all unusual credit transactions (see Exhibit 2). His tally of total cash collected from all accounts receivable amounted to \$391,583 for fiscal 2002.

Martinez used six per cent of outstanding accounts receivable when estimating bad debts (due to Mr. Fastball's seasonal nature and increased reliance on credit terms as a sales generator). He also figured out that by extending his payment terms from 30 days to 60 days, he lost approximately \$2,300 in potential interest had he had the money available for investment purposes.

REQUIRED:

- a. Record all opening balances, necessary transactions and adjusting entries for the year ending October 31, 2002.
- b. What is Mr. Fastball's bad debt expense and net realizable value of accounts receivable for the year ending October 31, 2002?

Exhibit 1**PARTIAL BALANCE SHEET
For the Fiscal Year Ending October 31, 2001**

Accounts Receivable	\$11,200
Less: Allowance for Doubtful Accounts	641
Net Accounts Receivable	<hr/> \$10,559
Note Receivable ¹	1,600
Interest Receivable (on Note Receivable above)	32

¹ Represents a 90-day, 12 per cent per annum note from the Brandon Baseball League. Converted from an outstanding account receivable on August 31, 2001. Set to mature November 30, 2001.

Exhibit 2**DETAILED LIST OF UNUSUAL CREDIT TRANSACTIONS
Fiscal 2002**

- NOVEMBER 30, 2001** The Brandon Baseball League's bingo night was a success. They paid their debt in full.
- DECEMBER 19, 2001** Splashland of Winnipeg unexpectedly paid a \$4,200 bill that had been written off last year.
- JUNE 2, 2002** Received a letter from Saskatoon-based amusement centre, Fun N'Sun, claiming they would be unable to pay any of their \$3,700 account. Firm had pulled similar delaying tactics in the past — but they had always paid. Martinez decided not to write off the account.
- JUNE 12, 2002** Received letter and a \$1,030 cheque from the Chicago-based liquidating firm of Jeffries, Ashford and Washington stating that Westside Golf of Lethbridge, Alberta, had declared bankruptcy. Unsecured creditors were paid 25¢ on the dollar and Martinez wrote off the remaining account.
- JUNE 20, 2002** Received desperate phone call from Southside Baseball Club of Regina who needed more time to pay their \$2,000 bill due to a cash crunch. Agreed to switch the account to a 12 per cent per annum, 90-day note.
- AUGUST 6, 2002** Received a \$3,700 cheque from Fun N' Sun.
- AUGUST 10, 2002** Did not receive a \$1,400 payment from Monde d'Eau of St. Boniface. Notices had been marked "return to sender". Decided to write-off the account.
- SEPTEMBER 20, 2002** Checked the mail and noticed Southside Baseball Club had missed today's 90-day note deadline.
- SEPTEMBER 30, 2002** Tried to call the president of Southside Baseball Club since no payment had been received. Found out that an internal scandal left the organization bereft of funds. Had to write off the entire amount owing against the allowance for doubtful accounts.
- OCTOBER 31, 2002** Received a letter of apology from Monde d'Eau explaining that they had been busy with their relocation project, and completely forgot about their bill. Enclosed was a cheque for \$1,700 which included \$1,400 to clear the account, and (as a sign of good faith) a \$300 prepayment for the \$2,300 Deluxe Curveball model. This \$300 was not included in the gross sales figure as the model had not yet been shipped.

PACIFIC RESTAURANT SUPPLY LTD.

Christopher J. Bridgnell wrote this case under the supervision of Richard H. Mimick solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 1985, Richard Ivey School of Business Foundation

Version: 2015-06-23

Pacific Restaurant Supply Ltd. was a restaurant supply company located in Vancouver, British Columbia. The company was formed in the mid-1990s by Anita Holt, and experienced considerable growth during its early years of operation. Pacific Restaurant Supply Ltd. carried all the necessary furnishings, equipment, utensils, and supplies that restaurants normally required. The majority of sales were made on credit, except for lower-priced items which were usually paid for in cash. Payment terms for all credit sales were 2/10, n/30.¹ Holt totalled the cash sales monthly, maintained a periodic inventory system and prepared monthly financial statements.

Selected account balances from the March 31, 2014, balance sheet were as follows:

Accounts Receivable	\$ 7,213
Inventory	30,110
Accounts Payable	2,605

The following transactions, among others, occurred during April 2014:

- APRIL 1** Sold merchandise on credit to Dennis's Big Boy Restaurant for \$5,644.
- APRIL 2** Ordered from Baines Distributors, located in Victoria, BC, merchandise costing \$12,900. Terms of sale were 10 EOM, FOB Vancouver.
- APRIL 3** Dennis's Big Boy Restaurant returned a bun warmer it had purchased on credit for \$189. Dennis's decided that the equipment was not needed. Holt reduced the amount accordingly.
- APRIL 4** Received payment from Neighbors Chicken and Ribs. Neighbors had purchased a chicken rotisserie oven for \$4,785 on March 26, 2014.
- APRIL 5** Baines Distributors telephoned to confirm that the shipment had left earlier that day.

¹ All discounts were calculated on the invoice price net of returns and allowances.

- APRIL 8** Larry Leroux, owner of a recently opened oceanside bistro, purchased various kitchen supplies and utensils amounting to \$895. Because the purchase was Leroux's third since January, Holt allowed him to purchase the goods on credit. Holt calculated that the cost of the goods sold to Leroux was \$567.
- APRIL 9** Received goods from Baines Distributors ordered April 2.
- APRIL 10** A freezer, costing \$690, from the April 2 order, was damaged and, therefore, had to be returned. Baines Distributors reduced Pacific's account accordingly.
- APRIL 12** Paid Cope Cutlery Company \$2,605 for a purchase made on March 14, 2014, with credit terms of 1/15, n/30.
- APRIL 15** Received payment from Leroux for goods sold on April 8.
- APRIL 16** Five natural gas-powered charcoal broilers, ordered from Armstead, Dodd and Nesbitt, were shipped FOB shipping point. Total cost was \$2,840, with credit terms of 4/10, n/60 and shipping charges were an additional \$76. Holt remembered that she always took the generous discounts offered by Armstead, Dodd and Nesbitt.
- APRIL 18** Received goods from Armstead, Dodd and Nesbitt.
- APRIL 22** Sweeney Seafood purchased on credit a refrigerated display counter listing for \$690.
- APRIL 23** Holt received a call from Sweeney Seafood saying the front of the unit was scratched. Rather than return the unit Sweeney Seafood accepted a \$65 account reduction.
- APRIL 24** Issued a cheque to Armstead, Dodd and Nesbitt for the charcoal broilers and shipping charges.
- APRIL 25** Dennis's Big Boy Restaurant forwarded \$1,800 in partial payment of its outstanding account. The remainder was promised to be paid in May.
- APRIL 29** Received cheque from Sweeney Seafood as payment for refrigerated display counter.
- APRIL 30** Cash sales for the month amounted to \$3,890.

The physical inventory count after the close of business on April 30, 2014, revealed that the total cost of goods on hand was \$39,133.

REQUIRED

1. Record, using a super-T, all opening balances, transactions and adjusting entries relating to merchandise activities for the month ending April 30, 2014.
2. Determine the ending balance in accounts receivable and accounts payable.
3. Prepare the revenue and cost of goods sold sections as they would appear on the income statement for the month ending April 30, 2014.

UP-IN-SMOKE CORPORATION

Joanne Lansink prepared this case under the supervision of Elizabeth M.A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveycases.com.

Copyright © 1999, Richard Ivey School of Business Foundation

Version: 2021-01-20

John Henry prided himself on the knowledge that he offered the best quality and selection of cigars in all of Southwestern Ontario. Since his shop had opened in London, Up-In-Smoke Corporation had been both profitable and enjoyable. Henry attributed a great deal of his success to his suppliers.

Henry dealt solely with three suppliers (see Exhibit 1 for purchase invoices, and Exhibit 2 for payment schedule). Two suppliers were located in the United States, one in Florida and one in San Francisco. The third supplier was located in Tillsonburg, Ontario. These three suppliers allowed Up-In-Smoke Corporation to offer an exotic selection, including home-grown products. Each supplier offered a variety of well known cigar brands from which to order. Purchases outside of Canada were subject to an import duty calculated on the total invoice price. As of the beginning of the year, duty was nine per cent.

Up-In-Smoke Corporation used an independent transportation company to handle shipments, with all orders guaranteed to reach Henry within 10 days of shipment. Transportation charges were based on a per box price of \$0.53.

The troubles Henry had encountered since opening his own business he considered minor, except for the more serious issue of theft for which he had yet to find a solution.

It was January 4, 2006, and Henry was anxious to compile his financial results for his 2005 fiscal year. In particular, he wondered about his cigar inventory, since it made up the bulk of his sales. A physical count on December 31, 2005, revealed 2,608 cigars on hand (Exhibit 3). While John remembered he started the year with 2,875 cigars valued at a total cost of \$47,438, sales records indicated Up-In-Smoke Corporation had sold 6,520 cigars during the year. With all the necessary information at hand, John was excited to see his results.

REQUIRED

1. Post all opening balances and inventory related transactions to T-accounts for fiscal 2005
2. Calculate the total cost of each purchase to the nearest dollar and the cost per cigar of each purchase to three decimals.
3. Determine the cost of goods available for sale, the ending inventory, and the cost of goods sold for the cigar inventory using the specific identification inventory valuation method.
4. Determine the number of stolen cigars for fiscal 2005.
5. At the end of fiscal 2005, the net realizable value of Henry's cigars was \$18. He wondered what effect this would have on his inventory valuation.

Exhibit 1

PURCHASE INVOICE SUMMARIES¹

Florida Cigars				
Invoice #	Price Per Box(\$)	Boxes Ordered	Date Shipped (Month/Day/Year)	Date Arrived (Month/Day/Year)
1001	375.00	52	01/05/05	01/14/05
1002	422.00	66	12/27/05	In transit
Total Invoice	47,352.00			
Shipping Terms	FOB Florida			
Credit Terms	5 E.O.M.			

G. Burns Co. San Francisco, U.S.A.				
Invoice #	Price Per Box (\$)	Boxes Ordered	Date Shipped (Month/Day/Year)	Date Arrived (Month/Day/Year)
2003	455.00	64	09/21/05	09/28/05 ²
Total Invoice	29,120.00			
Shipping Terms	FOB San Francisco			
Credit Terms	3/10, net 60			

Tillsonburg Smoke Ltd.				
Invoice #	Price Per Box (\$)	Boxes Ordered	Date Shipped (Month/Day/Year)	Date Arrived (Month/Day/Year)
3004	415.00	67	04/17/05	04/20/05
3005	390.00	74	06/15/05	06/19/05
3006	408.00	57	12/24/05	In transit
Total Invoice	79,921.00			
Shipping Terms	FOB London			
Credit Terms	2/8, net 30			

¹ All boxes contained 25 cigars, and invoice costs did not include any applicable duty.

² Upon receiving the September 21 order, it was realized five boxes had not been sealed properly by the manufacturer. Burns agreed to credit Henry's account for these boxes, and to refund any applicable duty charged on the purchase price of the returned boxes. The supplier also covered return shipping costs.

Exhibit 2**PAYMENT SCHEDULE**

Invoice #	Date of Payment (Month/Day/Year)
1001	01/15/05
1002	Not yet paid
3004	04/27/05
3005	06/29/05
3006	Not yet paid
2003	09/30/05

NOTES

- Credit terms were calculated from the date of ownership.
- All invoices were quoted and paid in Canadian dollars.
- The company used the periodic inventory method.
- The duty rate increased to 12 per cent for all orders placed after May 1, 2005.

Exhibit 3**PHYSICAL INVENTORY COUNT
as at December 31, 2005**

Invoice #	Units on Hand
1001	440
3005	929
2003	1,239

BIRD'S EYE VIEW LTD.

Alexander (A.J.) Miller wrote this case under the supervision of Elizabeth M.A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2013, Ivey Business School Foundation

Version: 2020-05-21

Macarthur Graham was a retired military pilot who had established Bird's Eye View Ltd., an aerial touring company that flew over the Niagara Escarpment (see Exhibit 1). Graham had just completed his ninth fiscal year of operations (ending August 31, 2012), and needed to account for all the long-lived asset transactions that had occurred during the past fiscal year.

HOT AIR BALLOON

For the past eight years, Graham had offered tours from his hot air balloon, which he had purchased for \$120,000 when he opened his business. The hot air balloon had an estimated useful life of 10 years and a residual value of \$15,000, and it was depreciated using the declining-balance method.

Graham had enjoyed the balloon rides as part of his retirement activities, but he had also been working on obtaining a helicopter pilot's licence. He had noticed that helicopter rides, in general, were more popular, and he thought the heated cabin in the helicopter would contribute to more stable sales year-round. For this reason, on February 2, 2012, he traded in his hot air balloon towards the purchase of a helicopter.

HELICOPTER

The cost of a used helicopter was still significantly more than that of the hot air balloon. Jeff Meyers, a retiring contract delivery provider for a mining operation, agreed to sell his helicopter to Graham for a price of \$840,000 in exchange for the hot air balloon and \$800,000 cash. The helicopter had 2,000 flight hours of life remaining and no residual value. Graham used the helicopter for 40 hours during the remainder of the year.

STORAGE FACILITY

On September 1, 2011, Graham negotiated to purchase the storage facility he had been renting previously for \$86,000 cash. The facility would be depreciated using the straight-line method and had an expected useful life of 20 years, with an estimated residual value of \$25,200. At the end of fiscal 2012, the building had a recoverable amount of \$78,600.

BUS

Graham had also purchased a used bus to transport people from Owen Sound to the air strip, since the Niagara Escarpment was a popular vacation spot for Owen Sound residents. The bus was purchased for \$70,000 on September 1, 2008, and had an estimated residual value of \$5,000 and a useful life of four years. Graham used the double-diminishing-balance method to depreciate the bus.

RESEARCH AND DEVELOPMENT

In anticipation of possibly purchasing a helicopter, Graham had commissioned a family friend to design a camera that he could mount on the bottom of the chopper. Graham envisioned this camera being controllable from a tablet, which customers could use to take pictures during the flight. Graham could then sell the pictures to the customers after the flight concluded. In addition, Graham thought he could sell the design for the camera and produce more units to sell to fellow pilots in other regions.

He paid the designer \$500 per month to work on the project, starting January 5, 2012. On July 3, 2012, Graham received a call from the designer saying that he had solved the majority of the preliminary research problems and the two decided to start development. They determined that these costs met the criteria for development costs under IFRS. The part-time designer estimated that development would not be completed until sometime next fiscal year.

REQUIRED:

As Macarthur Graham, working asset by asset, post all required transactions for the fiscal year ending August 31, 2012.

Exhibit 1**PARTIAL STATEMENT OF FINANCIAL POSITION
As at August 31, 2011****Long-Lived Assets**

Hot air balloon	\$120,000	
Less: Accumulated depreciation	<u>68,344</u>	51,656
Bus	70,000	
Less: Accumulated depreciation	<u>61,250</u>	8,750
Total long-lived assets		<u><u>\$60,406</u></u>

ENERGY VENDING, INC.

Lindsay Brock wrote this case under the supervision of Elizabeth M.A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca.

Copyright © 2009, Richard Ivey School of Business Foundation

Version: 2024-07-15

With a personal investment of \$300,000, Meredith Parent incorporated Energy Vending, Inc. (Energy) in Windsor, Ontario, on September 1, 2006, out of frustration with vending operations that sold only high-calorie, high-fat and high-carbohydrate foods. After some preliminary research, Parent learned of a U.S. company selling a low-calorie, energy-boosting, individually wrapped snack called “Vigor” that had growing U.S. sales. Parent decided to import and sell this product through vending machines placed in malls, on university and high-school campuses and in fitness facilities. With Energy’s first-year balance sheet in hand (see Exhibit 1), Parent was anxious to record all activities for the 2008 fiscal year to determine Energy’s financial success.

SALES AND ACCOUNTS RECEIVABLE

By the end of fiscal 2008, Energy had 310 vending machines in operation across Canada. Cash sales generated from these machines totalled \$1,584,307. For the more remote Canadian locations, Energy resold its snacks at wholesale prices on credit to local vending machine operators. These sales totalled \$285,380 in fiscal 2008. In fiscal 2008, Parent had also introduced new discount terms of 2/20, net 60 to encourage earlier payment of credit accounts. Credit customers had responded positively, with 40 per cent taking advantage of the new discount terms. Details regarding sales and collections are provided in Exhibit 2.

INVENTORY PURCHASES

Energy’s purchase schedule for fiscal 2008 is given in Exhibit 3. All imported goods were subject to a six per cent duty. Duty was charged on the gross invoice price. Energy’s U.S. supplier, Livelier Inc., located in Dallas, Texas, shipped FOB Dallas. Livelier offered credit terms of 4/10, net 60. Discount periods became effective on the date of ownership, and all discounts were calculated on the gross invoice price. In the case of returned goods, Livelier refunded (or credited) Energy for the gross invoice price and duty, and paid for return shipping. Shipping, when necessary, was done by a third-party company that charged \$1.80 per box.¹ A box contained 200 individual Vigor packages.

¹ The shipping company always billed based on the actual amount shipped.

Only one shipment, which arrived on April 18, 2008, was unsatisfactory. Livelier had short-shipped² Energy by 10,000 units, but Energy had paid the outstanding bills pertaining to the order before the missing goods were discovered. Energy and Livelier agreed to treat the short-shipment as a purchase return.

LONG-LIVED ASSETS

On the first day of operations, Parent had purchased a building for warehousing and office functions. The building had cost \$310,000 and was paid for with \$100,000 cash and a \$210,000 mortgage (payment terms of the mortgage are discussed later). The building was depreciated using the straight-line method, had a useful life of 20 years and a residual value of \$25,000.

Sales of Vigor were made through customized vending machines that were owned and operated by Energy. Energy opened operations with 150 machines, costing a total of \$198,750. Minor repairs were made to 10 of the original machines on January 2, 2008. These repairs totalled \$950 and were paid for with cash. Another 160 machines were put into operation on February 1, 2008. Energy had paid \$1,300 cash for each new machine, not including transportation and installation charges of \$125 per machine, which were also paid for with cash. All machines were depreciated using the declining-balance method. The useful life of each machine was expected to be eight years, with an estimated residual value of \$90 each.

The office equipment listed on the balance sheet consisted of a computer, printer, photocopier and desks and chairs. The photocopier had originally cost \$1,500, was expected to last four years, and had an expected residual value of \$100. It was depreciated using the units-of-output method. It was estimated that the photocopier would produce 12,000 copies over its lifetime. In total, it had made 5,750 copies, of which 3,750 copies had been made in the current fiscal year. Parent decided to trade in the photocopier for a new one on July 1, 2008. The new colour photocopier had a list price of \$1,700. Parent had negotiated with the dealer to accept \$1,000 cash and the old photocopier. The new photocopier would produce 14,000 copies over its lifetime, have the same residual value and useful life (in years) as the old photocopier, and was used for two months (representing 400 copies) in fiscal 2008. Parent thought that tracking the number of copies made was taking more time than was material to her financial statements, so she decided to depreciate the new photocopier using the straight-line-depreciation method.

SELLING AND ADMINISTRATION

Energy employed one full-time salesperson, 10 part-time vending machine operators, and a secretary/bookkeeper. The salesperson was required to travel across Canada to generate and evaluate new locations for Energy's vending machines. The salesperson earned \$54,000 in fiscal 2008, \$3,000 more than in fiscal 2007, and was paid monthly on the first day of the month for the previous month's work.

The vending machine operators serviced the vending machines, which included restocking them, emptying the change container and making minor repairs. Operators were paid \$1,000 each per month on the first day of the month for the previous month's work.

A secretary/bookkeeper earned \$40,000 annually. Parent's salary for fiscal 2008 totalled \$120,000. These salaries were paid on the last day of the month for work performed that month.

² Short-shipping refers to sending fewer products than were ordered.

MISCELLANEOUS

Other fiscal 2008 costs relating to the business, paid for in cash, were telephone \$540, Internet \$980, office supplies \$330 and promotion \$500.

LOANS

The bank loan was the only long-term liability outstanding, and it had been obtained to finance the building purchase. The company paid \$12,000 a year against the principal of the loan. The bank automatically deducted this payment and the related interest expense at the end of each month (see Exhibit 4 for the fiscal 2008 bank reconciliation).

INVENTORIES AND OTHER INFORMATION

A physical count at fiscal year-end revealed that Energy had \$40 remaining in office supplies on August 31, 2008. Parent had also counted 452 boxes in the warehouse on August 31, 2008. Energy used the FIFO method to value its inventory.

Parent estimated that four per cent of the outstanding accounts receivable would be uncollectible in fiscal 2009.

REQUIRED

Record all necessary transactions, including adjusting and closing entries, for the fiscal year ending August 31, 2008. Assume a 30 per cent tax rate. Prepare a statement of financial position and an income statement sheet for fiscal 2008.

Exhibit 1**STATEMENT OF FINANCIAL POSITION
As at August 31, 2007****ASSETS****Current assets:**

Cash	\$24,000
Accounts receivable	\$32,500
Less: Allowance for doubtful accounts	<u>(1,300)</u>
Net accounts receivable	31,200
Inventory	<u>70,883</u>
Total current assets	\$126,083

Long-lived assets:

Building	310,000
Less: Accumulated depreciation	<u>(14,250)</u>
Vending machines	198,750
Less: Accumulated depreciation	<u>(24,844)</u>
Office equipment ¹	18,000
Less: Accumulated depreciation	<u>(1,883)</u>
Total long-lived assets	<u>485,773</u>
Total assets	<u>\$611,856</u>

LIABILITIES AND SHAREHOLDER'S EQUITY**Current liabilities:**

Salaries payable	\$14,250
Current portion of bank loan	<u>12,000</u>
Total current liabilities	\$26,250
Bank loan	\$186,000
Total liabilities	\$212,250

Shareholder's equity:

Common stock	300,000
Retained earnings	<u>99,606</u>
Total shareholder's equity	<u>399,606</u>
Total liabilities and shareholder's equity	<u>\$611,856</u>

¹ Unless otherwise noted, office equipment was depreciated using the straight-line method over 10 years assuming no residual value.

Exhibit 2**SALES AND COLLECTIONS DETAILS****SEPTEMBER 29, 2007**

Payment from MacLeod Vending for a \$2,050 purchase made on June 9, 2007, had not been received. Parent decided to write off the account.

NOVEMBER 15, 2007

A call from Jumbo Retail was received explaining that theft of several of its vending machines had caused a significant cash-flow problem. Jumbo asked for more time to pay its \$1,200 account. Parent agreed to convert the account into a 90-day, six per cent per annum note.

JANUARY 1, 2008

Parent was able to recover 40 per cent of an \$8,000 account that was written off on July 1, 2007. No further payments were expected.

FEBRUARY 15, 2008

Full payment was received from Jumbo Retail for the note outstanding.

MAY 2, 2008

A total of \$140 was refunded to cash-paying customers who had reported malfunctioning vending machines in the last six months.

JUNE 17, 2008

A letter and cheque from Bates Law was received, explaining that Health Snacks Limited had declared bankruptcy. The cheque for \$475 represented 20 per cent of the account owing, and Parent wrote off the remaining amount.

JULY 31, 2008

A \$6,020 account receivable was converted to a 60-day note with a five per cent per annum interest rate.

AUGUST 20, 2008

A \$2,100 return (net of discount) from Rory's Vending, resulting from slow sales, was accepted. Rory's had originally purchased the goods on account and had paid in time to receive the discount. Parent immediately wrote Rory's a cheque for this amount.

AUGUST 24, 2008

GG Services was notified that it had overpaid its account. GG had paid \$7,500 for a \$5,700 account outstanding, but did not qualify for the discount. GG agreed to apply the overpayment to its next purchase, which would not be made until October 2008.

Cash collections from accounts receivable, including the above items, totalled \$269,432 for fiscal 2008.

Exhibit 3**PURCHASE SCHEDULE**

Date shipped (m/d/yyyy)	Date arrived (m/d/yyyy)	Date paid (m/d/yyyy)	Gross invoice price per unit	Number of units ordered
9/2/2007	9/7/2007	9/19/2007	\$0.65	275,000
1/9/2008	1/13/2008	1/16/2008	\$0.66	613,000
4/13/2008 ¹	4/19/2008	4/22/2008	\$0.52	300,000
4/15/2008	4/18/2008	6/12/2008	\$0.67	200,000
8/28/2008	In transit	Not yet paid	\$0.67	105,000

¹ This shipment came from a new Canadian supplier of Vigor. Credit terms were 5 EOM. This supplier also agreed to ship FOB destination, and no duty would apply to the order.

Exhibit 4**BANK RECONCILIATION
For the year ending August 31, 2008**

Balance per company records, September 1, 2007	\$24,000
Add: Cash receipts	\$1,856,757
Less: Cash disbursements	<u>(1,471,077)</u>
	<u>385,680</u>
Unadjusted cash balance per company records, August 31, 2008	409,680
Add: Interest earned	1,050
Less: Service charges	(180)
Loan repayment	(18,540)
NSF ¹	(122)
Error (cheque #189) ²	<u>(43)</u>
	<u>(18,885)</u>
Adjusted cash balance per company records, August 31, 2008	<u>\$391,845</u>
Balance per bank records, August 31, 2008	\$388,911
Add: Deposits in transit	8,563
Less: Outstanding cheques	
Cheque #193	\$ (3,211)
Cheque #195	<u>(2,418)</u>
	<u>(5,629)</u>
Adjusted balance per bank, August 31, 2008	<u>\$391,845</u>

¹ It was Energy Vending's policy to charge the customer for NSF fees.

² Cheque #189 was the payment for November's telephone bill, but the amount was recorded incorrectly.

ACCOUNTING FOR MANUFACTURING ACTIVITIES

Mark Heisz wrote this case under the supervision of Richard H. Mimick solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 1983, Richard Ivey School of Business Foundation

Version: 2020-01-30

Accounting for the operations of a manufacturing business, specifically in regard to accounting for inventories, is more complex than for other types of businesses. Since manufacturing businesses engage in several activities that merchandising and service businesses do not perform, the accounting system for a manufacturing firm must be modified and expanded in order to efficiently capture and record these additional activities.

THE MANUFACTURING OPERATION

A manufacturing firm processes raw materials in order to produce finished goods, which are then sold. In transforming raw materials, the firm incurs many costs associated with the processing, such as the cost of employing workers, the cost of renting a factory, the cost of operating machinery, etc. All costs which relate to the production of the finished goods must in some way be accommodated by the accounting system. In determining how to handle these costs, the matching principle of accrual accounting is observed: **those costs which are associated with the production of goods are expensed only during the period in which the goods generate sales revenue.** Consequently, the accounting system for a manufacturing operation initially classifies all costs associated with the production of goods as a future-oriented application of funds (i.e., as an asset). These costs then pass from a future-oriented application to a past-oriented application when the goods are sold (i.e., the asset becomes an expense).

The concept of treating expenditures as assets and expensing them when they are consumed is not new. The same process takes place in accounting for the inventories in a merchandising business; however, the additional complexity arises from the fact that in a manufacturing operation, many costs are incurred in **converting** the inventory to a finished state. The costs associated with the conversion are attached to the inventory so that all production costs are included in the cost of the finished products. Consequently, as the inventory **changes physically** by being **processed**, the cost of that inventory increases to reflect the **value added** by processing the goods. In contrast, a merchandising business does not add any value to the goods it holds in inventory and, therefore, only accumulates the laid-down cost associated with purchasing its inventories and transporting them to the point of sale.

ACCOUNTING FOR INVENTORIES IN A MANUFACTURING BUSINESS

The approach that has been developed to account for inventories in a manufacturing business centers around the physical state of the goods. The goods may be completely processed, partially processed or completely unprocessed. The accounting system, therefore, uses three separate inventory accounts based on the degree of processing. Completely processed goods are termed “finished-goods inventory”, partially processed goods are called “goods in process” or “work-in-process inventory”, and unprocessed goods are labelled “raw materials inventory”. These three inventory accounts provide the foundation for the accounting system used in accounting for manufacturing activities.

The Flow-Through Concept

In accounting for manufacturing operations, the accounting system achieves two goals:

1. All costs associated with the production of the goods are included in the cost of those goods (i.e., in the inventory accounts), and expensed only when the goods are sold. This is the matching principle of accrual accounting.
2. Fair and accurate inventory valuations are provided for all three types of inventory based on the cost principle of accrual accounting.

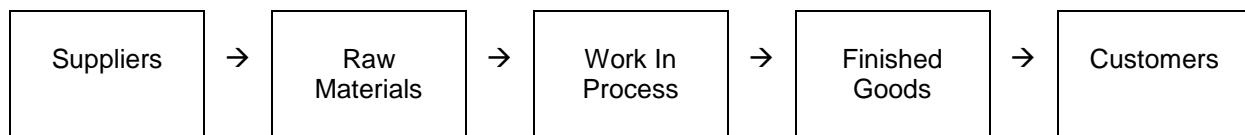
These two goals are achieved by organizing the accounting data effectively and using the “flow-through concept” in transferring costs among the three inventory accounts. The flow-through concept simply provides that the flow of accounting information should match the physical flow of goods and the incidence of processing costs in the actual manufacturing operation.

The Physical Flow of Goods

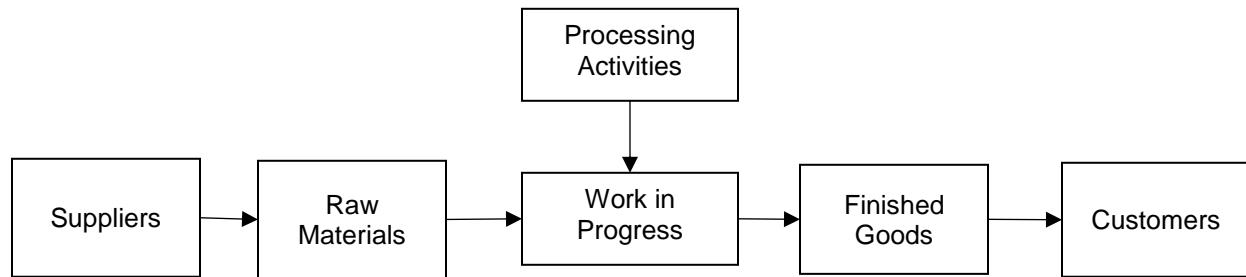
The physical flow of goods, in general, is as follows:

1. Raw materials are purchased and placed in inventory, awaiting processing.
2. Raw materials are taken out of inventory and placed into production.
3. Processing of the raw materials takes place.
4. The goods are completed and placed into inventory, awaiting sale.
5. The finished goods are sold and are removed from inventory.

The following diagram illustrates the physical flow of goods:



In processing the goods, many costs are incurred. These costs include the cost of providing a factory premises where the processing takes place, the cost of providing equipment which aids in processing the goods, and the cost of employing people who either work directly on the processing of the goods or supervise the operation.



The Accounting Information Flow

The accounting information flow matches the physical flow of goods.

ASSETS		
Raw Materials Inventory	Work-In-Process Inventory	Finished Goods Inventory
Cost of Raw Materials Purchased	Processing Costs	Cost of Finished Goods Manufactured
Cost of Raw Materials Used	Cost of Raw Materials Used	Cost of Goods Sold
EXPENSES		
Cost of Goods Sold Expense		
Cost of Goods Sold		

The system outlined above illustrates how expenditures relating to the production of goods are handled, and the methodology for transferring costs among the three inventory accounts and into the Cost of Goods Sold expense account.

Raw Materials Inventory

The Raw Materials Inventory account accumulates all costs associated with procuring raw materials. Included is the purchase cost (net of any purchase returns, discounts or allowances) plus any transportation-in. These costs, when added to the cost of raw materials in inventory at the beginning of the period, yield the cost of raw materials available for use for the period. At the end of the period, the raw materials on hand are valued using the established inventory valuation method of the firm (i.e., FIFO, average cost or specific identification) and this figure is deducted from the cost of raw materials available for use to determine the cost of raw materials used during the period. The cost of raw materials used is added into the Work-In-Process Inventory account.

Work-In-Process Inventory

The Work-In-Process Inventory account accumulates all costs associated with goods processed during the period. (The description contained herein relates only to a periodic inventory system where the firm is producing at or above its normal capacity.)¹ Throughout the period, processing costs are entered into the account, and at the end of the period, the cost of raw materials used is calculated and entered. The processing costs entered into the Work-In-Process Inventory account are normally divided into two categories: (1) direct labor costs, and (2) factory overhead costs. Direct labor costs consist of all wages and other related costs associated with employing workers to work **directly** on the production of the goods. Factory overhead costs are all costs, other than direct labor costs, which are associated with the manufacturing of the goods. Factory overhead costs include indirect labor, the costs of providing factory facilities, depreciation of production equipment, etc. The sum of the costs entered into the Work-In-Process Inventory account (direct labor cost, cost of raw materials used, and factory overhead cost) represents the total cost associated with all manufacturing which took place during the period. These costs are referred to as **product costs** since they are related to the production of the product and are, therefore, included in the cost of the product. Product costs are often contrasted with **period costs**, which are costs that are expensed during the period in which they are incurred since they are related to activities of the period and are unrelated to the manufacturing activity. Period costs include administrative expenses, advertising expenses, selling expenses, interest expenses, etc.

The distinction between product and period costs arises from an application of the matching principle. Period costs are expensed during the period in which they are consumed; whereas, product costs are attached to the goods which are processed and expensed during the period in which the goods generate sales revenue. The process of attaching all manufacturing costs (raw materials used, direct labor, and factory overhead) to the goods being produced is termed **absorption costing**.

At the end of the accounting period, the work-in-process ending inventory cost is determined and then the cost of finished goods manufactured during the period is derived. The cost of finished goods manufactured represents the value of those units completed during the period and is entered into the Finished Goods Inventory account.

Finished Goods Inventory

The cost of finished goods manufactured, when added to the opening balance in the Finished Goods Inventory, yields the cost of goods available for sale. The final step in the flow-through process is the determination of ending finished goods inventory and then the calculation of the cost of goods sold pertaining to the period. The cost of goods sold is computed by subtracting the cost of the ending finished goods inventory from the cost of goods available for sale. The cost of goods sold during the period is then entered into the Cost of Goods Sold expense account.

The T-Account System for Manufacturing Accounting

At this point, the flow-through is complete, with all product costs attached to the products processed (partially or completely), and with those costs either included in the inventory for the goods still remaining or expensed through Cost of Goods Sold for those goods that have been sold. This system achieves the goals of matching costs with revenues and providing inventory figures based on the full cost of obtaining and/or producing the assets which remain on hand as inventories.

¹ Accounting procedures for firms producing below normal capacity will be left to intermediate or advanced accounting courses.

The Barker Pen Company's records will be used as an example to illustrate how this system of accounting for manufacturing activities works. A T-account summary of the system of accounting for inventories in a manufacturing firm, Barker Pen Company, is shown in Exhibit 1.

BARKER PEN COMPANY

Barker Pen Company produces a simple ball-point pen. The Barker plant receives four items which are assembled into pens at the plant and subsequently sold to wholesalers. The four basic items are the bottom, the top, the refill, and the spring. These four raw material items are purchased in bulk from various suppliers. Barker employs several workers who, with the aid of simple equipment, assemble the pens. The company assembles all pens in one factory building which houses the actual production area and the production manager's office.

During the preceding year, the following costs were incurred in producing the pens according to the company's records:

Purchase	\$ 265,000
Purchase Returns and Allowances	(15,000)
Freight-in	12,500
Employee Wages	156,000
Plant and Equipment Depreciation	19,000
Heat and Light for Plant	3,000
Power for Machines	2,000
Supervisors' Salaries	30,000
Production Manager's Salary	20,000
Miscellaneous Production Costs	4,000

At the beginning of the year, the company's inventory accounts contained the following balances:

Raw Material	\$ 40,000
Work-In-Process	0
Finished Goods (72,000 units)	65,000

In T-account form, the inventory accounts would appear as follows at the end of the year, prior to making any adjusting entries:

Raw Materials Inventory		Work-In-Process Inventory		Finished Goods Inventory	
40,000	Beginning Inventory	0	Beginning Inventory	65,000	Beginning Inventory
265,000	Purchases	156,000	Direct Labor		
12,500	Freight-in	19,000	Depreciation		
Returns & Allowances	15,000	3,000	Heat & Light		
		2,000	Power—Machinery		
		30,000	Supervision		
		20,000	Production Manager		
		4,000	Miscellaneous		

All processing costs (direct labor and factory overhead) are debited to the Work-In-Process account; this practice is followed since those costs attach only to goods which have gone into process during the year.

At the end of the year, the production supervisors and manager normally stay late to count inventories so that financial statements may be prepared. Production records are also tabulated to determine how many pens have been produced during the year. The inventory counts and production records yielded the following information.

Raw materials on hand (at net cost including freight) ²	\$ 62,500
Finished goods inventory	20,000 pens
Number of finished pens produced during the year	499,500 pens

The production workers also noticed that at each of the work stations, there were pens which were partially complete (i.e., the spring had been placed on the refill and the refill and spring placed into the bottom — the job of the workers at each work station). The number of partially completed pens totalled 1,000.

COST OF RAW MATERIALS USED

In order to prepare financial statements, the cost of inventory on hand at the end of the period and the cost of goods sold during the period are determined. The first step is to find the cost of the raw materials put into process during the year (cost of raw materials used):

Raw Materials Inventory	
40,000	Beginning Inventory
265,000	Purchases
Returns & Allowances	15,000
12,500	Freight-in
302,500	Cost of raw materials available for use
Cost of raw materials used (Plug figure)	240,000
62,500	Ending Inventory (Physical count—average cost)

The cost of raw materials used (put into process) is then debited to the Work-In-Process Inventory account (the credit is to the Raw Materials Inventory account). All costs associated with the manufacture of pens

² Barker used the average-cost method to value raw materials inventory.

during the period have now been entered into the Work-In-Process Inventory account; therefore, the cost of work-in-process during the period is determined as follows:

Work-in-Process Inventory	
0	Beginning Inventory
156,000	Direct Labor
19,000	Depreciation
3,000	Heat and Light
2,000	Power—Machinery
30,000	Supervision
20,000	Production Manager
4,000	Miscellaneous
240,000	Cost of Raw Materials Used
474,000	Cost of Work In Process

WORK-IN-PROCESS INVENTORY VALUATION

A difficulty arises in attempting to determine the cost of the partially completed pens. This difficulty occurs since the cost of the partially completed pens must reflect both the cost of the materials contained in the pens and the processing costs associated with the processing that has taken place. Therefore, the ending Work-In-Process inventory cost must include the raw materials used and direct labor cost associated with partially completing the pens, as well as an appropriate portion of the various factory overhead costs incurred during the period.

Factory Overhead Application Method

One method for determining the cost of partially completed units is to estimate the cost of raw materials and direct labor which have been used to partially complete the units and then to allocate a fair share of the period's factory overhead costs to the partially completed goods. The amount of factory overhead to be applied is determined by selecting a cost driver (or proxy) which best indicates the level of processing which has taken place. The most common cost drivers are direct labor cost, direct labor hours, raw materials cost and machine hours. The amount of factory overhead to be allocated is calculated by determining the amount of the activity consumed in processing the partially completed units in relation to the total amount of the chosen activity consumed during the period. For example, if the selected cost driver is direct labor hours and ten direct labor hours were consumed to partially process certain goods, while a total of 1,000 direct labor hours were consumed during the period, then $10/1,000$ (or 1 per cent) of the total factory overhead cost for the period is allocated to the partially completed goods. The amount of factory overhead allocated to the partially completed goods is then added to the cost of raw materials and direct labor used to partially process the goods in order to determine the full cost of the partially completed goods.

The cost driver selected must relate to the specific manufacturing operation. For example, if a company produces tailor-made suits where most of the raw materials are introduced at the beginning of the process and then the tailor begins to produce the suit, cost of raw materials used is not a good selection of the cost driver. If cost of raw materials used was the cost driver selected, all partially completed suits would be allocated nearly as much factory overhead as a completed suit since the partially completed suit would contain almost all of the raw materials required to complete the suit. A more appropriate cost driver, in this

case, would be direct labor hours since the level of processing relates more closely to the amount of time the tailor has spent “processing” the suit. (Direct labor cost would also be an appropriate cost driver.)

Several other methods can be used to determine the cost of goods which have not been completely processed. All valuation methods attempt to estimate the **full** (absorbed) cost of the partially completed goods in order to provide inventory figures based on the cost principle and matching principle of accrual accounting.

Returning to the Barker Pen Company example, Barker uses the factory overhead application method to value ending work-in-process Inventory and has decided to use direct labor cost as an activity base for allocating factory overhead to the partially completed pens.

Through careful analysis, the production manager has estimated that the partially completed pens contained:

Raw Materials	\$ 260
Direct Labor	156

He calculated the raw materials figure by determining the average cost of the spring, bottom, and refill and multiplying by 1,000 units. The labor figure was arrived at by determining the average time required to partially assemble the pens and multiplying it by the wage cost of the individuals assembling the pens.

The remaining task is to determine how much factory overhead should be allocated to the partially completed pens. Having selected direct labor cost as the cost driver, the first step is to determine the percentage of the period’s total direct labor cost that was used in partially processing the pens remaining on hand:

$$\begin{aligned} \text{Direct labor cost to partially process} &= \frac{\$156}{\$156,000} \\ \text{Total direct labor cost} \\ &= 0.1 \text{ per cent} \end{aligned}$$

The partially completed pens should, therefore, be allocated to 0.1 per cent of the period’s total factory overhead cost. The total factory overhead cost for the period is calculated by adding all factory overhead items contained in the Work-In-Process Inventory account.

$$\begin{aligned} \text{Factory overhead to} & \quad \text{Per cent of direct labor} & & \text{Total factory overhead} \\ \text{be allocated to the} & = \quad \text{cost to partially} & \times & \text{cost} \\ \text{ending work-in-} & \quad \text{complete pens} & & \\ \text{process inventory} & = \quad 0.1 \text{ per cent} & \times & \$78,000 \\ & = \quad \$78 & & \end{aligned}$$

Therefore, the total cost of the 1,000 partially completed pens (ending work-in-process inventory) is as follows:

Raw Material	\$ 260
Direct Labor	156
Factory Overhead	78
Ending Work-In-Process Inventory	\$ 494

Factory Overhead Application Rate

An alternative method for determining the amount of factory overhead to be applied to the ending inventories is to use a factory overhead application **rate**. This approach yields the same result as the method described above and is merely a different sequencing of the calculations previously outlined. The formula used above to determine the amount of factory overhead to apply to the partially completed goods is as follows:

$$\text{Factory overhead to allocate WIP ending inventory} = \frac{\text{Direct labor cost to partially process}}{\text{Total direct labor cost}} \times \text{Total factory overhead cost}$$

The factory overhead application **rate** method rearranges the formula and the sequencing of the calculation:

$$\text{Factory overhead to allocate WIP ending inventory} = \frac{\text{Total factory overhead cost} \div \text{Total direct labor cost}}{\text{Direct labor cost to partially process}}$$

The factory overhead application **rate** method first calculates the factory overhead application rate by dividing the total factory overhead cost by the total direct labor cost to determine the amount of factory overhead to apply per direct labor dollar. The factory overhead application rate is then multiplied by the direct labor cost associated with the ending work-in-process inventory to determine the amount of factory overhead to be allocated to the ending work-in-process inventory. The use of the factory overhead application **rate** method will yield the same value of \$494 for the ending work-in-process inventory.

COST OF FINISHED GOODS MANUFACTURED

Since the ending work-in-process inventory value has been determined, the cost of finished goods manufactured during the year can be computed:

Work-In-Process Inventory	
0	Beginning Inventory
156,000	Direct Labor
19,000	Depreciation
3,000	Heat and Light
2,000	Power—Machinery
30,000	Supervision
20,000	Production Manager
4,000	Miscellaneous
240,000	Cost of Raw Materials Used
474,000	Cost of Work-In-Process
Cost of Finished Goods Manufactured (plug figure)	473,506
494	Ending Work-In-Process Inventory

The cost of finished goods manufactured represents the full production cost associated with the 499,500 pens manufactured to completion during the year. Therefore, this cost is debited to the Finished Goods Inventory account to reflect the physical flow of goods out of the production process and into storage awaiting sale.

The cost of finished goods manufactured is then added to the cost of the beginning inventory of finished goods to determine the cost of goods available for sale during the period:

Finished Goods Inventory	
65,000	Beginning Inventory
473,506	Cost of Finished Goods Manufactured
538,506	Cost of Goods Available for Sale

FINISHED GOODS INVENTORY VALUATION

The cost of the finished goods inventory on hand at the end of the period is now calculated in order to establish the amount of cost of goods sold expense which should be matched against the revenue of the period. The two most common methods used to value ending finished goods inventory are the average-cost method and the factory-overhead-application method.

Average-Cost Method

The average-cost method requires data on the number of units in beginning and ending finished goods inventory as well as the number of finished units manufactured during the period. The cost of the ending finished goods inventory is calculated by determining the average cost of the units available for sale and then multiplying this average cost per unit by the number of units remaining in inventory at the end of the period.

In the case of Barker Pen, the average-cost method will be used to value the ending finished goods inventory:

$$\begin{aligned}
 \text{Ending finished goods inventory} &= \frac{\text{Cost of goods available for sale} \div \text{units available for sale}}{\times} \quad \text{Units in ending inventory} \\
 &= \$538,506 \div (72,000 + 499,500) \quad \times \quad 20,000 \\
 &= \$18,845
 \end{aligned}$$

The cost of goods sold during the year may now be determined:

Finished Goods Inventory	
65,000	Beginning Inventory
473,506	Cost of Finished Goods Manufactured
538,506	Cost of Goods Available for Sale
Cost of Goods Sold	519,661
18,845	Ending Finished Goods Inventory

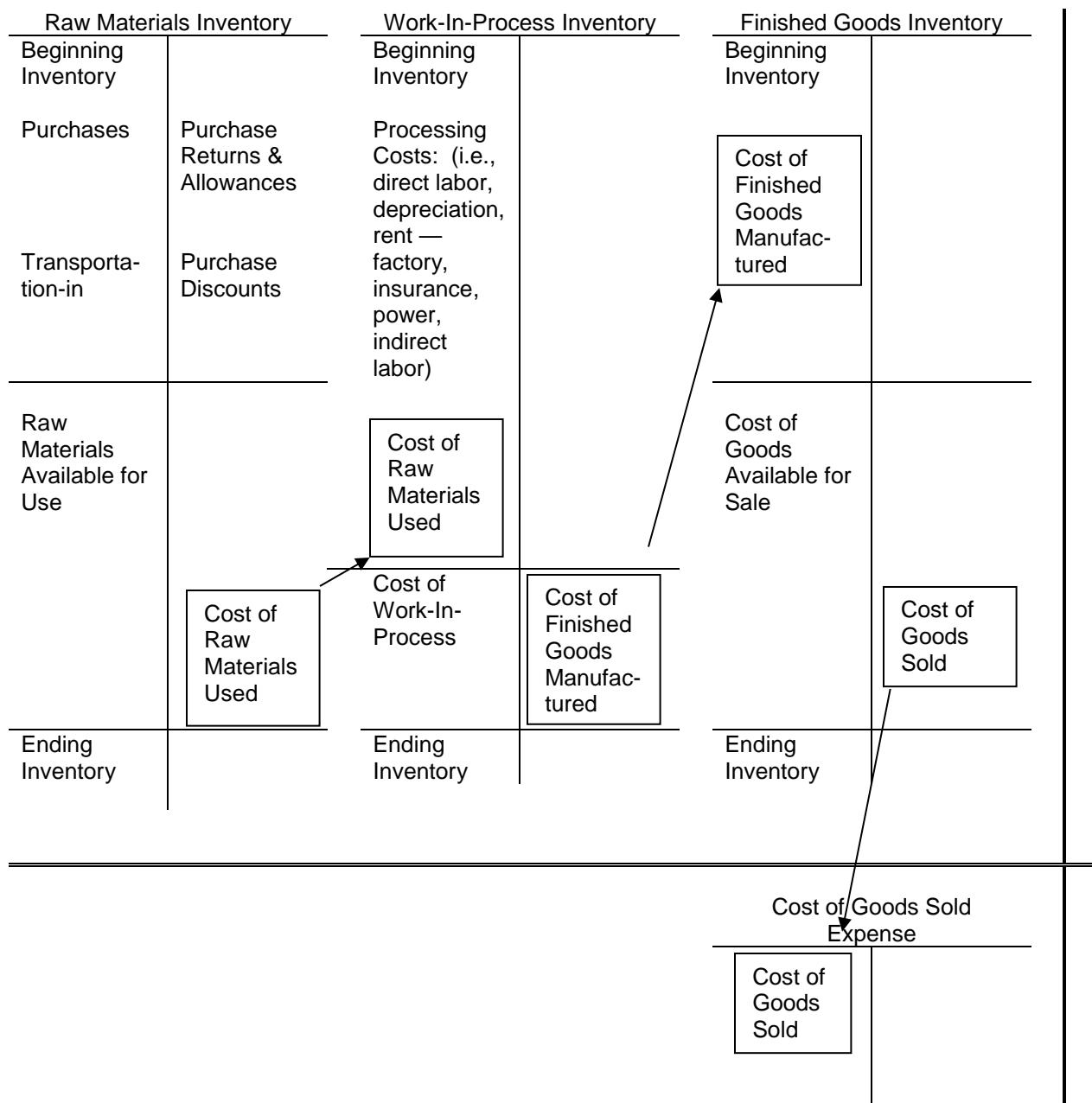
ACCOUNTING FOR MANUFACTURING ACTIVITIES: BARKER PEN COMPANY

A summary of the entries made in accounting for the manufacturing activities of Barker Pen Company is presented in Exhibit 2. In accounting for the manufacturing operations of Barker, or any firm, considerable effort is made in valuing the ending inventories. This effort is necessary to provide accurate inventory (statement of financial position) figures based on the cost principle of accounting and to ensure that all manufacturing costs **attach** to the inventory processed and become an expense during the period in which the goods are sold. Barker Pen Company is now ready to complete its adjusting entries and closing entries, and prepare financial statements. (A completed schedule of cost of goods manufactured is given in Exhibit 3.)

SUMMARY

A manufacturing firm presents special problems in accounting for the inventories of the business. The accounting system accommodates the activities of a manufacturing business by using three inventory accounts—Raw Materials Inventory, Work-In-Process Inventory, and Finished Goods Inventory. The flow-through approach is utilized for handling the flow of accounting information pertaining to the manufacturing operation. The accounting system is designed to match the flow of accounting information with the physical flow of goods. This system thereby ensures that all **manufacturing** costs attach to the goods being processed in order to obtain accurate statement of financial position values for the three types of inventories and to generate reliable income statements based on the matching principle of accrual accounting.

EXHIBIT 1: BARKER PEN COMPANY



For use only in the course BUS 2257 - Accounting & Business Analysis - Fall/Winter 2024-25 at Ivey Business School from 9/5/2024 to 4/4/2025.
Use outside these parameters is a copyright violation.

EXHIBIT 2: BARKER PEN COMPANY

Raw Materials Inventory	Work-In-Process Inventory	Finished Goods Inventory
40,000	0	65,000
265,000	156,000	473,506
12,500	19,000	
	3,000	
302,500	2,000	
	30,000	538,506
	20,000	
	4,000	
	240,000	519,661
		Cost of Goods Sold
62,500	474,000	
		18,845
	473,506	
	Cost of Finished Goods Manufactured	
	494	
		Cost of Goods Sold Expense
		519,661

For use only in the course BUS 2257 - Accounting & Business Analysis - Fall/Winter 2024-25 at Ivey Business School from 9/5/2024 to 4/4/2025.
Use outside these parameters is a copyright violation.

EXHIBIT 3: SCHEDULE OF COST OF GOODS MANUFACTURED
For the year ending December 31, 20__

Work in Process Inventory, January 1, 20__	\$ 0
Raw Materials Used:	
Raw Materials, Jan 1, 20__	\$ 40,000
Purchases of Raw Materials	\$ 265,000
Less: Returns and Allowances	<u>15,000</u>
Net Purchases	250,000
Freight-in	<u>12,500</u>
Delivered Cost of Purchases	\$ 262,500
Cost of Raw Materials Available	\$ 302,500
Less: Raw Materials, Dec 31, 20__	<u>62,500</u>
Cost of Raw Materials Used	\$ 240,000
Direct Labor	156,000
Factory Overhead:	
Depreciation	\$ 19,000
Heat and Light	3,000
Power-Machinery	2,000
Supervision	30,000
Production-Manager	20,000
Miscellaneous	<u>4,000</u>
Total Factory Overhead	<u>78,000</u>
Total Manufacturing Costs	474,000
Total Cost of Work-in-Process	\$ 474,000
Less: Work-in-Process Inventory, Dec 31, 20__	<u>494</u>
Cost of Finished Goods Manufactured	<u>\$ 473,506</u>

CREATIVE CHIPS (ABRIDGED)

Graham Todd Roberts prepared this case under the supervision of John F. Graham solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 1993, Ivey Business School Foundation

Version: 2023-03-07

Kathy Lesay, owner of Creative Chips (CC), knew her financial records had to be organized before she could evaluate the success of her new marketing strategy. This task was delegated to her new brother-in-law, Robert Graham, who promised to have her fiscal 2003 records organized within a week.

Creative Chips was organized as a private corporation on January 1, 2001, to produce and market a revolutionary new computer control chip that Lesay had designed. This patented product was only available through mail-order advertisements in leading computer magazines. See Exhibit 1 for the fiscal 2002 statement of financial position.

DISBURSEMENTS

The payroll records indicated that a total of \$89,850 had been paid out in cash during fiscal 2003. Since Lesay was employed full-time by another company, one employee, Mary Nielson, was hired. Nielson spent three-quarters of her time producing the chips and the remainder of her time on administrative duties. Nielson's salary for fiscal 2003 was \$48,000 which was \$1,800 higher than the year before. Since CC's inception, Lesay had paid herself a salary of \$3,500 per month for the various administrative tasks she performed. Both individuals were paid on the first day of the month following the month when the work was performed (i.e., work for the month of May is paid on June 1).

The rest of CC's bills were located in a filing cabinet in Lesay's office. All bills that had been received as of December 31, 2003, had been paid by cheque from CC's bank account but had not yet been recorded. These bills were as follows:

Telephone	\$ 1,350
Rent	23,400
Delivery	5,750
Raw Materials	23,300
Insurance	3,500
Repairs	4,400
Total	<hr/> \$ 61,700

All of the above bills related solely to CC's operations. In addition, the bank had automatically deducted \$130 from CC's bank account for interest on the outstanding loan. Lesay did not require Graham to organize

the sales records but informed him that orders for 5,000 units had been shipped during 2003. All of these orders had been shipped out before December 31, 2003. No other orders were shipped out during the year.

CC had rented 500 square feet of space in an industrial mall since January 1, 2001. The rent for 2003 was \$1,950 per month including utilities. No prepayment of the last month's rent had been required. The space was divided into a 100-square-foot office and a 400-square-foot production area. Due to the nature of the business, the space required for inventory storage was negligible.

The same delivery company, Earley Shipping, was used for all of CC's shipping needs. CC was charged \$1 for each unit shipped out to the mail order customers. The remaining shipping charges were related to the delivery of chip components by CC's suppliers. All of the suppliers gave CC the same terms: F.O.B. shipping point, cash or cheque on delivery.

The insurance disbursement, a period cost, related to a three-year policy that was purchased on July 1, 2003, at the suggestion of Lesay's lawyer. The policy provides \$1,000,000 worth of coverage for damages caused to any customer by CC's computer chip. No claims had been filed to date.

The repairs bill included a \$400 charge for regular cleaning and maintenance of the office photocopier and \$4,000 for regular maintenance to CC's all-purpose production machine.

INVENTORIES

Lesay completed a physical count of all inventory on hand on December 31, 2003, since this had been the practice the previous year.

Lesay estimated raw materials on hand at year-end were worth approximately \$90. CC's shipping records also indicated that a raw materials order for \$1,250 (including shipping costs) was placed on December 20, 2003, with Vancouver Components. The order was picked up by Earley Shipping on December 29, 2003, and was delivered to CC on January 2, 2004. CC used FIFO to value ending inventory.

There were also a small number of chips which were only partially completed at the close of 2003 operations. Nielson estimated that about \$50 worth of raw materials and \$320 worth of labor had already gone into the chips. Direct labor dollars were spread evenly over the production process.

Finished goods on hand at year-end totalled \$650.

REQUIRED

As Robert Graham, record in T-account form or in journal entries, all opening balances, relevant transactions and adjusting entries for fiscal 2003. Closing entries are not required.

EXHIBIT 1: STATEMENT OF FINANCIAL POSITION
For the year ended December 31, 2002

ASSETS	LIABILITIES AND OWNER'S EQUITY	
Cash	\$ 5,440	Bank Loan
Inventory (Note 1)	375	Wages & Salaries Payable
Office Photocopier (Note 2)	2,000	Total Liabilities
Less: Accumulated Depreciation	(300)	
Production Machine (Note 3)	10,000	
Less: Accumulated Depreciation	(4,000)	
Patent (Note 4)	2,000	Common Stock
Less: Accumulated Amortization	(400)	Retained Earnings
Total Assets	<u>\$15,115</u>	<u>Total Liabilities & Equity</u>
		<u>\$15,115</u>

NOTE 1

- Raw Materials \$125
- Work-in-Process \$125
- Finished Goods \$125

NOTE 2

- Office Photocopier
- Purchased January 1, 2001
- Estimated useful life: 10 years
- Straight-line method used to calculate depreciation
- \$500 residual value

NOTE 3

- Production Machine
- Purchased January 1, 2001
- Estimated useful life: 4 years
- Straight-line method used to calculate depreciation
- \$2,000 residual value

NOTE 4

- Patent
- Related to design of computer chip
- Treated in previous years as a product cost
- Patent granted for 10 years from January 1, 2001

CANFAM LIMITED

Christopher J. Bridgnell prepared this case under the supervision of Richard H. Mimick solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 1986, Ivey Business School Foundation

Version: 2020-01-29

Canfam Limited (Canfam) started operations on October 2, 2014, in Woodstock, Ontario, to produce hollow, polypropylene sticks for cotton swabs. The sticks were sold to major cotton swab manufacturers who added cotton tips and packaged the product for the final consumer. Polypropylene, a pliable plastic compound, had replaced wooden and paper cotton swab sticks because it was lighter, cheaper, more flexible and safer for the user.

Adrienne Black, the firm's sole shareholder, opened the company after she had prepared a detailed feasibility study on the venture. At the end of October, Black was interested in the financial performance of the company over the first month of operations. The bookkeeper maintained a set of accounting records and had prepared an unadjusted trial balance (see Exhibit 1) as of October 31, 2014. Black expected to pay corporate tax at a rate of 20 per cent on all income.

PRODUCTION PROCESS

The principal raw material was a resin purchased by Canfam in the form of granular crystals. The granules were placed into an extruder which melted the crystals into a paste-like substance. This substance was then forced through a dye and took the form of a hollow tube (2.5 mm in diameter). The tube was immediately cut into 70 mm lengths and was finally packaged into boxes (44,000 sticks per box). The completed boxes were then shipped to the cotton swab manufacturers. Due to the nature of the production process, very little work-in-process inventory accumulated. Raw materials and direct labour were introduced at the beginning and end of the manufacturing process; whereas, machine hours were more evenly distributed throughout the process. During October, 270 machine hours were used and 1,500 boxes were completed.

OPERATIONS

Two salaried personnel were employed by Canfam: a part-time bookkeeper who earned \$2,000 per month and a production manager who received \$2,900 monthly. All salaries were paid in full on the last day of the month. Black paid herself a salary of \$3,000 per month. Eighty per cent of her time was spent as a supervisor in the production department, and the remaining time on administrative tasks.

Three factory labourers worked in the shop; each received \$11.50 per hour, including benefits. The factory workers were paid every Monday for the previous week's work. Since October 2014 ended on a Friday, a total of 42 labour hours had been worked but had not yet been accounted for in the unadjusted trial balance.

Fifteen per cent of the cleaning expense was used to clean the office space. The remainder was used to clean the production area.

Canfam was located in a rented industrial complex in Woodstock, Ontario. Rent was \$2,280 per month due on the first business day of each month. The first and last months' rent was paid upon signing the one-year rental agreement. The utilities charge for October was for both the office and factory space. The factory represented 90 per cent of the total rented space and utilities charge. The insurance policy acquired on October 2 required immediate payment for the entire first year's coverage. Half of the insurance premium (cost) related to the production process.

Black used the proceeds of a \$100,000 bank loan to finance most of the production machinery requirements. All the machinery was installed on October 1 and she expected it would have a useful life of 10 years. All equipment was to be depreciated on a straight-line basis with no residual value.

PURCHASES AND INVENTORIES

The production process used by Canfam required only two raw materials: the granular resin crystals and cardboard boxes for packaging. The production manager maintained a set of inventory purchase records as follows:

RESIN CRYSTALS

Date of Ownership	Kilograms Received	Total Invoice Cost
October 2, 2014	5,000	\$ 15,000
October 8, 2014	10,000	27,500
October 20, 2014	21,000	<u>50,400</u>
Total Resin Purchases for October		<u>\$ 92,900</u>

CARDBOARD BOXES

Date of Ownership	Number Received	Total Invoice Cost
October 3, 2014	1,000	\$ 398
October 11, 2014	4,000	<u>1,522</u>
Total Box Purchases for October		<u>\$ 1,920</u>

All purchases were made FOB shipping point. The initial orders were in small quantities to verify supplier quality. If quality was acceptable, larger, more economical orders were placed. Due to the small quantities purchased, Black rented a van and used it 25 per cent of the time to pick up raw materials, split proportionally on a per order basis between resin crystal and cardboard box orders, and 75 per cent of the time delivering the finished product to the cotton swab manufacturers.

After operations had ceased on October 31, the production manager counted the available inventories. The count revealed the following: 22,338 kilograms of resin crystals, 3,485 unused cardboard boxes, and 136 completed and filled cardboard boxes (44,000 sticks per box). There were also some sticks that were produced but not packaged. Black estimated that \$85 worth of resin crystals, \$23 worth of direct labour, and six machine hours were used to produce these sticks.

Black had decided to use the first-in first-out (FIFO) method of inventory valuation for the raw materials and the average cost method for the finished goods.

REQUIRED:

Record, on a Super-T, all the necessary **adjusting** and **closing** entries for the month of October 2014 for Canfam.

EXHIBIT 1: UNADJUSTED TRIAL BALANCE
As at October 31, 2014

Cash	\$ 5,265
Accounts Receivable	31,808
Raw Material (Resin)	92,900
Raw Material (Boxes)	1,920
Production Machinery	154,000
Bank Loan Payable	100,000
Utilities Bill Payable	2,560
Common Stock	155,000
Sales Revenue	57,116
Salaries and Benefits Expense	7,900
Cleaning Expense	500
Van Rental Expense	600
Factory Wages Expense	4,830
Rent Expense	4,560
Interest Expense	833
Utilities Expense	2,560
Insurance Expense	4,800
Miscellaneous Office Expenses	2,200
	<u>\$ 314,676</u>
	<u>\$ 314,676</u>

H&L PINES

Jaclyn Cairns wrote this case under the supervision of Elizabeth M.A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveycases.com.

Copyright © 2012, Richard Ivey School of Business Foundation

Version: 2020-01-29

It was spring 2011, and Patricia Knowles, sole shareholder of H&L Pines (H&L), a national supplier of evergreen trees to garden supply retailers, had decided to expand H&L's product offering. She planned to carry more exotic trees and shrubs to keep up with the changing demands of retailers. The expansion required an investment for the land, greenhouse construction, inventory infusion and working capital requirements. Knowles wanted the new greenhouse to be operational by December 2012 to ensure that new plants would be ready for the spring planting season.

To help finance the expansion, H&L issued 650 five-year bonds with a coupon rate of 6.5 per cent on May 15, 2011. Interest was to be paid semi-annually on November 15 and May 15. On the date of issuance, the prevailing market interest rate was seven per cent.

On February 1, 2012, market interest rates dropped to six per cent. Knowles thought it was an opportune time to recall a portion of the outstanding 9.5 per cent bonds payable H&L had issued for its last expansion project (see Exhibit 1). The 9.5 per cent bonds payable were callable at 115 at the option of H&L. On February 29, 2012, H&L decided to recall 45 per cent of the bonds payable. The 9.5 per cent bonds paid interest semi-annually on June 1 and December 1. The market interest rate had been eight per cent when the bonds were issued. On the date of recall, the market interest rate remained at six per cent.

REQUIRED

Post all opening balances and record all necessary transactions and adjusting entries dealing with the issuance of bonds and payments of interest for the period April 1, 2011, to March 31, 2012.

EXHIBIT 1: 9.5% BOND PAYABLE DETAILS

Issuance date: December 1, 2009
Maturity date: December 1, 2019

Face value (400 bonds): \$400,000

Carrying value after December 1, 2010, interest payment date: \$437,979
Carrying value at last fiscal year end (March 31, 2011): \$436,991
Bond interest payable at last fiscal year end (March 31, 2011): \$12,667

THISTLE LINKS: AN EQUITY FINANCING EXERCISE

Martin Eidenberg wrote this exercise under the supervision of Ian Dunn solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveycases.com. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2021, Ivey Business School Foundation

Version: 2022-07-06

Thistle Links Inc. (Thistle) was a sports management company headquartered in Toronto, Ontario. The company had experienced gradual but consistent growth over the last number of years. In fiscal 2021, a wide variety of occurrences related to Thistle's equity financing had to be accounted for. Thistle's accountant reviewed the company's records and information, beginning with the shareholders' equity section of the firm's Statement of Financial Position from the previous fiscal year, which was prepared under International Financial Reporting Standards (IFRS) (see Exhibit 1).

On the date of Thistle's incorporation three years earlier, \$1.50,¹ cumulative, convertible, non-callable preferred shares² were issued to a small group of the company's initial investors. Each preferred share was convertible into three common shares.

On November 16, 2020, Thistle purchased a variety of new technological equipment from a local supplier. The equipment had a market value of \$12,500. Given the strong relationship between Thistle's management team and the supplier, the equipment was acquired for a combination of \$7,700 in cash and 300 common shares. Common shares were trading at \$17.52 per share on the date of purchase.

Thistle declared a \$1.20 cash dividend to its common shareholders on December 1, 2020, when the share price was \$18.12 per share. The date of record was December 10, 2020, and the dividend was distributed to shareholders on December 14, 2020. Common shares were trading at \$18.27 and \$18.92 per share on the date of record and the date of distribution, respectively. By year's end, on December 31, 2020, common shares were being exchanged by investors at \$19.14 per share.

On January 11, 2021, a large shareholder, who solely owned 30 per cent of Thistle's outstanding preferred shares, decided to convert their preferred shares to common shares. Common shares were trading at \$19.36 per share, and preferred shares were trading at \$50.50 per share on the date of conversion.

¹ All currency amounts in CA\$ unless otherwise specified.

² Dividends were last declared on July 15, 2020.

Following this substantial share conversion, and with some excess cash on the balance sheet, Thistle management decided to repurchase and retire 1,000 common shares on February 1, 2021. In doing so, Thistle incurred a brokerage fee of \$150. On the date of the share repurchase, common shares were trading at \$22.16 per share.

Having taken notice of the increase in the common share price to \$24.78 per share, Thistle decided to pursue a two-for-one stock split on April 1, 2021.

Thistle declared a 3 per cent stock dividend to common shareholders on October 25, 2021. On this date, common shares were trading at \$13.05 per share. The date of record of the dividend was October 29, 2021; and it would be distributed on November 5, 2021.

On October 31, 2021, at fiscal year-end, common shares were trading at \$13.75 per share, and preferred shares were trading at \$49.50 per share.

REQUIRED

Record, using a super-T, all opening balances and transactions relating to Thistle's equity financing activities for the fiscal year ended October 31, 2021.

EXHIBIT 1: THISTLE LINKS INC.—PARTIAL STATEMENT OF FINANCIAL POSITION
As at October 31, 2020

Shareholders' Equity

Common Stock (1,500 Outstanding; Unlimited Authorized)	\$ 33,000
Contributed Capital, Common Stock	1,150
Preferred Stock (1,500 Outstanding; 1,500 Authorized)	78,000
Retained Earnings	<u>68,847</u>
Total Shareholders' Equity	<u>\$ 180,997</u>

Source: Created by authors.

TEMPEST TECH INCORPORATED

Karim Mashnuk wrote this case under the supervision of Elizabeth M.A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveycases.com.

Copyright © 2012, Ivey Business School Foundation

Version: 2022-06-22

Tempest Tech Incorporated (TTI), a new-age technology company located in Mississauga, Ontario, began operations on February 1, 2011. Initially, the company raised funds through the issuance of common stock. In mid-2011, new software development was put on hold due to increasing concerns over patent protections. Thus, in June 2011, TTI sought appropriate investment vehicles for its excess cash, which would provide investment income over a set period of time.

On May 16, 2011, TTI purchased 1,000, 6.5 per cent Canada government bonds at 101 plus accrued interest from the previous bondholder. These bonds, held for trading purposes, paid interest semi-annually on January 1 and July 1, and were set to mature on July 1, 2015. At fiscal year-end, the market rate was seven per cent.

On March 28, 2011, TTI purchased 3,000 shares of Highland Resources Inc. (Highland), quoted in an active market for \$310 per share, and paid a commission of \$600 on the purchase. On April 30, 2011, with its share price at \$320, Highland issued more shares as a result of a four-for-one stock split. On June 15, 2011, an \$0.85 per share dividend was declared on Highland shares and was to be paid on July 15, 2011. On August 31, 2011, TTI's increased need for cash prompted the sale of 1,300 Highland shares. The market price of the shares was \$76 per share, and a brokerage commission of \$170 was incurred in the sale. On December 15, 2011, Highland declared a 2 per cent stock dividend, with a distribution date of January 15, 2012. At TTI's fiscal year -end, the market price of the shares had increased to \$79 per share.

REQUIRED

Record, using T-accounts, all the necessary transactions and adjusting entries relating to Tempest Tech Incorporated's investments for the fiscal year ending January 31, 2012.

STOCKS, BONDS, TRADING INVESTMENTS: A SUMMARY

Scott Griffith wrote this case under the supervision of Elizabeth M.A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveycases.com.

Copyright © 1994, Richard Ivey School of Business Foundation

Version: 2020-01-30

The following is a summary of the basic transactions involving stocks, bonds, and trading investments.

TRANSACTION ANALYSIS

The fundamental transactions have been summarized as follows:

Stock

- Issuance
- Dividends (cash and stock)
- Stock splits
- Retirement of stock
- Conversion of preferred stock to common stock

Bonds Payable

- Issuance
- Interest and bond amortization
- Early retirement of bonds

Trading Investments

- Purchasing trading investments
- Receiving dividends on trading investment
- Receiving interest on trading investment bonds

- Sale of trading investments
- Year-end valuation

STOCKS

Issuance of Stock

- Record cash received as value for stocks *or* use the value of the asset(s) received for stock.

e.g., \$1,000,000 worth of land was traded for 20,000 shares of common stock.

DR Land	1,000,000
CR Common Stock	1,000,000

Dividends

- Preferred shareholders are *always* paid before common shareholders (if the dividend is the first paid that year).
- Amount of the preferred dividend is listed in the stock title (e.g., \$7 cumulative convertible preferred stock).
- Amount of common dividend is decided by the board of directors (amount is given in the case).

Cash Dividends

On date of declaration:

DR Retained Earnings

 CR Preferred Dividends Payable (if applicable)

 CR Common Dividends Payable

On date of payment:

DR Preferred Dividends Payable (if applicable)

DR Common Dividends Payable

 CR Cash

Stock Dividends

- Determine dollar value of stock dividend by using the market price of the stock on the date of declaration multiplied by the number of shares to be distributed.
- The number of shares to be distributed is calculated by multiplying the dividend percentage by the outstanding number of shares on the date of declaration.

On the date of declaration:

DR Retained Earnings

CR Preferred Dividends Payable (if applicable)

CR Stock Dividend to be Distributable

On the date of payment:

DR Preferred Dividends Payable

CR Cash

DR Stock Dividend to be Distributable

CR Common Stock

Remember to update the common stock ledger to signify the additional shares.

Stock Splits

- No entry on T-accounts.
- Write a memo indicating number of shares now outstanding.

e.g., With 5,000 common shares outstanding a 2:1 stock split was declared on May 17.

Memo: 5,000 new shares floated for a total of 10,000 shares outstanding following 2:1 stock split on May 17.

Retirement of Stock

- Compare book value of callable share with cash paid on retirement.
- If BV > cash paid to shareholders, a gain is accounted for as follows:

DR Common (or Preferred) Stock

CR Cash

CR Contributed Capital

- If BV < cash paid to shareholders, a loss is accounted for as follows:

DR Common (or Preferred) Stock

DR Contributed Capital (if account has a credit balance)

DR Retained Earnings (if no Contributed Capital exists or for amount in excess of Contributed Capital)

CR Cash

Conversion of Preferred Stock to Common Stock

- Use **book value** of preferred stock as the value for the “new” common stock.
- Ignore market price.
- Update share ledger.

e.g., Company ICU has 10,000 outstanding preferred shares with a total book value of \$100,000. On February 29, 60 per cent of the preferred shares were converted to common shares at a ratio of 5:2. The market price of a common share, at the time, was \$5.25.

DR Preferred Stock	60,000
CR Common Stock	60,000

Once the transactions are recorded, update the share ledgers:

e.g., For Company ICU, 6,000 shares must be subtracted from the preferred share ledger and 15,000 shares added to the common share ledger.

BONDS (WE SELL)

Issuance of Bonds

Record the carrying value (book value of the bonds in a Bonds Payable account).

Example 1: 500 \$1,000-face value 10 per cent bonds were issued at 97.

DR Cash	485,000
CR Bond Payable	485,000

Example 2: 500 \$1,000-face value 15 per cent bonds were issued at 104.

DR Cash	520,000
CR Bond Payable	520,000

If the market price of the bonds is not given (i.e. issued at 97), but a market interest rate is available, use present values to determine the issue/market price. (See Step 1 under “Year-end Valuation,” for an explanation of how to use present-value tables.)

Calculating Bond Interest and Amortizing Bonds

Interest and amortization are accounted for using the effective interest rate method. When using this method, interest and amortization are calculated at each interest payment date, major transaction dates, and at fiscal year-end. Interest should be rounded to the nearest half month.

Calculating interest and amortization involves three steps:

(A) Total Interest Expense

- Book value of the bond on the date of issuance or the last interest payment date × Market interest rate (on the date of issuance) × n/12

(B) Interest Payment (paid or accrued)

- Face value of the bond × Coupon rate × n/12

(C) Bond Amortization

- Total interest expense – Interest payment

Since the book value of the bond changes each period, the amortization will also be different.

The transactions to account for interest and amortization are as follows:

1. If interest is paid:

DR/CR Bonds payable
 DR Bond interest expense
 Cr Cash

2. If interest is accrued:

DR/CR Bonds payable
 DR Bond interest expense
 Cr Bond interest payable

For example, on March 31, XYZ issued \$100,000 ten-year six per cent bonds which paid interest semi-annually on March 31 and September 30. On the date of issuance, the market interest rate was eight per cent. Fiscal year end is November 30.

The entries would be as follows:

March 31:	DR Cash	86,411	
	CR Bonds payable		86,411
September 30:	DR Bond interest expense	3,456	
	CR Bond payable		456
	CR Cash		3,000

(A) Total Interest Expense

- $\$86,411 \times 8\% \times 6/12 = \$3,456$

(B) Interest Payment (paid or accrued)

- $\$100,000 \times 6\% \times 6/12 = \$3,000$

(C) Bond Amortization

- $\$3,456 - \$3,000 = \$456$

November 30:	DR Bond interest expense	1,158	
	CR Bond payable		158
	CR Bond interest payable		1,000

(A) Total Interest Expense

- $(\$86,411 + \$456) \times 8\% \times 2/12 = \$1,158$

(B) Interest Payment (paid of accrued)

- $\$100,000 \times 6\% \times 2/12 = \$1,000$

(C) Bond Amortization

- $\$1,158 - \$1,000 = \$158$

During the next fiscal period, the entries would be as follows:

March 31:	DR Bond interest expense	2,316
	DR Bond interest payable	1,000
	CR Bond payable	316
	CR Cash	3,000

(A) Total Interest Expense

- $(\$86,411 + \$456) \times 8\% \times 4/12 = \$2,316$

(B) Interest Payment (paid or accrued)

- $\$100,000 \times 6\% \times 4/12 = \$2,000$

(C) Bond Amortization

- $\$2,316 - \$2,000 = \$316$

(D) Total Cash Payment

- $\$100,000 \times 6\% \times 6/12 = \$3,000$

September 30:	DR Bond interest expense	3,494
	CR Bond payable	494
	CR Cash	3,000

(A) Total Interest Expense

- $(\$86,411 + \$456 + \$158 + \$316) \times 8\% \times 6/12 = \$3,494$

(B) Interest Payment (paid or accrued)

- $\$100,000 \times 6\% \times 6/12 = \$3,000$

(C) Bond Amortization

- $\$3,494 - \$3,000 = \$494$

November 30:	DR Bond interest expense	1,171
	CR Bond payable	171
	CR Bond interest payable	1,000

(A) Total Interest Expense

- $(\$86,411 + \$456 + \$158 + \$316 + 494) \times 8\% \times 2/12 = \$1,171$

(B) Interest Payment (paid or accrued)

- $\$100,000 \times 6\% \times 2/12 = \$1,000$

(C) Bond Amortization

- $\$1,171 - \$1,000 = \$171$

Early Retirement of Bonds

Steps

1. Record interest and amortize the bonds being retired up to the retirement date.
2. Determine the cash that needs to be paid to bondholders for having their bonds called (CR to Cash).
3. Compare the redemption price to the bond carrying value to determine the gain or loss on retirement.
4. Write off carrying value of retired bonds (DR to Bonds Payable), and record gain or loss.

Entry for a Loss on Redemption

DR Bonds Payable

DR Loss on Redemption

CR Cash

Entry for a Gain on Redemption

DR Bonds Payable

CR Gain on Redemption

CR Cash

Example

At fiscal year-end, December 31, 2010, Company XYZ has \$57,714 of outstanding bonds payable. The bonds represented \$60,000 face-value 8.5 per cent five-year bonds, set to mature on December 31, 2013. The bonds paid interest semi-annually on June 30 and December 31, and the market interest rate on the date of issuance was 10 per cent.

On March 31, 2011, all the bonds were called for a cash value of \$61,585.

Step 1:

Record three months of interest and amortization on the called bonds.

DR Bond Interest Expense	1,443
CR Bond Payable	168
CR Cash	1,275

(A) Total Interest Expense

- $\$57,714 \times 10\% \times 3/12 = \$1,443$

(B) Interest Payment (paid or accrued)

- $\$60,000 \times 8.5\% \times 3/12 = \$1,275$

(C) Bond Amortization

- $\$1,443 - \$1,275 = \$168$

Step 2:

Determine the cash paid to call the bonds. Given at \$61,585.

Step 3:

Compare the redemption price to the bond carrying value to determine a gain or loss on redemption. The carrying value represents the balance in bonds payable pertaining to the recalled bonds. In this case, the carrying value is \$57,882 (\$57,714 + \$168). Because more was paid to call the bonds than the carrying value of the bonds, there is a loss on redemption.

$$\text{Loss} = \$61,585 - \$57,882 = \$3,703$$

Step 4:

Record the appropriate debits and credits associated with the bond redemption.

DR Bonds Payable	57,882
DR Loss on Redemption	3,703
CR Cash	61,585

TRADING INVESTMENTS (WE BUY)

Trading investments can also be referred to as “marketable securities.”

Purchasing a Trading Investment (T/I)

Book Value of T/I = Purchase Price + Related Fees (commission) OR
 Cash Paid – Accrued Interest Included in the Purchase Price

e.g., \$100,000 worth of 12 per cent bonds were purchased at 98 plus two months' accrued interest. A \$500 commission charge was levied.

\$100,000 × .12 × (2/12)	\$ 2,000	(interest)
\$100,000 × .98	98,000	
Add Commission Fees	500	
Total Cash Paid	\$ 100,500	

So:	DR Trading Investments - Bonds	98,500
	DR Interest Receivable	2,000
	CR Cash	100,500

Receiving Dividends on Trading Investment Securities

A company is said to own trading investment securities when it holds a small, non-controlling interest of another company's stock for investment income purposes. When a dividend is declared, the owners only record the dividend as dividend revenue when the cash is *received*. The recording entry is:

DR Cash
CR Dividend Revenue

Receiving Interest on Trading Investment Debt

A company is said to own trading investment debt when it purchases another company's bonds. Interest earned on the trading investments is calculated and recorded on payment dates, fiscal year-end or on disposal.

Entries

DR Cash
CR Interest (or Investment) Revenue and/or
CR Interest Receivable

Sale of Trading investments

Step 1

Calculate the price received less any fees (X).

Step 2 (apply to T/I — Bonds only)

Calculate the accrued interest up to the date of sale (Y). (This is recorded as Interest Revenue.)

Step 3

Compare X with the book value of the trading investments to determine if there is a gain or loss on the trading investments sale.

Total cash received from sale is X + Y.

e.g., 100 \$1,000-face value 12 per cent debt trading investments listed on the books at \$99,850 were sold at 105 plus four months accrued interest less a \$500 commission.

$$\text{Interest} = \$100,000 \times .12 \times (4/12) = \$4,000$$

Selling Price — \$100,000 × 1.05	\$ 105,000
Less Commission Charges Paid	<u>(500)</u>
Net Selling Price	\$ 104,500
Book Value	<u>99,850</u>
Gain on Sale	\$ 4,650

Entries:

DR Cash	108,500
CR Trading investments (Bonds)	99,850
CR Interest Revenue	4,000
CR Realized Gain on Sale	4,650

Year-end Valuation

A company must adjust the book value of its trading investments at fiscal year-end to match the securities market value. Regardless of whether the company owns stocks or bonds, the process for adjusting at year end is very similar.

Step 1

Calculate market value:

- Stocks — use selling price per stock
- Bonds —there are two possibilities:
 - 1) Face value by the market rate.
Example: a \$1,000 bond at 103 would have a market value of $\$1,000 \times 103\% = \$1,030$
 - 2) Use current market interest rates to present value both the face value and interest payments remaining on the bond and add them together. When using present value tables in Business 2257, n is the number of remaining interest payment dates¹ and i is the market interest rate adjusted for semi-annual interest.
Example: A \$1,000, five-year bond was issued on January 1, 2002, with a coupon rate of eight per cent. The bond paid interest semi-annually on January 1 and July 1. The bondholder's current fiscal year-end is March 31, 2004, and, at this date, market interest rates are six per cent.

Number of periods (n) = 6 (because there are three years until the bonds mature, and two interest payments per year.)

Interest rate (i) = 3% (6% adjusted for semi-annual interest)

Present value of face value: $(\$1,000 \times 0.83748)$	$=$	$\$ 837$
Present value of interest payments: $(\$40 \times 5.41719)$	$=$	<u>$\\$ 217$</u>
Market value:	$=$	$\$ 1,054$

Step 2

Determine the book value of your trading investments by referring to the relevant balance in your trading investment account.

¹ Unless the next interest payment date falls on the following day.

Step 3

Calculate and record unrealized gains or losses:

To calculate unrealized gains and losses, subtract the cost of the marketable security from its market value. If the market value is higher than the cost, record an unrealized gain and debit the marketable security. If it is lower than cost, record an unrealized loss and credit the marketable security. Unrealized gains are recorded in the revenue section. Unrealized losses are recorded in the expense section.

COMPARISON BETWEEN BONDS PAYABLE AND TRADING INVESTMENTS BONDS

	TRADING INVESTMENTS (BONDS)	BONDS PAYABLE
1. Type of account?	Asset	Liability
2. Who issues?	Other firms	Us
Who buys?	Us	Investors
3. Value recorded on the books	Purchase price	Carrying value
4. Recording interest	Interest is revenue <ul style="list-style-type: none"> • DR Cash or Interest Receivable • CR Interest Revenue 	Interest is expense <ul style="list-style-type: none"> • DR Interest Expense • CR Cash or Interest Payable
5. Gains/Losses When recorded?	Record a gain or loss when you sell a marketable security	Gain or losses may be recorded on a bond redemption
6. Adjustments?	Must update to market value at fiscal year end by recording unrealized gains or losses.	Must accrue interest and amortize bonds at fiscal year-end or when bonds are redeemed
7. As the company, why would you buy?	Excess cash → investment	Not applicable
8. As the company, why would you issue?	Not applicable	You may need to raise capital

CONCLUSION

A good understanding of the revenue recognition principle and the matching principle will be invaluable when doing cases involving stocks, bonds and trading investments.

DUFFINBEAR INC.

Eli Gladstone wrote this case under the supervision of Elizabeth M.A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca.

Copyright © 2012, Richard Ivey School of Business Foundation

Version: 2024-02-27

It was January 7, 2012, and Rob Hantziano, president and founder of DuffinBear Inc., had just looked over many of the operating decisions he had made over the past fiscal year. He was eager now to review the various financing and investing transactions that had taken place over the past fiscal year (January 1, 2011, to December 31, 2011).

FINANCING

Bonds

On January 1, 2011, DuffinBear issued 1,000, 10-year bonds each with a face value of \$1,000 and a nine per cent coupon rate. The market interest rate on the date of issuance was 10 per cent. Interest was paid on July 1 and January 1.

On September 1, 40 per cent of the nine per cent bonds were called at 102.

Stocks

On February 3, 2011, 400,000 no par value common stocks were issued at \$25 per share. At the same time, 20,000, \$8 cumulative convertible, non-callable, no-par value, preferred shares were also issued. Total proceeds from the preferred share issuance were \$2 million. On April 15, a \$0.25 cash dividend on common shares was declared to be paid on May 1.

On December 23, 2011, anticipating positive earnings for DuffinBear's first financial year, a five per cent stock dividend was declared to be distributed on January 23, 2012. DuffinBear shares were trading at \$25.40 per share on the date of declaration, and at \$26.02 at the fiscal year-end.

INVESTING**Trading investments**

DuffinBear purchased 100, nine per cent, \$1,000 face value corporate bonds on February 1, 2011, for 99 plus accrued interest. The bonds were set to mature July 1, 2014. A \$250 commission fee was also incurred. The bonds paid interest on January 1 and July 1. On May 1, 2011, the market value of these bonds was 99 per cent of the face value.

On September 1, 2011, half of the nine per cent corporate bonds were sold at 101 plus accrued interest. A \$100 fee was incurred for the sale. At fiscal year-end, bonds were trading at 98 in the market.

DuffinBear also invested excess cash in stocks of a major airline company, Flying Goose (FG). On April 3, 2011, DuffinBear purchased 400 shares at \$43.10 per share, plus a \$400 commission. FG declared a stock dividend of five per cent on June 15, 2011, with a date of distribution of July 20, 2011. On December 20, 2011, DuffinBear sold 60 per cent of its total interest in FG at a price of \$46.50 per share, plus a \$250 commission. The proceeds would be remitted to DuffinBear on January 8, 2012. At fiscal year end, FG stock was trading at \$45.50 per share.

REQUIRED

As Rob Hantziano, prepare all financing and investing transactions for DuffinBear Inc. regarding fiscal 2011.

INTRODUCTORY NOTE ON ACCOUNTING FOR LEASES

Ian Dunn revised this note (originally written by Gillian Heisz under the supervision of Professor Darroch (Rich) Robertson) solely to provide material for class discussion. The authors do not intend to provide legal, tax, accounting or other professional advice. Such advice should be obtained from a qualified professional.

Version: 2018-02-06

A lease is a contractual agreement that gives the lessee the right to use a specific asset, owned by the lessor, for a stated period of time in return for monetary compensation. The terms of a lease contract can vary widely and are restricted only by the assets and the resourcefulness and ingenuity of the individuals involved. The length of a lease can extend as long as the expected economic life of an asset or any shorter period thereof. The compensation or “rental payments” may be level, decreasing, or increasing. They may also be set out or contingent on some outside source, such as the consumer price index or the prime interest rate. In the retail industry, it is common to see a lease that has a set amount per square foot plus a small percentage of sales. The lease agreement will also specify which party pays an asset’s “executory” costs (e.g. maintenance, taxes, and insurance). The agreement can also contain a variety of restrictions, covenants, and termination options.

The grouping of a set of provisions constitutes a lease agreement. The variety of the provisions makes finite classifications impossible. However, accounting standard-setting bodies have derived some common criteria for grouping leases and standardized accounting methods for the various groups.

This note discusses lease accounting for Canadian public companies who report using CICA Handbook (Accounting) Part I – International Financial Reporting Standards (IFRS) and lease accounting for Canadian private companies using CICA Handbook (Accounting) Part II – Accounting Standards for Private Enterprises (ASPE). While there are many similarities between IFRS and ASPE lease accounting, this note identifies and discusses key differences.

BENEFITS OF LEASING

The popularity of leasing is evident by the fact that in 2010, 85 per cent of the 500 largest Canadian public companies disclosed leasing transactions in their financial statements.¹ The widespread usage of leasing indicates that there are benefits in leasing an asset rather than owning it. The most widely discussed benefits of leasing are:

1. Lease agreements are often less restrictive than debt agreements.
2. Leasing allows 100 per cent of the purchase price of an asset to be financed as opposed to 60 per cent to 80 per cent under a typical purchase agreement.
3. A lease agreement puts the lessor ahead of secured creditors in the case of the lessee's bankruptcy because the lessor retains legal title to the leased asset.
4. Leasing may allow for rapid changes in equipment and reduce the risk of technical obsolescence.
5. Leasing often does not add debt to a balance sheet (and thus does not affect balance sheet ratios).
6. A lease may be able to maximize the value of tax deductions.

¹ Compustat Fundamentals Annual database.

ACCOUNTING FOR LEASES: HISTORY

Prior to 1979, the Canadian Institute of Chartered Accountants (CICA) was silent on the subject of lease accounting. Lease payments were simply an operating expense of the lessee and rental income for the lessor. The balance sheet of the lessee gave no indication of leased assets. In the United States, however, attempts were made in the 1960s to have leases, which were by their provisions essentially sales and financing transactions, reported as such and appear on the balance sheet of the lessee. A series of opinions was issued by the Accounting Principles Board, but the accounting criteria prescribed were easily and readily circumvented by lessees. In 1976, the Financial Accounting Standards Board (FASB), in a final attempt to eliminate all inconsistencies, issued Statement No. 13, "Accounting for Leases." Statement No. 13 superseded all other pronouncements. It was the result of a three-year project and was thought that "it would remove most, if not all, of the conceptual differences in lease classification as between lessors and lessees and that it would provide criteria for such classification that are explicit and less susceptible to varied interpretation than those in previous literature."² Since 1976, Statement No. 13 has been amended 10 times and 18 interpretations regarding its application have been issued.

In December 1978, the CICA responded to the leasing question by issuing Handbook Section 3065, "Leases." The Accounting Research Committee concluded that:

A lease that transfers substantially all of the benefits and risks of ownership to the lessee is in substance an acquisition of an asset and an incurrence of an obligation by the lessee and a sale or financing by the lessor.

The International Accounting Standards Committee (IASC) issued its first version of IAS 17 "Accounting for Leases" in 1982, replaced it in 1997 with a newer version called "Leases," and issued additional revisions in 2003. The standard addresses accounting and disclosure policies for leases for both lessees and lessors. The Standing Interpretations Committee (SIC) issued SIC 15 "Operating leases – incentives" in 1998 and SIC 27 "Evaluating the substance of transactions in the legal form of a lease" in 2000. Further, the International Financial Reporting Issues Committee (IFRIC) issued IFRIC 4, "Determining whether an arrangement contains a lease" in 2004, which provides more detail on the specific legal and economic issues associated with various potential lease arrangements.³ In January 2016, a new standard, IFRS 16 Leases, was published and would take effect for all annual periods beginning on or after January 1, 2019.

ACCOUNTING BY LESSEES

Both IFRS and ASPE separate leases into two categories for the sake of lessee accounting: finance leases and operating leases. The distinction between the two is important since companies must record capital assets and corresponding lease liabilities on their balance sheets for finance leases, while operating leases are simply recorded as periodic expenses with no asset and no liability. ASPE uses the term "capital lease" rather than "finance lease," but the terms are synonymous and are used interchangeably in this note. Determining how to classify a lease is challenging, and both standards provide guidance on how to do so.

Under IFRS 16, a lessee is required to treat a lease as a finance lease unless the lease term is 12 months or less and contains no purchase options or the underlying asset has a low value when new.

²"Accounting for Leases," Statement of Financial Accounting, No. 13 (Stamford, Conn: FASB, 1976), Par. 62.

³The Standing Interpretations Committee (SIC) was established in 1997 to provide additional guidance on complex accounting issues. It was replaced by the International Financial Reporting Issues Committee (IFRIC) in 2001 and was subsequently renamed the IFRS Interpretations Committee in 2010.

Under both the provisions of ASPE Section 3065, a lessee is required to treat a lease as a finance lease if substantially all the risks and rewards of ownership are transferred to the lessee. If a lease is not classified as a finance lease, it is considered to be an operating lease.

According to ASPE, if one or more of the following conditions apply, there is a presumption that substantially all of the risks and rewards have transferred, making the lease a finance lease:

1. There is reasonable assurance the lessee will obtain ownership of the leased property at the end of the lease term. The presence of a bargain purchase option or provision for ownership transfer would normally satisfy reasonable assurance.
2. The lease term is of such a duration that the lessee will receive substantially all of the economic benefits expected to be derived from using the leased property over its life span. Usually 75 per cent or more would indicate substantially all.
3. The lessor is assured of recovering the investment in the leased property and of earning a return on the investment as a result of the lease agreement. This condition exists if the present value of the minimum lease payments is equal to substantially all (usually 90 per cent or more) of the fair value of the leased property at the inception of the lease.

The first guideline suggests that finance lease treatment is appropriate if it is anticipated at the outset of the contract that the asset will eventually be legally owned by the lessee. Recording it as a finance lease, by recording a long-term fixed asset and obligation, simply gives recognition to this fact.

The second and third guidelines tend to be associated with each other since a longer lease term implies a higher present value of future payments. The second guideline only applies if the lessor's use of the asset is limited to no more than 25 per cent of the asset's economic life, and most likely at the end of its life. If one accepts that the benefit of most assets declines over time, then the use of less than 25 per cent of the asset's economic life is of limited benefit relative to the first 75 per cent. This suggests that a large portion of the risk and benefits of ownership has been transferred by the lease.

The third guideline requires that 90 per cent of the total return be guaranteed by the lessee. This leaves 10 per cent or less to come from the unguaranteed residual value of the asset at the end of the lease. In other words, the lessee is paying for at least 90 per cent of the fair value of the asset.

Finance leases give rise to an asset and an obligation for financial statement purposes. The initial value for recording both the asset and obligation is the present value of the minimum lease payments that the lessee must make to a maximum of the leased asset's fair value. Under IFRS, the discount rate is the interest rate implicit in the lease, while under ASPE, the discount rate is the lesser of the interest rate implicit in the lease and the lessee's incremental borrowing rate. Assets qualifying as finance leases are depreciated over the asset's period of expected use on a basis consistent with other similar assets.

Lessee (Finance Lease)

Terms of lease: 7 years

Interest rate: 10%

Annual lease payment: \$2,000

Lessee's fiscal year-end: Dec. 31

The lessee enters into a lease arrangement on Jan. 2, 2011:

Asset under finance lease $[\$2,000 \times (1 + 4.35526)]$	10,711
Obligation under finance lease	10,711

Note: the 4.35526 is the present value of an annuity factor resulting from this example using the inputs $i = 10\%$ and $n = 6$. This factor can be found using a present value of an annuity table and locating the point where $i = 10\%$ and $n = 6$ intersect. This factor is required to calculate the present value of minimum lease payments as discussed above.

First lease payment on Jan. 2, 2011:

Obligation under finance lease	2,000
Cash	2,000

Interest is accrued at fiscal year-end, December 31, 2011:

Interest expense $[(\$10,711 - \$2,000) \times 10\%]$	871
Interest payable	871

The lease is depreciated on a straight-basis in the first year, recognized at year-end:

Depreciation $(\$10,711 / 7)$	1,530
Accumulated depreciation	1,530

Lease payment on Jan. 2, 2012:

Obligation under finance lease $(\$2,000 - \$871)$	1,129
Interest payable	871
Cash	2,000

Interest is accrued at fiscal year-end, December 31, 2012:

Interest expense $[(\$10,711 - \$2,000 - \$1,129) \times 10\%]$	758
Interest payable	758

The lease is depreciated on a straight-basis in the second year, recognized at year-end:

Depreciation $(\$10,711 / 7)$	1,530
Accumulated depreciation	1,530

Lease payment on Jan. 2, 2013:

Obligation under finance lease $(\$2,000 - \$758)$	1,242
Interest payable	758
Cash	2,000

All leases that are not considered to be finance leases are classified as operating leases. An operating lease is not capitalized, nor does any obligation appear on the balance sheet. For an operating lease, the actual lease payments are charged to expense on a straight-line basis annually over the lease's term.

For both operating and finance leases, the notes to the financial statements should provide the minimum lease payments for the next five years and the total thereafter. Under ASPE, payments for each of the next five years must be detailed, while under IFRS, companies only need to disclose the next year's payment and the aggregate payments for years two through five. In the case of a finance lease, the amount of imputed interest and any executory costs should be subtracted from this total to reconcile with the liability shown on the balance sheet. This disclosure enhances a user's ability to determine the extent and timing of future cash flows.

COMPARISON OF FINANCE AND OPERATING LEASES IN FIRST YEAR

Lessee	<u>Finance Lease</u>	<u>Operating Lease</u>
Expense		
Depreciation expense	\$1,530	
Interest expense	<u>871</u>	<u>\$2,401</u>
Rent expense		<u>\$2,000</u>
Fixed asset (net)	<u>\$9,181</u>	<u>\$ 0</u>
Lease obligation (including interest payable)	<u>\$9,582</u>	<u>\$ 0</u>

NOTE DISCLOSURE FOR LESSEE (FINANCE LEASE)

Future lease payments required under finance leases at December 31, 2011 are as follows:

2012	\$ 2,000
2013	2,000
2014	2,000
2015	2,000
2016	2,000
Thereafter	<u>2,000</u>
	12,000
Less imputed interest at 10%	<u>2,418</u>
Present value of minimum lease payments	<u>\$ 9,582</u>

Included in long-term interest expense is \$871 of interest expense arising on finance leases.

NOTE DISCLOSURE FOR LESSEE (ASPE OPERATING LEASE)

Future lease payments required under operating leases at December 31, 2011 are as follows:

2012	\$ 2,000
2013	2,000
2014	2,000
2015	2,000
2016	2,000
Thereafter	<u>2,000</u>
Total	\$12,000

SUMMARY

When a company wishes to acquire the use of an asset, it has a variety of contracts into which it can enter. These range from a short-term lease or rental arrangement to an outright purchase. The question faced by accounting standard setters was whether there was any type of contract other than an outright purchase

that should result in the recording of an asset (a future benefit) and a liability (a future obligation). They concluded that if substantially all the risks and benefits of ownership have been transferred, it would be appropriate to record the transaction in a manner similar to actually purchasing the asset. Since extensive disclosure is required for lease commitments, an informed user can access the necessary information to make reasoned decisions.

LEVUKA SPORT FISHING INC.

Rob Bremner wrote this case under the supervision of Elizabeth M.A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2013, Ivey Business School Foundation

Version: 2024-07-15

It was late December 2012, and Manuela Tulo, chief financial officer and major shareholder of Levuka Sport Fishing Inc. (LSF), sat down to prepare LSF's books for the fiscal year ending November 30, 2012 (see Exhibit 1). LSF was a charter fishing company based in Levuka, Fiji, that specialized in heavy tackle and deepwater jigging. Customers would charter one of LSF's sport fishing yachts for between \$810 and \$7,850 per day,¹ and one of LSF's award-winning crews would take parties of up to 12 on a full-day fishing excursion. Yachts would depart the local marina no later than six o'clock every morning. With Fiji's tropical climate, fishing was possible year-around, but the best season for Pacific blue marlin fishing—and the busiest time of year for LSF—was January to March. Consequently, Tulo liked to ensure the paperwork was completed immediately following fiscal year-end. Despite the island's remote location in the South Pacific Ocean, corporations in Fiji followed international financial reporting standards IFRS and had done so since early 2007.

LSF had been operating since December 2003, when Manuela Tulo and Ben Luveni started offering chartered fishing tours of the surrounding area with their 1985, 24-foot Shamrock Center-Console, "Reel Easy." Things started slowly, but by the end of the year Luveni and Tulo had managed to recover their entire investment in Reel Easy, in addition to paying themselves reasonable salaries. The following year, the partners decided to purchase three more boats, hire a crew and incorporate the business. The fleet continued to expand at a steady pace as the two owners purchased used fishing boats. It was only recently that Tulo suggested that they invest in larger, more expensive flybridge yachts² to attract the wealthier tourists visiting Fiji. Because flybridge fishing yachts often listed for \$600,000 to \$800,000, Tulo decided the best course of action would be to lease the yachts.

CHARTER FLEET

LSF operated a total of eight vessels, of which two were leased. The first leased yacht was acquired by signing a 15-year lease on June 1, 2010. It was a brand new, 40-foot Pegasus Custom Sportfisher named "Anchor Management," which LSF chartered to customers for \$5,900 per day. The Sportfisher retailed for

¹ All figures are in Fijian dollars. At the time of the case, the Fijian dollar was trading at a rate of FJ\$ to Cdn\$0.57.

² A flybridge yacht is a boat with an open deck positioned above the main control area of the boat, typically equipped with duplicate controls. This setup allowed the crew to operate the boat in isolation of the guests, increasing the capacity of the boat.

\$680,000 and had a useful life of 25 years. The lease specified annual cash payments of \$47,000 per year with a four per cent implied borrowing rate. The first payment, like all of LSF's leases, was made at the beginning of the lease. The Sportfisher, despite its high price tag, was a popular choice among the tourists and avid anglers who visited the islands.

The second lease was signed on January 1, 2012, for a 2010, 48-foot Tollycraft Flybridge yacht. The length of the lease was 10 years. Annual cash payments of \$92,000 were required, with a three per cent implied rate of borrowing. The lease contained a bargain purchase option, whereby at the end of the lease, LSF had the option to buy the yacht at substantially below fair market value. Both boats were leased from Cal Marine, an Australian marine dealership. LSF pegged the daily rate for booking the Tollycraft at \$7,850—it was the company's largest, most ambitious cruiser yet. For that reason, Luveni and Tulo decided to name it "The Cod Father." The Tollycraft had a useful life of 28 years and retailed for \$1,005,000.

Complete rate details and booking records for each of LSF's vessels are listed in Exhibit 2. Rates were determined based on fuel consumption, the number of crew required to operate the vessel, and maintenance costs. Fuel costs for the day amounted to 30 per cent of the rate charged to customers and had been paid in full. Vessels with rates above \$1,500 per day required two crew members, each of whom was paid a flat rate of \$160 per day in cash. All other boats needed only one crew member. Crew wages for the year amounted to \$176,000 for fiscal 2012 and were paid on the last day of the month for the entire month's work.

OFFICE

LSF operated out of an office in Luveka's busiest marina. The space occupied 700 square feet in total, leased for \$15 per square foot annually, with a two per cent implicit borrowing rate. The lease was renewed at the beginning of fiscal 2012 for a total of four years. In addition to the lease payments, LSF also paid for utilities, which averaged \$90 per month.

OTHER EXPENSES

LSF employed two salespeople in the office. Each salesperson was paid a \$10,000 salary annually and received a three per cent commission for any sales they made during their shift.³ Tulo and Luveni paid themselves an annual salary of \$120,000 each. All salaries (including sales commissions) were paid on the last day of the month for the entire month's work.

REQUIRED

As Manueli Tulo, post all opening balances and record any necessary transactions and adjusting entries in T-account form for fiscal 2012.

³ In 2012, the two salespeople earned a total of \$47,049 in commissions.

EXHIBIT 1: STATEMENT OF FINANCIAL POSITION AS AT NOVEMBER 30, 2011**Assets:**

Cash	\$6,530
Fishing boats	\$960,000
Less: Accumulated depreciation	<u>403,000</u>
Sportfisher (leased)	557,000
Less: Accumulated depreciation	<u>543,466</u>
	<u>54,347</u>
Total assets	<u><u>\$1,052,649</u></u>

Liabilities and shareholders' equity:**Liabilities:**

Lease interest payable	9,387
Finance lease obligation (Sportfisher)	<u>469,324</u>
Total liabilities	<u>478,711</u>

Shareholders' equity:

Common stock	60,000
Retained earnings	<u>513,938</u>
Total shareholders' equity	<u>573,938</u>

Total liabilities and shareholders' equity	<u><u>\$1,052,649</u></u>
--	---------------------------

EXHIBIT 2: RATE AND BOOKING DETAILS, 2012

Boat⁴	Rate	Bookings⁵	Total Revenue
Reel Easy	\$810	49	\$39,690
Reel Therapy	\$925	140	\$129,500
Vitamin Sea	\$1,340	167	\$223,780
Why Knot?	\$2,695	110	\$296,450
Bite Me	\$3,200	98	\$313,600
O'Fish'L Business	\$3,985	103	\$410,455
Anchor Management	\$5,900	46	\$271,400
The Cod Father	\$7,850	15	\$117,750
Total			\$1,802,625

⁴ LSF typically purchased its boats in used condition, depreciating them on a straight-line basis. Depreciation expense for LSF's six owned boats amounted to \$49,000 in fiscal 2012.

⁵ LSF accepted cash, credit, or debit card as a means of payment — always required upfront.

EQUABILITY BY JEN CANDLE COMPANY: A MANUFACTURING INVENTORY EXERCISE

Kaitlyn Oh wrote this exercise under the supervision of Ian Dunn solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2023, Ivey Business School Foundation

Version: 2024-02-27

In November 2020, Jen Levinton, owner of Equability by Jen Candle Company (EJCC), was reviewing her company's financial performance for its third fiscal year (FY). To update the accounting records, Levinton gathered EJCC's balance sheet for fiscal 2019 (see Exhibit 1) and the bookkeeper's list of cash receipts and disbursements for fiscal 2020 (see Exhibit 2).

The bookkeeper had already recorded the fiscal 2020 cash transactions, but there was a chance that this was done incorrectly. Levinton recorded the opening balances, cash receipts, and cash disbursements to calculate the unadjusted trial balances for fiscal 2020 (see Exhibit 3). Levinton started with the unadjusted trial balances and planned to use the balance sheet and the list of cash receipts and disbursements for reference, if necessary. She would have to figure out where each entry had been posted, determine whether it required an adjustment, and make all necessary adjustments accordingly.

EQUABILITY BY JEN CANDLE COMPANY

EJCC was a candle manufacturer located in Canmore, Alberta, Canada. EJCC sold candles to local gift shops and directly to end consumers through its online web portal. All shipments were made free on board (FOB) shipping point.¹ In fiscal 2020, EJCC sold a total of 16,560 candles. Gift shop customers purchased candles for the wholesale price of CA\$12² per candle in fiscal 2020, which accounted for 30 per cent of total unit sales. Gift shop customers always paid on account with credit terms of net 45. End consumers purchased candles from EJCC's online store for \$15 in fiscal 2020 and always paid with cash or cash equivalents at the time of purchase. Regardless of payment method, all sales were subject to a five per cent goods and services sales tax on the net invoice price.

¹ Free on board shipping point indicated that the ownership and responsibility for loss or damage of the goods transferred from the seller to the buyer from the moment the goods are shipped; Steven Nickolas, "Free on Board Shipping Point vs. Free on Board Destination: What's the Difference?" Investopedia, January 13, 2021, accessed July 5, 2021, www.investopedia.com/ask/answers/052515/what-distinction-between-free-board-fob-shipping-point-and-destination.asp.

² All currency amounts are in CA\$ unless otherwise specified.

EJCC had yet to record sales taxes for the credit sales at fiscal year-end. The bookkeeper had recorded the sales taxes on cash sales and the payment of all sales tax remittances. No finished goods were in transit at fiscal year-end.

THE MANUFACTURING PROCESS

EJCC manufactured wax candles with scents of bonfire, vanilla, and serenity. The first step in the production process was to measure the wax pellets that would be used to create the candle. The wax was then melted and fragrances were added. The melted wax was poured into a jar with a wick. Finally, before moving the candle to finished goods storage, the jar was labelled and packaged. Direct labour was required throughout the entire production process, so Levinton considered direct labour hours to be evenly distributed.

OPERATIONS

Upon incorporation, Levinton took out a \$60,000, eight-year bank loan with an annual interest rate of 4.5 per cent. Equal payments of the principal were made on the last day of every month along with that month's interest owing. Interest was calculated each month based on the amount outstanding on the first day of that month.

The existing insurance policy was an 18-month policy purchased on November 1, 2018. The insurance policy was both a product and period cost. Levinton estimated that 85 per cent of the policy's cost was related to EJCC's production facilities. The remaining 15 per cent covered a variety of non-production-related business risks. Upon expiration of the existing policy, Levinton purchased a new 18-month policy for \$3,780 with the same coverage.

At fiscal year-end, EJCC had a utility bill in the amount of \$718 that remained unpaid. EJCC paid its utility bills on the 15th day of each month for the previous month's usage. Of the total utility expenses, 80 per cent was related to production activities.

LONG-LIVED ASSETS

On January 1, 2020, EJCC purchased the land and building that it had previously been renting.³ When Levinton first signed the rental agreement in fiscal 2019, she paid a deposit for the last month's rent. The land and building had an agreed-upon purchase price of \$300,000, which was paid with 40,000 common shares. On the date of purchase, EJCC's common shares were trading at \$10.45 per share.

Of the purchase price, 70 per cent related to the building. The building's total size was 1,600 square feet. The purchase cost was depreciated using the straight-line method.⁴ The administrative office used 200 square feet of space, and the finished goods storage area used 280 square feet of space. The remainder of the building was used for production. On March 30, 2020, EJCC received a property tax bill relating to the building. The bill amounted to \$6,000 for the 2020 calendar year. Levinton paid the property tax bill on April 17, 2020.

³ The rental agreement ended on December 31, 2019.

⁴ The building had a useful life of 20 years and a residual value of \$30,000.

All other long-lived assets on the fiscal 2019 statement of financial position had been purchased on the date of incorporation and were depreciated using the straight-line method. No repairs, impairments, or changes to the residual value had occurred since the assets were purchased.

HUMAN RESOURCES

In fiscal 2020, Levinton worked a total of 2,000 hours and earned an annual salary of \$60,000. Levinton spent 20 per cent of her time manufacturing candles, 50 per cent of her time working on administrative duties, and the remaining 30 per cent of her time supervising production workers.

EJCC employed three part-time production workers solely to manufacture the candles. Each worker was paid an hourly wage of \$16.50. The three production workers worked a combined total of 2,979 hours in all of fiscal 2020. They were paid every Monday for the previous week's work. However, at the end of fiscal 2020, the production workers had yet to be paid for 13 hours each.

INVENTORIES

EJCC had three raw materials: wax, jars, and wicks. EJCC purchased its wax from two suppliers: Tulip Apothecary and Wax World. All wax shipments were made FOB shipping point. EJCC used the first-in, first-out method to value the ending balance in all raw materials. A physical inventory count revealed that there were 4,092 pounds of wax on-hand at fiscal year-end (see Exhibit 4).

Jars were purchased from Swanson Jars, who shipped FOB destination. At fiscal year-end, a physical inventory count revealed that \$3,511 worth of jars remained on hand. Wicks were purchased from Wick Worx, who shipped FOB destination and offered credit terms of eight end of month.

At fiscal year-end, a physical inventory count revealed that \$822 worth of wicks remained on hand. During fiscal 2020, EJCC used \$422 worth of production supplies. The production supplies consisted of candle fragrances, labels, and ribbons. Levinton found these production supplies difficult to trace to individual candles.

At fiscal year-end, the production workers had spent a total of 20 hours manufacturing the partially completed goods. Levinton had spent three hours of her own time manufacturing the partially completed goods. Levinton estimated that \$244 worth of raw materials had been used to manufacture the partially completed goods. At fiscal year-end, a physical inventory count revealed that there were 2,400 completed candles in finished goods inventory. No units had been damaged or stolen during fiscal 2020. Finished goods on hand at fiscal year-end were valued using the average cost method.

REQUIRED

Jen Levinton had to post all unadjusted trial balances (opening balances and the list of cash receipts and disbursements), transactions, and adjusting entries required for Equability by Jen Candle Company's FY ending October 31, 2020. Closing entries were not required.

**EXHIBIT 1: EQUABILITY BY JEN CANDLE COMPANY STATEMENT OF FINANCIAL POSITION
(AS AT OCTOBER 31, 2019)**

ASSETS

Current assets:

Cash	\$169,851
Accounts receivable	7,779
Prepaid insurance	1,080
Prepaid rent	1,800
Inventory	17,179
Production supplies	57
Total current assets	<u>197,746</u>

Long-lived assets:

Office equipment	8,000	
Accumulated depreciation—office equipment	<u>3,200</u>	4,800
Production equipment	7,000	
Accumulated depreciation—production equipment	<u>3,500</u>	3,500
Total long-lived assets		<u>8,300</u>

Total assets \$206,046

LIABILITIES AND SHAREHOLDERS' EQUITY

Current liabilities:

Accounts payable	\$5,604	
Current portion, bank loan	7,500	
Income tax payable	15,000	
Sales tax payable	370	
Production wages payable	495	
Total current liabilities		<u>28,969</u>

Long-term liabilities:

Long-term portion, bank loan	<u>37,500</u>	
Total long-term liabilities		<u>37,500</u>

Total liabilities 66,469

Shareholders' equity:

Common stock (12,000 outstanding, unlimited authorized)	72,000	
Retained earnings	67,577	
Total shareholders' equity		<u>139,577</u>
Total liabilities and shareholders' equity		<u>\$206,046</u>

Notes: No bad debts had been experienced in fiscal 2019 and none were expected in fiscal 2020; there was \$7,020 of wax, \$1,531 of jars, and \$266 of wicks in raw materials inventory and \$777 of work-in-process inventory on October 31, 2019. There were also 960 candles, valued at \$7,585 in finished goods inventory on October 31, 2019; the production equipment had a useful life of four years with no residual value; accounts payable included all applicable charges relating to utilities and raw materials inventory not yet paid for.

Source: Created by the authors.

EXHIBIT 2: EQUABILITY BY JEN CANDLE COMPANY BOOKKEEPER RECORDS: POSTING OF CASH RECEIPTS AND DISBURSEMENTS FOR FISCAL 2020

CASH RECEIPTS	ACCOUNT POSTED TO
Cash sales	\$173,880
Accounts receivable collections	64,116
Sales tax collections	8,694
Total	\$246,690

CASH DISBURSEMENTS	
Rent	\$1,800
Bank loan	9,370
Sales tax remittances	11,747
Insurance	3,780
Salaries	60,000
Production wages	49,005
Utilities	4,070
Accounts payable	5,604
Property taxes	6,000
Raw materials payments, wax	15,750
Raw materials payments, jars	18,874
Raw materials payments, wicks	3,130
Production supplies	429
Income tax	15,000
Total	\$204,559

Note: Bank loan includes accrued interest; production wages includes accrued wages from fiscal 2019; raw materials payments includes all applicable charges.

Source: Created by the authors.

**EXHIBIT 3: EQUABILITY BY JEN CANDLE COMPANY UNADJUSTED TRIAL BALANCE
(AS AT OCTOBER 31, 2020)**

Cash	\$211,982	
Accounts receivable		\$56,337
Prepaid rent	1,800	
Prepaid insurance	1,080	
Raw material, wax	22,770	
Raw material, jars	20,405	
Raw material, wicks	3,396	
Work in progress	777	
Finished goods	7,585	
Production supplies	486	
Office equipment	8,000	
Accumulated depreciation, office equipment		3,200
Production equipment	7,000	
Accumulated depreciation, production equipment		3,500
Production wages payable		495
Sales tax payable	2,683	
Current portion, bank loan	1,870	
Long-term portion, bank loan		37,500
Common stock		72,000
Retained earnings		67,577
Sales		173,880
Salaries expense	60,000	
Production wages expense	49,005	
Insurance expense	3,780	
Utilities expense	4,070	
Property tax expense	6,000	
Rent expense	1,800	
Total	\$414,489	\$414,489

Source: Created by the authors.

EXHIBIT 4: EQUABILITY BY JEN CANDLE COMPANY MOST RECENT WAX PURCHASES (IN CA\$)

Supplier	Date Shipped	Date Delivered	Date Paid	Quantity	Net Cost
Tulip Apothecary	October 23, 2019	October 29, 2019	November 5, 2019	2,688 lb	\$5,057
Wax World	December 1, 2019	December 3, 2019	December 7, 2019	1,800 lb	\$3,225
Tulip Apothecary	February 11, 2020	February 15, 2020	March 3, 2020	2,520 lb	\$4,415
Wax World	May 29, 2020	June 5, 2020	June 8, 2020	900 lb	\$2,327
Tulip Apothecary	June 26, 2020	June 29, 2020	June 30, 2020	3,060 lb	\$5,783
Wax World	October 25, 2020	October 28, 2020	—	1,080 lb	\$2,441

Note: Net cost includes all applicable charges and discounts; October 23 order from Tulip Apothecary recorded as accounts payable in fiscal 2019 at the gross invoice price of \$5,057; bookkeeper correctly recorded payment for the order in fiscal 2020 cash disbursements; lb = pound; 1 pound = 0.45 kilogram.

Source: Created by the authors.

BEANCOUNTR INC.: A FINANCING AND INVESTING EXERCISE

Kaitlyn Oh wrote this exercise under the supervision of Ian Dunn solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2021, Ivey Business School Foundation

Version: 2023-03-07

In April 2020, Lindy Supert, owner and founder of BeanCountr Inc. (BeanCountr), was reviewing her company's financial performance for its third fiscal year (FY). BeanCountr was a financial technology start-up located in London, Ontario, Canada. Supert had already reviewed the company's operating decisions over the previous year and was now eager to review the company's financing and investing transactions. Supert downloaded BeanCountr's fiscal 2019 balance sheet (see Exhibit 1), prepared using International Financial Reporting Standards (IFRS), and began to work.

TRADING INVESTMENTS

On May 2, 2019, BeanCountr purchased 120 PortKey Electric Corp. 10-year bonds when the market interest rate was 6 per cent. To purchase the bonds, BeanCountr paid CA\$138,416.¹ The price included accrued interest and a \$460 brokerage fee. The bonds were first issued on November 15, 2015, when the market interest rate was 4 per cent. The bond paid an annual coupon rate of 8 per cent on November 15 and May 15 of each year. On August 30, 2019, BeanCountr sold 100 per cent of the PortKey Electric Corp. bonds when the market interest rate was 5 per cent, incurring a brokerage commission of \$270.

At the beginning of fiscal 2020, BeanCountr owned 1,800 common shares of Persimmon Ltd. On September 12, 2019, Persimmon declared a common dividend of \$0.35 per share. The date of record for the dividend was September 19, 2019, and the date of distribution was October 2, 2019.

On December 21, 2019, Persimmon declared a 5 per cent stock dividend when the shares were trading at \$14.10. The date of record for the dividend was January 3, 2020, and the date of distribution was January 15, 2020. On the date of record, the shares were trading at \$14.25. On the date of distribution, the share price had fallen to \$13.70.

At BeanCountr's 2020 fiscal year-end, Persimmon's common shares were trading at \$13.85 per share.

¹ All currency amounts are in CA\$ unless otherwise specified.

EQUITY FINANCING

On the date of incorporation, Supert contributed \$68,000 in exchange for 4,000 BeanCountr common shares. On that same date, Supert issued 1,000 cumulative and convertible \$2 preferred shares to her friends and family in exchange for \$52,000. Preferred shares could be converted at any time to common shares at a rate of four common shares for each preferred share.

BeanCountr declared a 2 per cent stock dividend to common shareholders on April 10, 2019, when its shares were trading at \$15.20. The dividend had a date of record of April 16, 2019 and would be distributed on April 28, 2019. On the date of record, the shares were trading at \$15.35; on the date of distribution, the share price had increased to \$15.60.

Of the outstanding preferred shares, 20 per cent were converted to common shares on August 21, 2019. On the date of conversion, common shares were trading at \$16.70, and preferred shares were trading at \$48.30.

BeanCountr declared a \$0.50 per share cash dividend to common shareholders on March 21, 2020, when its shares were trading at \$12.50. The dividend had a date of record of March 28, 2020 and would be distributed on April 15, 2020. At fiscal year-end, common and preferred shares were trading at \$16.70 and \$48.25, respectively.

DEBT FINANCING

On February 3, 2020, BeanCountr secured a \$25,000 line of credit from the bank. Interest was charged at a floating interest rate on the amount borrowed. On February 17, 2020, BeanCountr borrowed \$14,500 on the line of credit. On March 31, 2020, BeanCountr paid \$66 in cash for the accrued interest for the months of February and March.

On July 15, 2017, BeanCountr issued 50 callable² 10-year bonds. The bonds paid an annual coupon rate of 8.5 per cent that was distributed semi-annually on January 15 and July 15. At the time the bonds were issued, the market interest rate was 7 per cent. BeanCountr recalled 20 per cent of the outstanding bonds on March 1, 2020, when the market interest rate was 8 per cent.

REQUIRED

Supert must now record the opening balances and all necessary transactions for BeanCountr Inc.'s fiscal year, ending March 31, 2020.

² The 8.5 per cent bonds were callable at 107 at the option of BeanCountr.

EXHIBIT 1: BEANCOUNTR INC. STATEMENT OF FINANCIAL POSITION, MARCH 31, 2019 (IN CA\$)**ASSETS****Current assets:**

Cash	\$159,481
Accounts receivable	10,062
Trading investment, stock	27,000
Total current assets	<u>196,543</u>
Total assets	<u>\$196,543</u>

LIABILITIES AND SHAREHOLDERS' EQUITY**Current liabilities:**

Bond interest payable	\$885
Total current liabilities	<u>885</u>

Long-term liabilities:

8.5% Bond payable*	54,658
Total long-term liabilities	<u>54,658</u>
Total liabilities	<u>55,543</u>

Shareholders' equity:

Common stock (4,000 outstanding, unlimited authorized)	68,000
Contributed capital, preferred stock	620
\$2 cumulative, convertible, preferred stock (800 outstanding, 5,000 authorized)**	41,600
Retained earnings	30,780
Total shareholders' equity	<u>141,000</u>

Total liabilities and shareholders' equity	<u>\$196,543</u>
---	-------------------------

Note: *Between January 15, 2019 and March 31, 2019, the bonds had been amortized by \$87; **dividends were last declared on November 28, 2018.

Source: Created by the authors.

KESEY'S MAILBOXES (ABRIDGED)

Darren Henderson wrote this case under the supervision of Elizabeth M.A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2000, Ivey Business School Foundation

Version: 2018-02-01

Ken Kesey, a computer technician living in St. Thomas, Ontario, decided he could supplement his income by producing unique wooden mailboxes. Woodworking had long been a pastime of Kesey. After talking to his neighbors, Kesey realized demand existed for wooden mailboxes in the rural areas surrounding London. Thus, he began Kesey's Mailboxes (KM) as a private corporation on September 1, 2012.

On September 7, 2013, Kesey began to compile the results for fiscal 2013. He was anxious to see how his company had fared in its first year of operations. Since KM purchased a number of assets on the date of incorporation, a statement of financial position for the beginning of the fiscal year can be seen in Exhibit 1.

SALES AND ACCOUNTS RECEIVABLE

KM sold to rural gardening and specialty shops. All customers bought on credit, and payment was due within 45 days. Gross sales for the year amounted to \$9,700, while cash collections from accounts receivable totalled \$5,120 for the same period.

FACILITIES

Kesey used a large shed in his back yard as the production facility. Kesey charged the company an all-inclusive \$150 per month for its use. Of the shed, 30 per cent was used for finished goods storage and 10 per cent for administrative office space, with the remainder used for production.

PRODUCTION PROCESS

Producing mailboxes was straightforward. Kesey cut and formed all of the mailboxes, while a hired painter painted attractive designs on the mailboxes. Another worker packaged the product and then distributed the finished mailboxes to retailers. Kesey believed that the best indication of increasing overhead costs was machine hours. During the year, 560 units were completed requiring 400 hours of machine time.

INVENTORIES

The company needed two raw materials—lumber and paint. The raw materials were bought from a wholesale supply company in London. A summary of purchase invoices is in Exhibit 2.

Office supplies needed were minimal in the first year with a total of \$125 being spent.

The only other supplies needed were glue, nails and epoxy that Kesey found difficult to trace to individual mailboxes. KM spent \$480 throughout fiscal 2013 on these materials.

LABOUR

Kesey hired an experienced college student, Teresa Wilke, to do the required painting on weekends. She was paid \$12 per hour and received her pay cheque every second Friday. Of the 208 hours she worked in fiscal 2013, Wilke had been paid for 202 hours.

The only other labour required was done by Kesey's nephew, Kevin Trace. Trace spent a total of 25 hours picking up paint and lumber from suppliers, with 35 per cent of this time spent on paint and the rest on lumber. Trace also spent 55 hours packaging mailboxes and 40 hours delivering finished mailboxes to retailers. Trace was paid \$9 per hour and was paid in cash at the end of each workday.

Kesey, rather than taking a fixed salary, took five per cent of net sales as compensation for his time. He took this amount on the last day of each month based on that month's sales. Kesey estimated that he spent approximately 75 per cent of his time producing the mailboxes and the other 25 per cent of his time looking after the administrative side of the business.

LONG-LIVED ASSETS

Trace used the van to pick up lumber and paint and to take mailboxes to retailers. He drove 2,500 kilometers picking up paint and lumber and another 7,500 kilometers delivering mailboxes. As well, gas and routine maintenance cost \$500 for the van.

On September 3, 2012, Kesey took out a two-year fire and flood insurance policy on the production machines for a total cost of \$380.

FINANCING

The company was responsible for repaying 10 per cent of the outstanding bank loan balance every August 31. Interest amounted to \$428 for fiscal 2013. This amount was payable on September 15, 2013.

ADVERTISING AND PROMOTION

KM advertised through the London Free Press with small pictorial advertisements every Saturday in the special Homes section of the newspaper, with the advertisements starting in October 2012. On the last day of each month, Kesey prepaid the next month's advertisements at a cost of \$100.

YEAR-END

On August 31, 2013, Kesey counted up all that he had remaining on hand. The value of the remaining lumber was estimated to be \$280 and the value of paint remaining on hand was \$50. There were no office supplies remaining. Next, Kesey estimated the value of glue, nails and epoxy to be \$75.

Due to the time lags in the production process, there were several partially completed mailboxes remaining. Kesey estimated that these goods contained about \$345 of materials and nine hours of Wilke's time and \$36 worth of Kesey's time. None of the unfinished goods had yet been packaged. Additionally, 20 hours of machine time had been spent on the incomplete mailboxes.

Finally, there were 53 completed mailboxes in finished goods storage. Kesey estimated that the business would pay income tax at a rate of 20 per cent. No returns and allowances were incurred in this fiscal year.

REQUIRED:

Post all opening balances, necessary transactions, adjusting and closing entries to T-accounts for Kesey's Mailboxes for fiscal 2013.

EXHIBIT 1: STATEMENT OF FINANCIAL POSITION
As at September 1, 2012

ASSETS

Cash	\$ 2,400
Van ¹	10,000
Office Equipment ²	2,600
Production Equipment ³	
Radial Saw	3,500
Sander	5,000
Paint Sprayer	<u>1,500</u>
Total Assets	<u>\$ 25,000</u>

LIABILITIES AND SHAREHOLDERS' EQUITY

Liabilities:	
Bank Loan (Current and Long-term)	\$ 5,000
Shareholders' Equity:	
Common Stock	<u>20,000</u>
Total Liabilities and Shareholders' Equity	<u>\$ 25,000</u>

¹ Depreciated using the straight-line method over seven years with a residual value of \$1,500.

² Depreciated using the straight-line method over 10 years with residual value of \$500.

³ Depreciated using the straight-line method over five years with no residual value.

EXHIBIT 2: PURCHASE RECORDS FOR FISCAL 2013

DATE	AMOUNT PURCHASED	RAW MATERIALS
September 1	\$ 1,780.00	Lumber
January 28	\$ 560.00	Lumber
May 30	\$ 392.00	Paint
July 11	\$ 430.00	Lumber

SPEEDY-COURIERS LIMITED

Mark Wisternoff prepared this case under the supervision of Richard H. Mimick solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 1983, Richard Ivey School of Business Foundation

Version: 2017-03-01

Speedy-Couriers Limited was formed in March 2014 by Erica Charleston and Greg Zanbar to begin operations on April 1, 2014, as a specialized courier company. Authorization was given for 100,000 no par value common shares and 10,000, \$5 cumulative convertible preferred shares. Each preferred share was convertible into four common shares. The stated aim of the company was to provide courier service for the specialized needs of doctors, lawyers and other professionals. March 31 was selected as the company's fiscal year end.

The principal shareholders, Charleston and Zanbar, acquired 3,000 common shares each for a cash payment of \$25 per share, on April 1, 2014. On April 15, 2014, two used Chevrolet vans and one Ford SUV, with an agreed-upon purchase price of \$60,000, were acquired for \$49,600 cash and 400 common shares.

On July 31, 2014, the board of directors of Speedy-Couriers declared a common dividend of \$0.20 per share. According to normal company practices, the dividend was to be paid on the tenth day of the month following the declaration.

Speedy-Couriers acquired a building to be used as a mail and parcel processing centre. In exchange, Speedy-Couriers issued 1,000 preferred shares at an agreed-upon value of \$100 each. The transaction was completed on September 1, 2014.

In November 2014, a deal was struck with a foreign firm to buy the latest in automatic mail-sorting technology. Since there was a waiting list and custom specifications would be required, it would take at least one year to deliver the equipment. To seal the deal, a \$15,000 cash payment was made. On delivery, Speedy-Couriers would pay the remaining \$40,000 cost with the issuance of 400 preferred shares.

On December 14, 2014, Speedy-Couriers repurchased and retired 200 of its common shares outstanding. On that date, common shares were trading at \$23 per share.

By January 1, 2015, common stock was being exchanged by investors at \$28 per share. On March 15, 2015, with the price of common stock up to \$30 per share, 40 per cent of the outstanding preferred stock was converted into common shares.

On March 31, 2015, the company declared a five per cent stock dividend would be distributed on April 10, 2015, in order to conserve cash resources. The price of common stock was \$31 per share during the last week of March 2015.

REQUIRED

Record all transactions for Speedy-Couriers Limited's first fiscal year ended March 31, 2015.

TRAVELLING THAI LTD.

Jessica Kelly wrote this case under the supervision of Elizabeth M.A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2012, Richard Ivey School of Business Foundation

Version: 2015-03-12

Avery Thomas, shareholder and manager of Travelling Thai Ltd. (Travelling Thai), was a chef with a flair for unique, exotic dishes. It was June 18, 2012, and she was eager to look at the business's financing situation after its sixth successful year of operations. Thomas completed her red seal training and apprenticeship program in 2003 and then worked in the kitchen of a high-end Vancouver hotel. She quickly grew tired of the lengthy evening and weekend shifts and the limitations of the conservative menu.

On June 1, 2005, Thomas incorporated Travelling Thai and began the process of planning her business and acquiring the necessary financing. Travelling Thai was a fleet of food trucks that would travel throughout Vancouver selling gourmet, Thai-inspired cuisine directly to customers.

On November 1, 2005, Travelling Thai issued 3,500 callable 7.5 per cent bonds to create the initial fleet of trucks and begin operations. Prevailing market interest rates on this day were 7 per cent. The bonds paid interest semi-annually on May 1 and November 1 and were expected to mature on November 1, 2015.

Travelling Thai proved to be an instant success, but Thomas discovered a challenge. The trucks were especially popular with two groups: tourists to Vancouver and downtown Vancouver workers. Travelling Thai was struggling to reach both sets of customers, so the fleet of trucks was expanded in the spring of 2009. On April 15, 2009, 1,000 callable 5.5 per cent bonds were issued when the prevailing market rate was 6 per cent. The bonds paid interest semi-annually each October 15 and April 15.

Having completed six years of operations, Thomas believed that Travelling Thai was now in a financial position to eliminate some of its existing debt to avoid incurring future interest costs. The 5.5 per cent bonds were quickly approaching their maturity date, so she decided to make a change with the 7.5 per cent bonds. On September 1, 2011, 30 per cent of the outstanding 7.5 per cent bonds were recalled at the current market price.¹ Thomas was proud of Travelling Thai's success so far and was glad to see such a large reduction in its liabilities.

¹ Prevailing market interest rates on the date of recall were 6 per cent.

REQUIRED

Record all opening balances, transactions, and adjusting entries in T-account form for the fiscal year ended May 31, 2012.

Exhibit 1

PARTIAL STATEMENT OF FINANCIAL POSITION
As at May 31, 2011

Liabilities and Shareholders' Equity

Current liabilities:

Accounts payable	\$63,215
Bond interest payable	28,750
Taxes payable	45,822
Total current liabilities	<u>137,787</u>

Long-term liabilities:

5.5% Bond payable (1,000 bonds; mature April 15, 2012)	995,806 ²
7.5% Bond payable (3,500 bonds; mature November 1, 2015)	<u>3,565,518³</u>
Total long-term liabilities	<u>4,561,319</u>

Shareholders' Equity:

Common stock	150,000
Retained earnings	<u>537,825</u>
Total Shareholders' Equity	<u>687,825</u>

Total liabilities and shareholders' equity	<u>\$5,386,931</u>
--	--------------------

² \$589 of amortization recorded between April 15, 2011, and May 31, 2011.

³ The carrying value on May 1, 2011 was \$3,566,588.

ARTHUR BROTHERS CONSTRUCTION LTD.

Jessica Kelly wrote this case under the supervision of Elizabeth M.A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2012, Richard Ivey School of Business Foundation

Version: 2012-08-17

It was late January 2012, and Max and Steve Arthur, co-owners of Arthur Brothers Construction Ltd. (Arthur Brothers), were eager to assess the success of their investments over the past year. Arthur Brothers was a general contracting company that focused on the building of individual family homes and was known for its very high-quality craftsmanship. Occasionally, the company also took on smaller renovation projects to fill in time between these large projects.

Since much of the work was completed outdoors, Arthur Brothers was a very seasonal business and was in very high demand during the late spring to early fall season. As a result, Max and Steve required customers to pay deposits in advance to book a project into their busy schedule. Sometimes these deposits were received up to one year ahead of the project's planned start date, and as a result, Arthur Brothers often had excess cash on hand during the off-season, since deposits had been received, but the costs of the projects had not yet been incurred. As savvy business people, Max and Steve aimed to invest the majority of Arthur Brothers' excess cash on a short-term basis until it was needed.

As shown on the statement of financial position (Exhibit 1), Arthur Brothers had two existing investments: 750 shares in a large energy company and 25 bonds from a multinational telecommunications company. On January 14, 2011, the energy company declared a \$0.50 cash dividend to be distributed on February 15, 2011; and on April 8, 2011, a three-for-one stock split occurred. To free up cash for spring building, Arthur Brothers sold 90 per cent of its shares in the energy company on May 24, 2011, at \$13.45, with a \$200 fee to complete the transaction. By December 31, 2011, the stock price had risen to \$14.18.

The bonds from the telecommunications company had a 5.5 per cent coupon rate and paid interest semi-annually each March 1 and September 1. On June 3, 2011, Arthur Brothers sold all its bond holdings at 96 plus accrued interest.

On October 12, 2011, Arthur Brothers purchased 350 shares of a major Canadian bank for \$58.30 and incurred a \$200 fee. By fiscal year-end, the share price had risen to \$60.48.

Arthur Brothers also invested in corporate bonds issued by a mining company. The bonds had a seven per cent coupon rate, paid interest semi-annually on April 1 and October 1, and were set to mature on April 1, 2014. Thirty bonds were purchased on September 2, 2011, at 105 plus accrued interest. On December 31, 2011, prevailing market interest rates were six per cent.

Max and Steve sat down to record the transactions related to their trading investments.

REQUIRED

In T-account form, record all opening, transactions and adjusting entries related to Arthur Brothers' trading investments in fiscal 2011.

Exhibit 1

STATEMENT OF FINANCIAL POSITION
As at December 31, 2010

Assets

Current assets:

Cash	\$4,682
Accounts receivable	5,667
Bond interest receivable	458
Trading investments — shares	27,260
Trading investments — bonds	<u>24,122</u>
Total current assets	62,189

Long-lived assets:

Vehicles	\$54,750
Accumulated depreciation: vehicles	<u>(25,375)</u>
Equipment & tools	28,500
Accumulated depreciation: equipment & tools	<u>(7,000)</u>
Total long-lived assets	<u>50,875</u>
 Total Assets	 <u>\$113,064</u>

Liabilities and Shareholders' Equity

Current liabilities:

Accounts payable	\$527
Unearned revenue	41,106
Current portion of bank loan	<u>7,425</u>
Total current liabilities	49,058

Long-term liabilities:

Bank loan	29,700
Total Liabilities	<u>78,758</u>

Shareholders' equity:

common stock	20,000
retained earnings	<u>14,306</u>
Total shareholders' equity	<u>34,306</u>

Total Liabilities and Shareholders' Equity	<u>\$113,064</u>
--	------------------

STOPAGON COMPANY LTD.

Leslie A. Sigouin wrote this case under the supervision of Richard H. Mimick solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 1989, Richard Ivey School of Business Foundation

Version: 2015-03-12

2013

On January 1, 2013, Michael and Alexander Johnson decided to form Stopagon Company Limited, a real estate development business in the petroleum industry. Michael supplied the company with \$1,500,000 cash, and Alexander supplied equipment worth \$425,000 and land valued at \$1,800,000. In compensation for the assets contributed, 300,000 common shares were issued and split on a 40/60 basis to establish initial ownership. The company was authorized to issue 8,000,000 shares of no-par value common stock; 100,000 shares of \$7, no-par value cumulative preferred shares; and 100,000 shares of \$17, no-par value noncumulative preferred shares. Each cumulative preferred share was convertible into two shares of common stock, while the noncumulative was convertible at a rate of five shares of common stock for each two shares of preferred stock.

On May 1, 2013, the company acquired three parcels of vacant land for future development in exchange for 12,000 noncumulative preferred shares. The three pieces of land were appraised at \$396,250, \$480,000 and \$312,500, respectively.

On July 31, 2013, Stopagon issued 2,000 10-year, 6.5 per cent callable bonds. The prevailing market interest rate was 6 per cent on the date of issuance. The bonds were callable at a rate of 110 anytime after July 30, 2014. The proceeds from the bond issuance would eventually be used to build an office and apartment complex on one of the previously acquired pieces of land. Interest payments were to be made on January 31 and July 31 of each year. Stopagon amortized bond discounts or premiums using the effective interest method of amortization.

With some of the company's excess funds, an investment was made in short-term trading investments. On August 15, the company purchased 20,000 shares of the common stock of Senisub Company at \$42 each and paid a \$600 commissions and transactions charge. On August 30, Stopagon purchased 50, five per cent bonds that paid interest semi-annually on September 30 and March 31.¹ On the date the company purchased the bonds, the prevailing market interest rate was six per cent. Stopagon paid accrued interest and a \$200 commission charge in addition.

¹ The bonds were set to mature on September 30, 2018.

By September 15, Stopagon sold 15,000 shares of Senisub stock in order to meet construction payments. Stopagon paid a \$450 commission charge when the stock was sold for \$42 per share. On November 30, the company sold all of its marketable security five per cent bonds at 102 plus interest and \$150 commission charges. At the end of the year, Senisub stock was tracking at \$43.20 per share.

Dividends of \$1.50 per common share were declared by Stopagon on December 31, 2013. Dividend payments were scheduled for January 15, 2014.

2014

The following events occurred during 2014:

- a. In April, amid booming commercial developments, the price of common stock reached \$45 per share and 60 per cent of preferred stockholders converted their shares.
- b. On June 25, the board of directors of Senisub Company announced a cash dividend of \$1.25 per share of common stock to be paid to stockholders on record as of July 10, 2014, and paid on July 12, 2014. On July 2, Stopagon sold its remaining shares of Senisub Company at a price of \$47 per share. The commission charged was \$200.
- c. In July 31, Stopagon Company recalled 50 per cent of the outstanding bond issue in order to decrease the interest burden.
- d. By September 2014, Stopagon's common stock share price rose to \$64 per share due to a rumored buyout by a major competitor. The rise in price caused the directors to split the common stock 2 for 1 on September 15, 2014.
- e. On December 31, with new deals in progress and the price of common stock increased slightly to \$35 per share on the market, the directors declared a 5 per cent stock dividend for distribution on the 15th of the next month.
- f. During 2014, all scheduled interest and dividend payments were made.

REQUIRED

Using T-accounts, document all transactions relating to stocks, bonds and trading investments for Stopagon Company Ltd.'s fiscal 2013 and 2014. Assume a fiscal year end of December 31.

ROBERTSON MAPLE FARM INC.

Alexander (A.J.) Miller wrote this case under the supervision of Elizabeth M.A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveycases.com.

Copyright © 2013, Ivey Business School Foundation

Version: 2018-02-01

Grant Miller, owner of Robertson Maple Farm, had only two weeks left to prepare his company's books for the fiscal year ending December 31, 2012. Robertson Maple Farm Inc. harvested and processed its own maple sugar into maple sugar products onsite. Located outside Ottawa, the farm made most of its revenues by offering an inside look at a Canadian tradition through tours by schools and other visitors.

Since Miller, who was nearing retirement, had contacted a potential buyer for the farm, he needed to update his accounting records and was particularly perplexed about how to treat the lease commitments he had made for his maple sugar farm. He knew there was a distinction between *operating leasing* and *finance leasing*, but he was unsure how each type of lease was treated or what factors determined the type of lease.

SALES

Admissions to the farm for the year had amounted to \$200,000, of which 85 per cent came from cash and cash equivalents at the door; the remainder came from school trips that paid on account. Collections of accounts receivable for the year amounted to \$30,000. The company also had sales of various maple items amounting to \$75,000 cash.

LEASES

The Café Booth

On January 1, 2012, Miller had ordered from CafeEscape Inc., a café booth that he would keep until the end of this fiscal year. Miller paid CafeEscape Inc. \$5,000 for the year to lease the large booth, which served a variety of upscale café drinks. CafeEscape mentioned that the booth was expected to last 20 years. When Miller signed the lease, he had no interest in keeping it past the end of fiscal 2012 since he thought that if the food and drink sales at the farm continued to do as well as they had been, he would invest in building a restaurant attachment.

The Evaporator

Maple sugar was extracted from tree water at a ratio of 50:1, meaning that most of the tree water needed to be boiled away by a special machine called an evaporator. On January 1, 2012, Miller signed an eight-year lease from Bodi Equipment for an extractor that was expected to last 10 years. The lease included a bargain purchase option at the end of the agreement. Robertson Maple Farms would make an annual payment of \$4,000 in January of each year, starting in 2012. The implicit borrowing rate in the contract was 2.5 per cent.

Front-End Loader

Miller rented a front-end loader on September 1, 2012, for one year only, so that his son could create paths for the hay-ride wagon and dig out a pond to eventually install an outdoor skating rink. Miller had been able to get a good price of \$2,000 annually for leasing an older machine. Miller made two equal lease payments on September 1, 2012, and March 1, 2013.

The Facility

Since Robertson Maple Farm's inception, Miller had leased the facility where the maple farm operated from C.F. Capital Holdings Corp. (see Exhibit 1). Miller signed a 20-year lease for the facility. The lease term had annual lease payments of \$10,000, payable on January 1. At the time the lease was signed, the implicit borrowing rate was five per cent. The lease contained an option for Miller to buy the facility at a bargain price at the end of the lease term.

REQUIRED

As Grant Miller, adjust the company books appropriately so that fiscal 2012 results can be established.

**EXHIBIT 1: PARTIAL BALANCE SHEET
(as at December 31, 2011)**

Leased Assets

Facility, leased	130,853
Accumulated depreciation, facility, leased	65,430

Liabilities

Lease interest payable	\$ 3,860
Lease obligation, facility	77,217

TERRIFIC TENNIS BALLS: A MANUFACTURING INVENTORIES EXERCISE

Raphael Bender Bennett wrote this exercise under the supervision of Ian Dunn solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2022, Ivey Business School Foundation

Version: 2024-02-23

It was January 7, 2021, and Serena Nadal, owner of Terrific Tennis Balls Inc. (TTB), was reviewing the company's financial performance for its third fiscal year. To update the accounting records, Nadal gathered TTB's fiscal 2019 balance sheet (see Exhibit 1) and the bookkeeper's list of cash receipts and disbursements for fiscal 2020 (see Exhibit 2). The bookkeeper had already recorded the fiscal 2020 cash transactions but may have done so incorrectly. Nadal recorded the opening balances, cash receipts, and cash disbursements to calculate the unadjusted trial balances for fiscal 2020 (see Exhibit 3). Nadal started with the bookkeeper's unadjusted trial balances and planned to use the balance sheet and the list of cash receipts and disbursements, if necessary. She would have to figure out where the bookkeeper had posted each entry, determine whether an entry required an adjustment, and adjust accordingly.

TERRIFIC TENNIS BALLS INC.

TTB was a tennis ball manufacturer located in London, Ontario. TTB sold tennis ball cans directly to its end consumers through its retail store and e-commerce platform and to sporting goods shops across Ontario. In fiscal 2020, TTB sold a total of 33,120 tennis ball cans. Sporting goods shops purchased tennis ball cans for the wholesale price of CA\$10¹ plus tax in fiscal 2020, and these purchases accounted for half of total unit sales. Sporting goods shop customers always paid on account with credit terms of nine days following the end of the month. End consumers purchased tennis ball cans at TTB's retail store or online for \$12 plus tax in fiscal 2020 and always paid with cash at the time of purchase. All sales, regardless of payment method, were subject to 13 per cent harmonized sales tax (HST) on the net invoice price. TTB had yet to record sales taxes for the credit sales at fiscal year-end. The bookkeeper had recorded the sales taxes on cash sales and the payment of all sales tax remittances for cash sales and cash collections. There were no finished goods in transit at fiscal year-end.

THE MANUFACTURING PROCESS

TTB manufactured some of the highest quality tennis balls that Nadal had ever used. The first step in the production process was to measure the rubber that would make the tennis ball core. The rubber was then forced between two large pieces of machinery to produce a half shell. After the half shells were produced,

¹ All dollar amounts are in Canadian dollars.

intense heat was applied in order to bond the two shells together to form a ball shape. Just before the ball was formed, pressurized air was inserted into the balls to ensure they had the proper level of pressure. The completed rubber spheres were then covered in felt to ensure they would have the correct amount of bounce. Finally, the balls were placed in a labelled can. One can contained three tennis balls. Whereas direct labour and raw materials were introduced at the beginning and end of the manufacturing process, machine hours were considered to be most evenly distributed. During fiscal 2020, 3,571 machine hours were required to manufacture 36,000 completed cans.

LONG-LIVED ASSETS

Upon incorporation, TTB purchased the land and building for its production facility and administrative space. The building was 2,500 square feet² in total and was depreciated using the straight-line method.³ The administrative office used 200 square feet of space, the finished goods storage used 175 square feet of space, and the remainder of the building was used for production. On April 15, 2020, TTB received a property tax bill for fiscal 2020. TTB was charged \$3 of property tax per \$100 of the historical cost of the building. Nadal paid the property tax bill on May 1, 2020.

TTB also rented a small downtown retail location to sell its tennis balls to end customers. Upon signing the one-year rental agreement on May 1, 2018, a deposit for the last month's rent had been paid. Nadal had renewed the rental agreement in 2019. In fiscal 2020, Nadal made the difficult decision to sell TTB's products exclusively online in response to the COVID-19 pandemic and so terminated the rental agreement on April 30, 2020.

On January 1, 2020, TTB purchased a van for \$15,000 cash. The van was used to deliver finished goods to customers. The van would be depreciated using the straight-line method. The van had a useful life of five years and no residual value.

All other long-lived assets on the fiscal 2019 balance sheet had been purchased on the date of incorporation and were depreciated using the straight-line method. No repairs, impairments, or changes to the residual value had occurred since the assets were purchased.

HUMAN RESOURCES

Nadal hired a part-time delivery driver to operate the delivery van. The delivery driver was paid \$15.00 per hour and had been paid for a total of 300 hours by the end of fiscal 2020. The driver was paid on the last day of the month for that month's work.

In fiscal 2020, Nadal worked a total of 2,400 hours and earned a monthly salary of \$5,000. Nadal spent 20 per cent of her time manufacturing the tennis balls, 50 per cent of her time doing administrative work, and the remainder of her time supervising the production area. Roger Sharapova, the part-time administrative assistant, was paid a monthly salary of \$1,800. Nadal also employed a part-time production supervisor, Milos Andreeescu, who was paid an annual salary of \$36,000 in fiscal 2020. All salaries were paid on the last day of the month for that month's work.

TTB employed four part-time production workers to manufacture the tennis balls. Each of the four production workers was paid an hourly wage of \$17.50, and each was paid for 960 hours of work during

² 1 square foot = 0.0929 square metres.

³ The building had a useful life of twenty years and a residual value of \$20,000.

fiscal 2020. The production wages were paid every Friday for the previous week's work. At the end of fiscal 2020, the production workers had not yet been paid for a combined total of 92 hours.

OPERATIONS

Upon incorporation, Nadal took out a \$300,000, ten-year bank loan with an annual interest rate of 5 per cent. The principal was paid in equal monthly installments on the last day of every month throughout the term of the loan. Interest was calculated each month based on the amount outstanding on the first day of that month. Interest was paid with the principal on the last day of the month.

The fiscal 2020 insurance policy was an eighteen-month policy purchased on January 1, 2020. The insurance policy was both a product cost and period cost. Nadal estimated that 60 per cent of the policy's cost was related to TTB's production facilities while the remainder covered a variety of non-production-related business risks.

At 2020 fiscal year-end, TTB had some bills that remained unpaid. One of the bills in accounts payable at year-end for fiscal 2019 had been an outstanding utilities bill for \$603. TTB paid its utilities bill on the fifteenth of the month for the previous month's usage. At year-end for fiscal 2020, the outstanding utilities bill for the month of December was \$723. Nadal allocated the utilities expense using the same allocation rate as the building.

On December 13, 2020, Nadal received a letter from the International Tennis Federation outlining a potential lawsuit over faulty tennis balls. The letter stated that Nadal could be fined up to \$10,000 but did not identify who was filing the lawsuit nor when Nadal could expect to resolve the issue. Nadal was skeptical of the letter, and after discussions with her lawyers, she concluded that a lawsuit was highly improbable.

INVENTORIES

TTB had three raw materials: rubber, felt, and cans. TTB purchased all of its raw materials from four suppliers (see Exhibit 4) and used the first-in, first-out method for all raw materials. A physical inventory count revealed that there was \$16,106 worth of rubber, \$2,356 worth of felt, and \$2,873 worth of cans remaining on hand at fiscal year-end. During fiscal 2020, TTB had used \$851 worth of production supplies. Production supplies consisted of adhesives and green colouring. Nadal found these production supplies difficult to trace to individual tennis balls.

At fiscal year-end, the production workers had spent a total of seventy-seven hours producing the partially completed goods. In addition, Nadal had spent nine hours of her time manufacturing the partially completed goods. Nadal estimated that there was \$1,329 of raw materials and that twenty-nine machine hours were used to produce these partially completed goods. A physical inventory count revealed that there were 4,230 completed cans in the finished goods inventory. No units had been damaged or stolen during the fiscal year. Finished goods on hand at fiscal year-end were valued using the average-cost method.

TASK

Using the previous year's statement of financial position, the bookkeeper's meticulous records, and her own notes regarding financial events during the year, Nadal must record all necessary accounting transactions for the year ending December 31, 2020. Closing entries are not required.

EXHIBIT 1: STATEMENT OF FINANCIAL POSITION
As at December 31, 2019

ASSETS**Current assets:**

Cash	\$ 22,973
Accounts receivable ⁴	16,475
Prepaid rent	3,000
Inventory ⁵	35,501
Production supplies	123
Total current assets	78,072

Long-lived assets:

Building	\$ 200,000
Accumulated depreciation—building	18,000
Office equipment ⁶	10,000
Accumulated depreciation—office equipment	4,000
Production equipment ⁷	50,000
Accumulated depreciation—production equipment	20,000
Land	30,000
Total long-lived assets	100,000
	318,000

Total assets

\$ 396,072

LIABILITIES AND SHAREHOLDERS' EQUITY**Current liabilities:**

Accounts payable ⁸	\$ 15,003
Current portion, bank loan	30,000
Sales tax payable	1,895
Production wages payable	900
Total current liabilities	47,798

Long-term liabilities:

Long-term portion, bank loan	210,000
Total long-term liabilities	210,000

Total liabilities

257,798

Shareholders' equity:

Common stock (5,000 issued, unlimited authorized)	150,000
Retained earnings	(11,726)
Total shareholders' equity	138,274

Total liabilities and shareholders' equity

\$ 396,072

Source: Created by the author.

⁴ No bad debts had been experienced in fiscal 2019 and none were expected in fiscal 2020.

⁵ There was \$20,250 of rubber, \$1,062 of felt, and \$2,376 of cans in the raw materials inventory and \$3,201 of work-in-process inventory on December 31, 2019. There were also 1,350 completed cans, valued at \$8,612, in the finished goods inventory.

⁶ Office equipment consisted of desks, computers, and printers. The equipment had a useful life of five years with no residual value.

⁷ Production equipment consisted of large metal rollers and an air pressurizer. The equipment had a useful life of five years with no residual value.

⁸ Includes all applicable charges relating to utilities and a raw materials rubber order of \$14,400 that was delivered but not yet paid for.

EXHIBIT 2: BOOKKEEPER RECORDS—POSTING OF CASH RECEIPTS AND DISBURSEMENTS⁹
Fiscal 2020

CASH RECEIPTS	ACCOUNT POSTED TO
Cash sales	\$ 198,720
Accounts receivable collections	184,890
Sales tax collections	25,834
Total	<u>\$ 409,444</u>

CASH DISBURSEMENTS
Rent
Bank loan ¹⁰
Sales tax remittances
Insurance
Salaries
Production wages ¹¹
Delivery wages
Utilities
Property taxes
Raw materials payments, rubber ^{12,13}
Raw materials payments, felt ¹⁴
Raw materials payments, cans ¹⁵
Production supplies
Delivery van
Total

\$ 9,000	Rent expense
41,313	Long-term portion, bank loan
47,104	Sales tax payable
2,700	Insurance expense
117,600	Salaries expense
68,100	Production wages expense
4,500	Delivery wages expense
4,400	Utilities expense
6,000	Property tax expense
55,933	Raw materials, rubber
10,453	Raw materials, felt
12,770	Raw materials, cans
857	Production supplies
15,000	Delivery van
<u>\$ 395,730</u>	Cash

Source: Created by the author.

⁹ On the super-T provided, cash receipts are marked with the trail number [R] and cash disbursements are marked with [D].

¹⁰ Includes accrued interest.

¹¹ Includes accrued wages for fiscal 2019.

¹² Includes all applicable duties and discounts. Freight-in costs were not included.

¹³ Includes payment for rubber order of \$14,400 delivered in fiscal 2019.

¹⁴ Includes all applicable duties and discounts. Freight-in costs were not included.

¹⁵ Ibid.

EXHIBIT 3: UNADJUSTED TRIAL BALANCE
As at December 31, 2020

Cash	\$ 36,687	
Accounts receivable		\$ 168,415
Prepaid rent	3,000	
Raw material, rubber	76,183	
Raw material, felt	11,515	
Raw material, cans	15,146	
Work-in-process	3,201	
Finished goods	8,612	
Production supplies	980	
Delivery van	15,000	
Office equipment*	10,000	
Accumulated depreciation, office equipment		4,000
Production equipment†	50,000	
Accumulated depreciation, production equipment		20,000
Building	200,000	
Accumulated depreciation, building		18,000
Land	100,000	
Accounts payable		15,003
Production wages payable		900
Sales tax payable	19,375	
Current portion, bank loan		30,000
Long-term portion, bank loan		168,687
Retained earnings	11,726	
Common shares		150,000
Net sales		198,720
Salaries expense	117,600	
Production wages expense	68,100	
Delivery wages expense	4,500	
Insurance expense	2,700	
Utilities expense	4,400	
Property tax expense	6,000	
Rent expense	9,000	
Total	\$ 773,725	\$ 773,725

Source: Created by the author.

EXHIBIT 4: SUPPLIERS SUMMARY

Supplier	Tennis Cores R Us	Rubber Stuff	All Things Tennis	Everything Cans
Raw Material	Rubber	Rubber	Felt	Cans
Location	St. Thomas, Ontario	Salmon Arm, British Columbia	Valencia, Spain	Detroit, United States
Shipping Terms	FOB Destination	FOB Destination	FOB Destination	FOB Destination
Discount Terms*	3/12, net 45	2/10, net 30	5 EOM	12 EOM
Duties	N/A	N/A	8%	6%

Note: *Discounts were calculated from the date of ownership. FOB = free on board; EOM = end of month.

Source: Created by the author.

VROOM INC.: A FINANCING AND INVESTING EXERCISE

Raphael Bender Bennett wrote this exercise under the supervision of Ian Dunn solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2022, Ivey Business School Foundation

Version: 2022-07-14

Vroom Inc. (Vroom) was a video conferencing technology company located in London, Ontario, Canada. It was December 10, 2020, and Wesley Morris, founder of Vroom, was reviewing the company's financial performance for its second fiscal year. Morris had already reviewed the company's operating decisions over the past fiscal year and was now eager to review the company's financing and investing transactions. Morris downloaded Vroom's fiscal 2019 balance sheet, which had been prepared under International Financial Reporting Standards (IFRS) and began to work (see Exhibit 1).

DEBT FINANCING

On October 1, 2020, Vroom secured a \$20,000¹ line of credit from the bank. Interest was charged at a floating interest rate on the amount borrowed. On October 6, 2020, Vroom borrowed \$11,000 on the line of credit. On October 31, 2020, Vroom repaid \$6,000 on the line of credit and \$41 in accrued interest for the month of October. At fiscal year-end, Vroom had accrued \$21 of interest for the month of November.

Vroom entered into a five-year finance lease agreement for an office on May 1, 2019. The lease had an implied borrowing rate of five per cent and required annual payments of \$18,000 on May 1, with the first payment due on May 1, 2019.

On February 15, 2019, Vroom issued 45 callable 10-year bonds. The bonds paid an annual coupon rate of five per cent that was distributed semiannually on February 15 and August 15. At the time the bonds were issued, the market interest rate was seven per cent. Vroom recalled 100 per cent of the outstanding bonds on September 1, 2020 when the market interest rate was eight per cent.

EQUITY FINANCING

On December 1, 2018, the date of incorporation, Morris contributed \$60,000 in exchange for 5,000 Vroom common shares. On that same date, Vroom issued 1,000 \$4, cumulative, convertible, preferred shares to

¹ All currency amounts are in CA\$ unless otherwise specified.

Morris' friends and family in exchange for \$44,000. Preferred shares could be converted at any time to common shares at a rate of three common shares for each preferred share.

Vroom declared a \$0.20 per share cash dividend to common shareholders on January 5, 2020 when its shares were trading at \$14.15. The dividend had a date of record of January 10, 2020 and was paid on January 20, 2020. On the date of distribution, the shares were trading at \$16.75.

On February 15, 2020, Vroom repurchased and retired 10 per cent of its outstanding common shares when the common shares were trading at \$14.50. Vroom paid a \$190 brokerage commission on the repurchase of its shares.

On June 1, 2020, Vroom purchased a new trademark to help with the company's branding. The trademark cost \$5,000 and was paid for with \$3,000 cash and 150 common shares.² At the time of the trademark's purchase, Vroom shares were trading at \$18.65.

On September 7, 2020, 20 per cent of the outstanding preferred shares were converted to common shares. On the date of conversion, common shares were trading at \$18.60 and preferred shares were trading at \$53.75.

Vroom declared a two per cent stock dividend to common shareholders on November 20, 2020 when its shares were trading at \$19.68. The dividend had a date of record of December 5, 2020 and would be distributed on December 12, 2020. At fiscal year-end, common and preferred shares were trading at \$23.60 and \$67.30, respectively.

TRADING INVESTMENTS

Vroom owned 150 common shares of Macintosh Inc. (Macintosh) at the beginning of fiscal 2020. On February 2, 2020, Macintosh declared a \$1 per share cash dividend for common shareholders. The date of record for the dividend was February 8, 2020, and the date of distribution was February 15, 2020.

On November 18, 2020, as global stock prices plummeted, Vroom sold 40 per cent of its Macintosh stock. Macintosh stocks were trading at \$120 per share and Vroom incurred a broker fee of \$175. The proceeds would be remitted to Vroom on December 5, 2020.

On November 25, 2020, Macintosh declared a four-for-one stock split when its shares were trading at \$130. At Vroom's 2020 fiscal year-end, Macintosh's common shares were trading at \$28.75 per share.

REQUIRED

Record, using the provided super-T, all the necessary transactions and adjusting entries for Vroom's fiscal year ended November 30, 2020. Closing entries are not required.

² The new trademark had an indefinite life.

**EXHIBIT 1: VROOM INC.—STATEMENT OF FINANCIAL POSITION
AS AT NOVEMBER 30, 2019**

ASSETS**Current assets**

Cash	\$ 215,652
Accounts receivable	23,265
Trading investment, stock	<u>30,000</u>
Total current assets	<u>268,917</u>

Long-lived assets

Office under lease	\$ 81,827
Accumulated depreciation – office under lease	<u>9,546</u>
Total long-lived assets	<u>72,281</u>

Total assets

\$ 341,198

LIABILITIES AND SHAREHOLDERS' EQUITY**Current liabilities**

Lease interest payable	\$ 1,862
Bond interest payable	<u>656</u>
Total current liabilities	<u>2,518</u>

Long-term liabilities

Lease obligation, office	63,827
5% bond payable ³	<u>38,968</u>
Total long-term liabilities	<u>102,795</u>

Total liabilities	<u>105,313</u>
-------------------	----------------

Shareholders' equity

Common stock (4,000 outstanding, unlimited authorized)	48,000
Contributed capital, common stock	820
\$4 cumulative, convertible, preferred stock (1,000 issued, 5,000 authorized) ⁴	44,000
Retained earnings	<u>143,065</u>
Total shareholders' equity	<u>235,885</u>

Total liabilities and shareholders' equity

\$ 341,198

Source: Company files.

³ Between August 15 and November 30, 2019, the bond had been amortized by \$137.

⁴ No dividends were declared in fiscal 2019.



TERM TWO

THE BEHAVIOR OF COSTS

Neil Campbell wrote this case under the supervision of Professor Richard Mimick solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 1983, Richard Ivey School of Business Foundation

Version: 2014-04-23

For managers and entrepreneurs, an understanding of the behavior of costs is frequently more useful than the categorization and accumulation of costs obtained from the financial accounting system. Managers and entrepreneurs are decision makers, and thus must always have a future orientation. The important question for a decision maker is: "What will happen in the future if a certain decision is made?" For all decisions having a financial implication, the answer to this question depends upon the expected behavior of the firm's costs. In contrast, the financial accountant's task is basically that of a scorekeeper. The question which guides historical cost accrual accounting is: "How well did the firm do in the past?"

Financial statements prepared in accordance with generally accepted accounting principles are of great interest to shareholders and a variety of other internal and external users in assessing the overall financial position and performance of the firm. Cost behavior analysis, in contrast, is useful when preparing financial projections and budgets, for controlling and monitoring performance, and in making many types of operating decisions (e.g., pricing, special orders, subcontracting, expansion, etc.). Financial accounting is primarily a *measurement* tool, whereas cost behavior is an *analytical* tool that aids decision makers.

COST-VOLUME-PROFIT ANALYSIS

This note introduces the standard patterns of cost behavior and illustrates how a cost-volume-profit chart can be used to model the financial structure of the firm. With the use of such a model, the profitability of the firm, at any given level of output, can be determined. Furthermore, these cost behavior classifications form the basis for contribution analysis, which is useful for business decision making, and for breakeven analysis, which is a valuable tool for assessing risk.

Classification of Costs

The term "cost" is extensively used, but often poorly defined. Costs are simply the expenses involved with being in business — the value of goods or services consumed during the process of generating revenue. Capital expenditures that will produce revenues over several periods are not considered to be costs; rather, they are termed "investments". Periodic depreciation charges are made to bring the total amount of an investment into

operating costs over the life of the asset. For example, salaries represent a payment to employees for services rendered and are a cost incurred in obtaining revenue; on the other hand, the acquisition of a building allows revenue to be generated over a period of several years, and, hence, only a portion of the investment in such an asset is allocated as a “cost” in each year. One distinguishing feature of an investment is that it is normally a “one-time” outflow of funds, whereas costs are recurring outflows of funds.

Many different types of costs can be defined, with each distinction useful for certain specific purposes. For example, the financial accountant classifies all costs as either product costs or period costs in accordance with the treatment they should receive under the matching principle, and then further subdivides all product costs as either direct or indirect depending upon their traceability to specific units of production. In the field of responsibility accounting, where managers are evaluated on their ability to control certain costs, these financial accounting distinctions are not particularly useful. Instead, all costs are categorized as either controllable or non-controllable in relation to the specific manager being studied.

For the purposes of decision making, the most useful way of classifying costs is according to how they will behave in the future and, more specifically, how they will respond to changes in the volume of output. The cost behavior analyst normally attempts to categorize all costs as either fixed or variable with respect to some measure of volume or activity. It should be noted that the total amount of a firm’s costs does not differ under financial accounting, responsibility accounting, or cost behavior analysis; the data are simply aggregated differently to achieve different goals.

The Activity Level of the Firm

When attempting to analyze alternatives and predict the effects of various decisions, the most useful way to segment costs is according to the way they are expected to behave relative to the level of activity in the firm, since most decisions involve potential changes in the firm’s production or sales volume. It is easy to visualize the level of activity in the firm as an important factor affecting costs; there is a clear causal relationship between increases in activity and increases in certain costs. For example, if salesmen are paid a three per cent commission on sales, every additional sale will cause an increase in sales commissions expense.

The choice of an activity level index is frequently, but not always, obvious. For example, the activity level of a company which manufactures one product, say license plates, is easily measured by the unit volume of license plates produced. In a service business, such as consulting, billable hours might be used. In a multi-product firm where the units of output are not comparable (e.g., dishwashers versus refrigerators versus vacuum cleaners), it may be possible to measure inputs instead (e.g., machine hours in an industry which has little labor time relative to machine-production time).

The two main criteria in selecting an activity level or volume index for a firm are:

- The item must be measurable
- The item should have a strong influence on the level of costs incurred by the firm

Once an appropriate volume index is chosen, the next step is to determine the relationship between the volume index and each cost item.

Basic Patterns of Cost Behavior

There are an infinite number of potential relationships between costs and volume, many of which can be described by extremely complex mathematical formulas. In order to prevent the analysis from becoming too

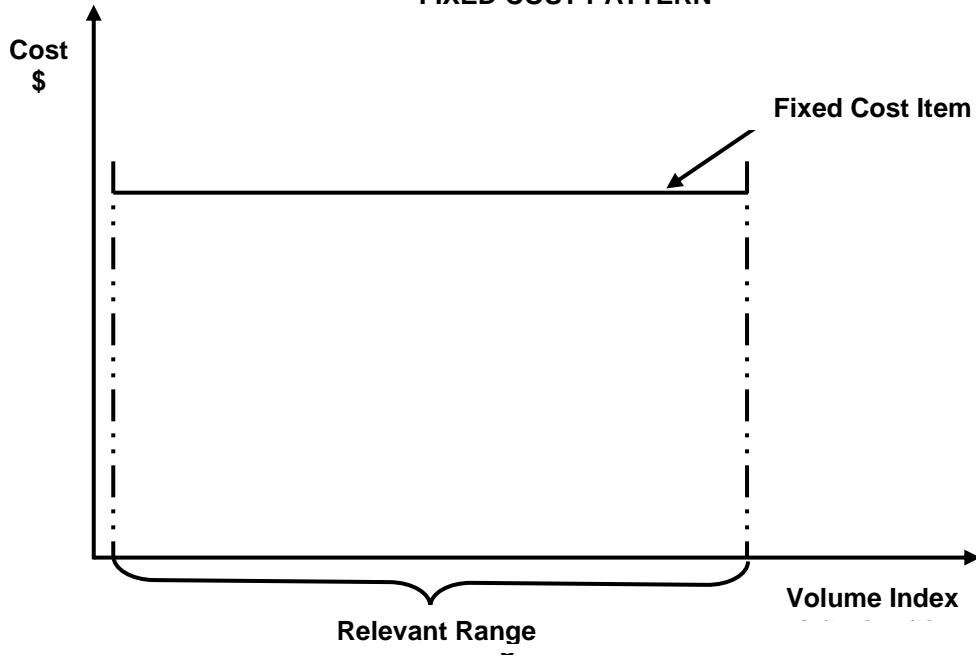
detailed and complicated, it is desirable to simplify the relationships between costs and volume as much as possible while preserving a reasonable amount of accuracy. Fortunately, all costs can be roughly classified into four basic patterns which provide a reasonably valid model of reality for the decision maker.

Fixed Costs

Fixed costs are the simplest cost pattern. They are defined as costs that do not change despite changes in volume, at least over a fairly wide range of volume called the “relevant range”. A simple example of a fixed cost is rent for a company’s plant. The total rent cost remains the same regardless of whether the plant operates at 25 per cent, 50 per cent, or 100 per cent of capacity. In fact, the total rent cost even remains the same if no units are produced during a particular period due to a plant shutdown (unless of course, the company chooses to terminate its lease and vacate the premises). In this example, the relevant range pertaining to plant rental costs is any production volume between zero and 100 per cent of plant capacity.

Figure 1 diagrams the structure of a fixed cost. By plotting the cost in dollars on the vertical axis and some measure of activity level (e.g., units produced, or percentage of capacity utilized) on the horizontal axis, it can be seen that a fixed cost is represented by a horizontal line. The Y-intercept represents the magnitude of the fixed cost in dollars. The line has a slope of zero, indicating that there is no change in the amount of cost incurred when the volume changes.

**Figure 1
FIXED COST PATTERN**



The term “fixed” refers to only one thing: the response of the cost item to volume changes. It implies that the cost in question will not automatically vary as the level of output is altered. The description of a cost as fixed does not, however, imply that it cannot vary over time, either as a result of external factors or through management actions. For example, if management decides to move from the present location into new premises, the rent cost would undoubtedly change. Rent in the new premises, however, would still behave as a fixed cost since it would not be affected by the volume of output in the new premises.

Variable Costs

Another simple and frequently occurring cost pattern is the “variable cost”. A variable cost is defined as a cost which changes directly and proportionately with changes in volume. If volume is doubled, the total amount of the variable cost will also be doubled. The three per cent sales commission example cited above is a variable cost. Other common examples include direct materials and direct labor, where each unit produced requires a standard, measurable input of cost in order to complete it.

Again, the concept of a relevant range is applicable. For some variable cost items (e.g., direct labor), there may be inefficiencies occurring at very low volumes which result in a cost curve that is not exactly proportional to volume. For example, there may be idle time in the production process, or the workers may not have learned the best way of performing their tasks. These inefficiencies will be eliminated once the company is operating at a normal volume level. At extremely high volumes, inefficiencies may occur again due to plant overcrowding, bottlenecks in a certain part of the production process, overtime requirements, etc.

**Figure 2
VARIABLE COST PATTERN**

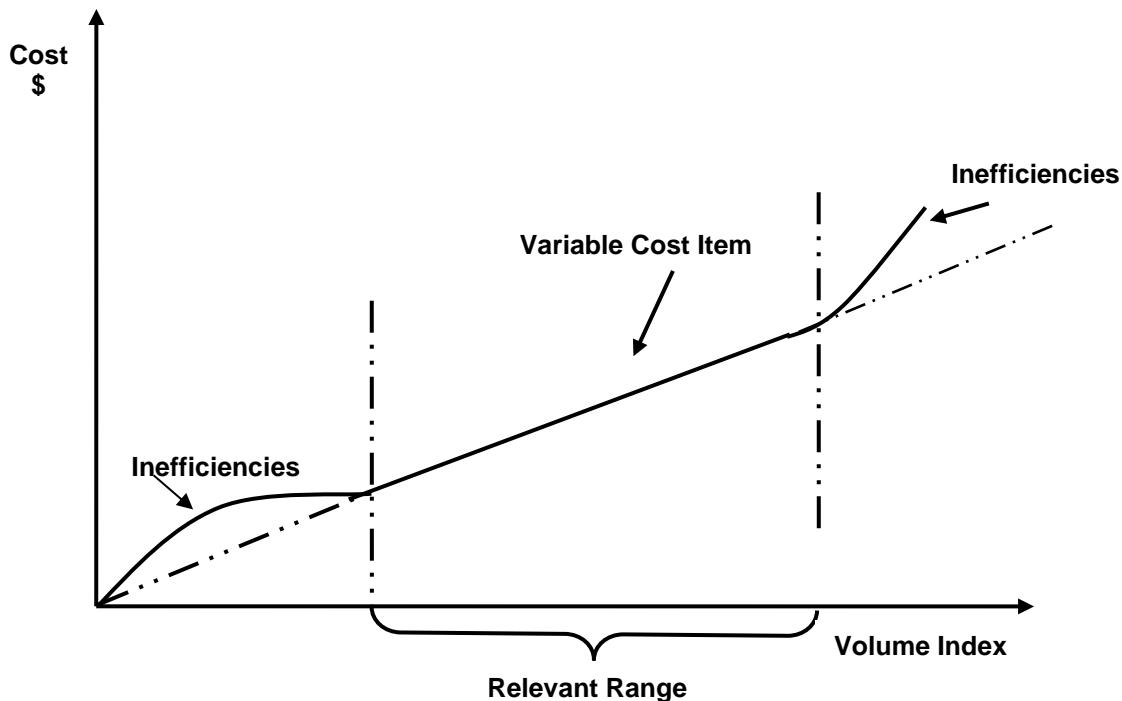
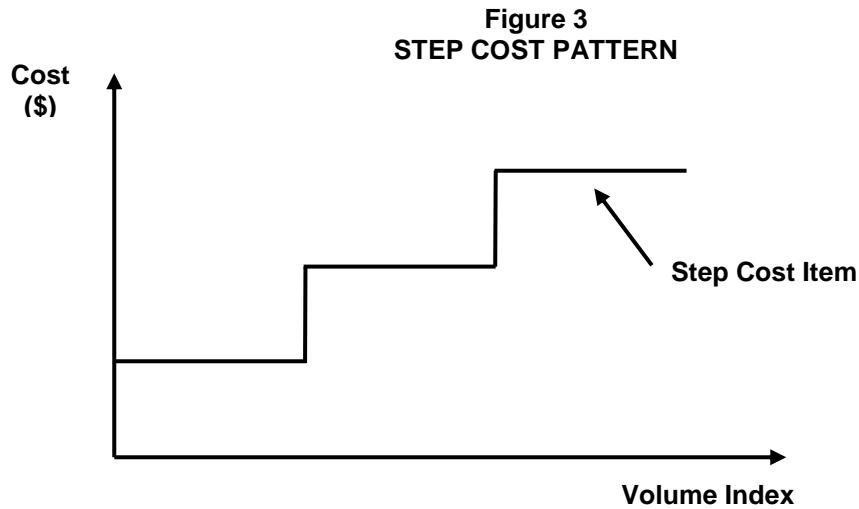


Figure 2 illustrates a variable cost item such as direct labor, including the inefficiencies which might be present outside either end of the relevant range. In most cases, it is entirely adequate to use a straight line to approximate the true cost-volume relationship; however, the limitations of the relevant range assumption must always be kept in mind.

Variable costs are represented by a straight line beginning at the origin. The fact that variable costs intersect the origin implies that if no volume is produced, then no cost expenditure will be incurred. The slope of a variable cost line represents the unit variable cost. In other words, an increase in volume of one unit will produce an increase in cost of a certain number of dollars. Notice that the unit variable cost is constant, at least throughout the entire relevant range, implying that each and every unit of output requires the same expenditure of a specific amount of funds.

Step Costs

The third type of cost pattern, the “step cost,” contains elements of the previous two patterns. Figure 3 shows a step cost function. The name is descriptive of the shape of the graph. Step costs are cost items which are incurred in large chunks.



For example, it may be possible to produce 10,000 units on a single shift with indirect labor consisting of one supervisor. Thus, there may be a fixed supervisory cost of \$20,000 for any production volume in the range of zero to 10,000 units. As soon as the volume exceeds 10,000 units, a second shift would have to be added, necessitating an additional supervisor. Indirect labor cost would then amount to \$40,000 at any volume in the range from 10,001 to 20,000 units. Similarly, the addition of a third shift would add an additional \$20,000 of indirect labor cost at volume levels above 20,000 units.

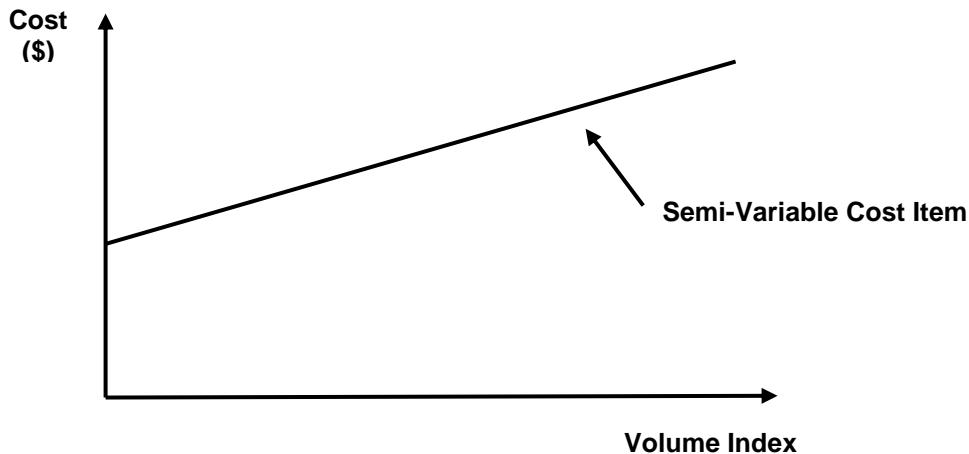
Step costs are not variable costs because they do not change in direct proportion with changes in volume; they change in large amounts at a few distinct volume thresholds. Similarly, step costs are not fixed costs in that they are not constant at all volumes. However, step costs can be viewed as a series of fixed cost levels within somewhat narrower than usual relevant ranges.

Semi-Variable Costs

“Semi-variable” or “mixed” costs also consist of a combination of fixed and variable cost characteristics. The structure of a semi-variable cost is graphed in Figure 4. These costs consist of a base amount which is always incurred regardless of the volume level, plus a component which increases linearly as volume increases. Utilities costs may, in many cases, have the characteristics of a semi-variable cost. There may be basic amounts of gas and hydro required to keep a building lighted, heated, and ready to operate. Beyond this, production machinery may consume a certain amount of power in producing each additional unit of output. Thus, the formula describing utilities costs for a particular plant might be represented by:

$$\text{Utilities Cost} = \$700 + (\$0.06 \times \text{Units Produced})$$

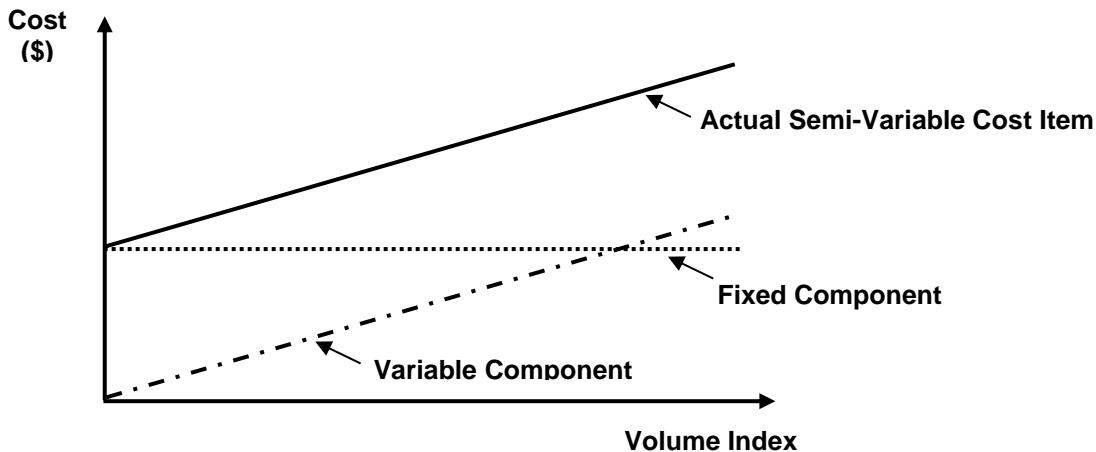
**Figure 4
SEMI-VARIABLE COST PATTERN**



Graphically, the Y-intercept of a semi-variable cost line represents the fixed or base amount of cost (\$700 in the preceding example). The slope of the cost line is equal to the incremental cost per unit for every unit of volume produced (\$0.06 per unit in the sample equation above).

Clearly, semi-variable costs are not fixed costs because they do vary in response to volume changes. Nor are they truly variable costs, since the total amount of a semi-variable cost does not change in direct proportion to changes in the activity level. (Mathematically, this results from the existence of a constant base amount of cost in the total amount of the semi-variable cost). However, as Figure 5 demonstrates, semi-variable costs can be separated into a fixed component and a variable component. When these fixed and variable components are added together, the semi-variable cost line will result.

Figure 5
DECOMPOSITION OF A SEMI-VARIABLE COST INTO FIXED AND VARIABLE COMPONENTS



Modelling the Financial Structure of the Firm

It is possible to construct a simple model which relates expected revenues, costs, and, hence, profit, to the various possible activity levels which the firm may experience. Such a model can be useful for predicting and/or evaluating financial performance.

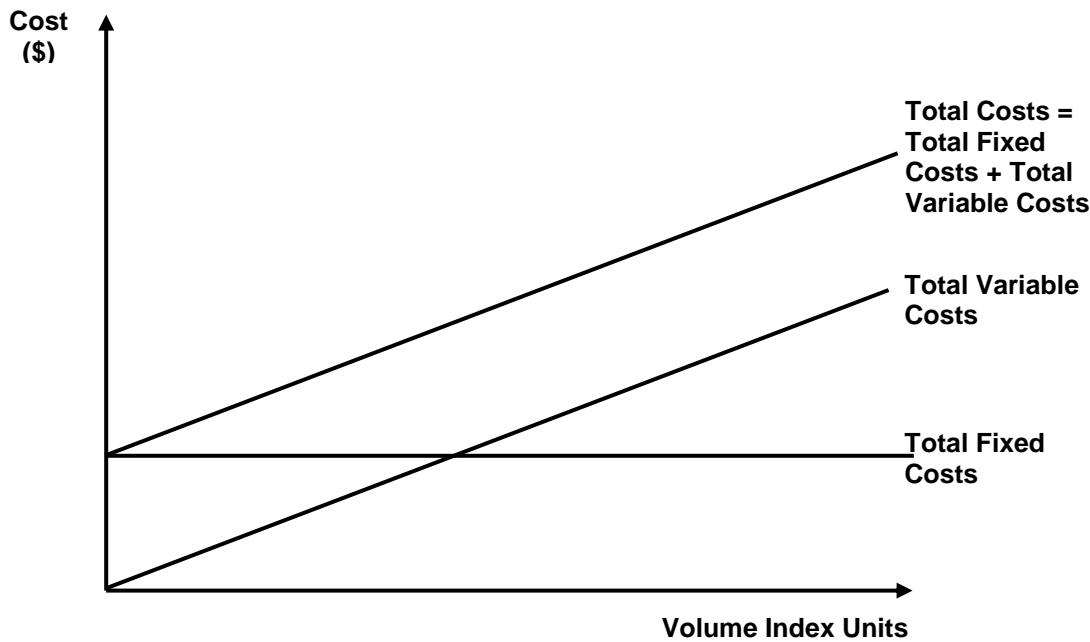
Cost Structure

For simplicity and clarity in the analysis, it is advantageous to break all step costs and semi-variable costs into fixed and variable components, using care in defining the relevant range of output for which the analysis is valid. As a result, the entire cost structure of a firm can be modelled using just two cost classifications: total fixed costs and total variable costs.

Total fixed costs are simply the sum of all the various fixed cost items plus the fixed components from any of the more intricate cost patterns. Total variable costs are obtained by adding each of the variable cost items plus any variable components derived from semi-variable cost items.

Figure 6 illustrates a graphical model of the cost structure of a firm. The total cost is simply the algebraic sum of total fixed costs plus total variable costs and describes the overall amount of cost which will be incurred by the firm to attain any given level of output.

Figure 6
THE COST STRUCTURE OF A FIRM



Determination of fixed versus variable costs

It is theoretically possible to model the firm's cost structure along two behavioral line dimensions, fixed and variable, as shown above. However, there are often practical difficulties in actually determining each of the necessary relationships, since it is not always immediately clear how a certain cost item will behave with respect to volume. Several techniques are available for estimating the relationships between cost expenditures and the firm's activity level.

The first step in classifying costs as fixed or variable is to locate all costs which are contractually or physically defined and easily traceable. For example, the salaries of the company's senior executives are easily discernable as fixed; there is no causal relationship between volume changes and the level of these costs, at least within the firm's relevant range of output. Similarly, a royalty agreement requiring a \$2 per unit payment to the inventor of the product is clearly a variable cost.

Beyond such easily identifiable patterns, it is often necessary to use engineering studies of the production process to determine such relationships as direct materials cost per unit, direct labor cost per unit, etc. In addition, the analysis of past data using statistical techniques, such as scatter diagrams and/or linear regressions, is often helpful in estimating the relationships between particular cost items and volume. These techniques can be especially useful for items which are believed to be semi-variable, because the outputs of a regression are the Y-intercept of the cost line (the fixed component of the cost) and the slope of the cost line (the variable cost per unit).

Finally, the decision maker may simply have to make educated guesses and assumptions where no other concrete data are available. The critical ingredients in making good assumptions are experience and knowledge about the operation of the business, supplemented by common sense.

Predicting the future always involves uncertainty. As a result, cost behavior analysis is used with an expectation that it will produce estimates rather than precisely accurate outputs. This compromise contrasts with financial accounting where accuracy is an important objective, and is highly attainable because the past is observable and quantifiable.

Full Costs Per Unit Versus Fixed and Variable Costs

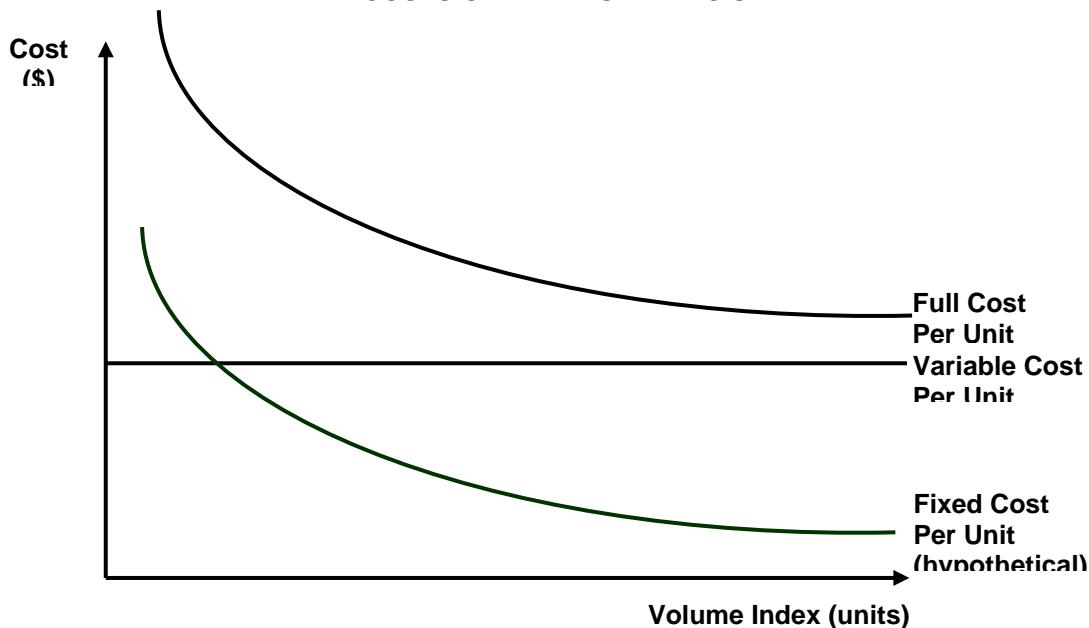
Why is it worthwhile to aggregate cost data into variable and fixed costs? The alternative is the financial accounting approach which shows total costs (or expenses). Under that method, a full cost per unit is derived as follows:

$$\text{Full Cost Per Unit} = \text{Total Costs} \div \text{Total Volume}$$

Unfortunately, a full cost per unit is valid only at one precise volume level. In any attempt to analyze future scenarios, it cannot be assumed that this specific volume level will be achieved; in fact, it is highly unlikely that such precise forecasting would occur. The full cost per unit will be incorrect in any situation where the activity level changes. Profit can be accurately calculated by multiplying full cost per unit by the total volume only if the total volume does not change.

To see why this is so, examine Figure 7 which graphs variable cost per unit, fixed cost per unit, and full cost per unit. Although the variable cost per unit is constant at all volumes, the fixed cost per unit (and hence full cost per unit) declines as volume increases. Moreover, fixed cost per unit is impossible to imagine conceptually — there is no link between fixed costs and the production of any one unit of output. Thus, full cost per unit, because it contains various “fixed” items, is like a chameleon — it is continually changing!

Figure 7
COSTS ON A PER UNIT BASIS



As a result, there is a risk of faulty decision making if full unit cost data are used in any analysis where volume is a factor. In contrast, the variable/fixed method, and the use of contribution analysis described below, avoid this pitfall by never computing any fixed costs on a per unit basis, and only multiplying the unit variable cost by the volume of output.

The Time Dimension

One critical assumption underlines this model: there is necessarily a time element involved in defining any cost as fixed or variable. Normally, the time period chosen for analyzing cost behavior will be related to the decision maker's usual time horizon: a month, a quarter, a year, or some similar accounting period, and the cost behavior patterns will be determined from this perspective.

In the long run, as economists point out, all costs are variable. For example, if a company expands tenfold over a period of 15 or 20 years, it would be expected that its costs would be roughly ten times as high. All overhead cost items are free to expand or contract as the company changes size over time. Moreover, technology, inflation, and other external factors may affect costs significantly in the long run. However, the use of a shorter (and more relevant, for most planning and decision-making purposes) time period, such as a year, makes it meaningful to describe many costs as fixed at a certain level regardless of the volume of output, at least within the relevant range. These costs will be incurred simply to keep the enterprise open and ready for business. The airline industry is a particularly good example of a business in which the fixed costs — the cost of sustaining the necessary infrastructure — form a very large proportion of the firm's total costs. But over the very long run, it is possible to expand or contract these expenditures in response to external conditions.

Conversely, if extremely short periods of time are considered, such as a week or even an hour, it is logical to argue that most costs become fixed. Laborers must be paid whether they work or sit idle for a particular hour, once the company has scheduled their shifts and they have arrived at the factory. But again, the choice of a natural planning horizon, such as a year, leads to a situation where it does become meaningful to describe costs which change in response to activity levels as variable. In most manufacturing industries that rely upon unskilled or semi-skilled labor, for example, it is possible to hire additional workers or lay off employees in response to consumer demand for the company's products; hence, direct labor tends to be a variable cost.

Other Assumptions

Aside from the time-period issue, three additional assumptions are contained in the model developed thus far. First, for convenience, all cost items are approximated by linear relationships to the volume index, although, in many situations, the true underlying relationship is not quite a perfect straight line. The errors introduced by this simplification are usually minor and can be safely ignored. If, however, the decision maker expects that such errors might be large enough to affect the conclusions and decisions being made, then it becomes necessary to refine the model accordingly.

Second, since the relevant range of output is usually quite wide, and since the distortions near the extremities of the range are often not material in nature, the specification of a precise relevant range is frequently omitted. As a result, cost relationships are sometimes extrapolated beyond the actual range for which they are valid. Clearly, this must involve care and judgement on the part of the decision maker in order to prevent erroneous conclusions.

Finally, the model of the firm's cost structure is formulated in the context of a certain set of external conditions and is only valid as long as these conditions hold.

If a sudden, major increase in energy prices occurs, for example, a new model will be required for any firm that uses significant amounts of energy resources. Another common situation where the cost-volume-profit model ceases to hold, because of a change in the assumed set of external conditions facing the firm, is the introduction of new technologies, which could radically alter the production or office processes and render the existing cost structure invalid. Computerization has been one very prevalent example of technology affecting the operating procedures, and, hence, the cost structures of many companies during the past three decades.

Completing the Financial Model of the Firm: Revenues and Profits

The final step in completing a comprehensive model of the financial structure of a business is to note the fundamental accounting relationship:

$$\text{Net Profit} = \text{Total Revenues} - \text{Total Costs}$$

Total costs have already been defined as the sum of all fixed and variable costs. Revenue can easily be added to the model: every unit sold generates revenue equal to the unit's selling price. Total revenue is, therefore, a straight line beginning at the origin (no units sold implies no revenue) with a slope equal to the selling price.

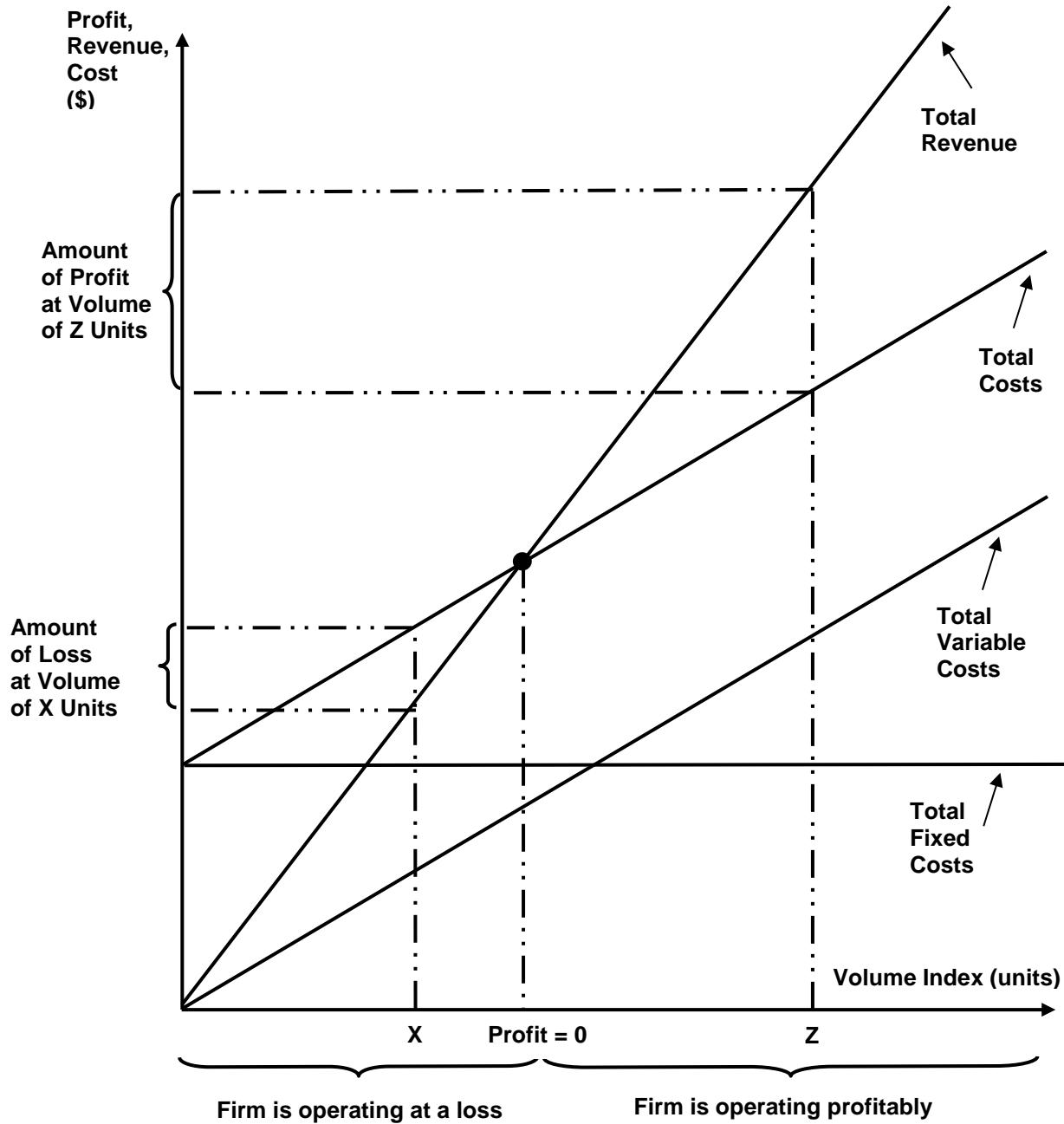
Figure 8 combines the cost structure of the firm with the total revenue function. The resulting graphical model describes the profit potential of the firm as a function of the activity level experienced, and is called a cost-volume-profit chart. The profit, or loss, at any given level of output, is determined simply by measuring the vertical difference between the total revenue and total cost curves.

The point of intersection between the total revenue and total cost curves is the point at which the firm records neither a profit or a loss; it breaks even. At any volume level below this point, total costs exceed total revenues and the firm records a net loss. Conversely, at all levels of output above this point, the total revenues exceed total costs and a net profit is generated.

Before examining how these cost behavior concepts can be applied in contribution analysis and breakeven analysis, it will be useful to review a specific case study which provides a practical demonstration of cost-volume-profit analysis.

Figure 8
MODELLING THE FINANCIAL STRUCTURE OF THE FIRM
USING A COST-VOLUME-PROFIT CHART

CASE STUDY: COOL MOVE UNLIMITED



To illustrate more clearly the behavior of cost items and the usefulness of a cost-volume-profit model, consider the case of David Dalberg, a second-year university student planning to start his own door-to-door portable air conditioner distributorship, called Cool Move Unlimited, for a summer job between school terms.

Case History

Dalberg planned to hire other students to do the actual selling for him and to handle the various other business tasks himself. Dalberg thought that he could compete favorably with established retailers using personal selling and a lower selling price, which he could justify because of his very low overhead costs.

Supplier

Dalberg's first step was to find a supplier. The Canadian wholesaler of the product that Dalberg wanted to sell was willing to provide him with units at a wholesale price of \$384, subject to a minimum order quantity of 10 air conditioners and cash payment upon delivery.

Pricing

Dalberg planned to allow a 20 per cent selling margin on the retail price of the air conditioners; thus, he would be able to quote a retail price of \$480 to prospective customers. He thought that the \$500 mark was an important psychological barrier since buyers in the low end of the air conditioner market were price-conscious. The unit he would be distributing was a compact, self-contained, portable unit with reasonable features and power for its small size.

Operations

In order to finance the initial inventory and provide some cash for daily operations, Dalberg would have to approach his parents for a \$6,000 loan since his personal savings would be depleted by the end of the school year. He agreed to repay the loan at the end of the summer, and to pay interest on the loan of one per cent per month. Since Dalberg would be living at home for the summer, it would not be necessary to take any drawings from the business and all profits could go into his savings for the following school year.

Dalberg thought that he could make use of one of the air conditioners himself and, thus, intended to buy one for the business at the outset. At the end of the summer, he expected that he could sell the machine to one of his neighbors for about \$200.

Promotion of the business would be undertaken using flyers, posters, and advertisements in community newspapers. Dalberg had budgeted \$85 per month for this purpose, and also anticipated that supplies and other miscellaneous expenses would amount to \$20 per month.

Dalberg believed that he could run the business out of his parents' basement and was sure that they would not discourage his entrepreneurial spirit by charging him any more than a nominal \$10 per month rental fee; however, if the venture was wildly successful, it might be necessary to rent extra storage space elsewhere for \$60 per month. This would probably not be required until the monthly sales volume exceeded 250 units.

The students who would be hired to sell the product door-to-door would be paid on a fixed-rate-plus-bonus arrangement in order to provide some financial security plus an incentive to sell aggressively. Dalberg thought that he would have no difficulty obtaining five capable sales representatives by offering a salary of \$440 per month plus a five per cent commission on sales, particularly given the depressed state of the student job market.

Armed with these research data, Dalberg prepared to study the financial implications of the venture.

Cool Move Unlimited: Case Analysis

A cost-volume-profit analysis must begin with the specification of the decision maker's time horizon and the selection of an appropriate volume index for the firm. Then, investments must be separated from costs, and the various costs can be categorized according to behavior. Finally, the aggregation of all costs into total fixed and total variable cost functions and the addition of revenue will permit a cost-volume-profit chart to be prepared.

Time Horizon

The time horizon for the Cool Move Unlimited venture is very short; only a four-month life is expected unless Dalberg renews the business in subsequent summers. This time period could be used as a reference for the cost-volume-profit analysis. Alternatively, a shorter time period, such as a month, could be used. This would provide Dalberg with the advantage of being able to easily make and update projections and performance evaluations on a monthly basis.

Volume Index

Since Dalberg's firm is going to act as a retailer of a single product, the choice of a volume index for measuring the activity level of the firm is quite simple. The unit sales volume of the firm will provide an easily measurable index of activity, and will probably be the factor which exerts the strongest influence on costs.

Investment

The \$6,000 capital investment required to start the venture is not a cost. Rather, it is a one-time use of funds, primarily to purchase the company's inventory requirements. The repayment of the loan at the end of the summer is also not a cost; it represents the return to a creditor of money that was lent to the firm.

The acquisition of an air conditioner by the business is also a one-time investment, which will become a cost gradually over time as it is amortized.

Fixed Costs

The first item of fixed cost is the interest expense on the loan amounting to one per cent, or \$60, per month. Interest is a recurring cost of being in business which must be paid every month. It is a fixed item because the amount of interest is not related to the firm's sales volume.

Depreciation on the portable air conditioner at the rate of \$46 per month ($[\$384 - \$200] \div 4 \text{ months}$) is also a fixed cost because it is unrelated to sales volume. This non-cash cost spreads the amount of the asset investment evenly over its estimated life.

Finally, promotion and supplies are both fixed costs of \$85 and \$20 per month, respectively, because these charges will be incurred regardless of how many air conditioners are actually sold.

Variable Costs

There is only one truly variable cost in the proposed Cool Move Unlimited venture: the \$384 unit cost of each air conditioner. The firm's total cost of goods sold expense will increase directly in proportion with sales volume, at a rate of \$384 per unit.

Step Costs

Rental payments behave as a step cost in this venture. A \$10 per month rent expense will be incurred at any volume in the zero to 250 units range, whereas beyond this level, rent will be \$70 per month.

Semi-Variable Cost

The final cost items in Dalberg's venture are the selling costs, which are, by contractual definition, semi-variable. There is a fixed salary component of \$440 per month for each of the five salespeople. This \$2,200 cost is unrelated to the number of sales which are generated. As well, there is a variable bonus component representing a five per cent, or \$24, commission on every unit sold.

Total Fixed Costs

Within the relevant range of zero to 250 units, the total fixed costs per month for the Cool Move Unlimited venture will be:

Interest	\$ 60
Depreciation	46
Promotion	85
Supplies and Miscellaneous	20
Rent	10
Sales Salaries	<u>2,200</u>
Total Fixed Costs	<u>\$ 2,421</u>

Beyond the 250-unit level of sales, total fixed costs would rise to \$2,481 per month with the addition of the extra rental payments for additional storage space.

Unit Variable Cost

The unit variable cost incurred on each air conditioner sold by Cool Move Unlimited is determined as follows:

Cost of Goods Sold	\$ 384
Sales Commission	24
Unit Variable Cost	<u>\$ 408</u>

Total variable cost will vary in direct proportion to the number of units sold by the business.

Revenue

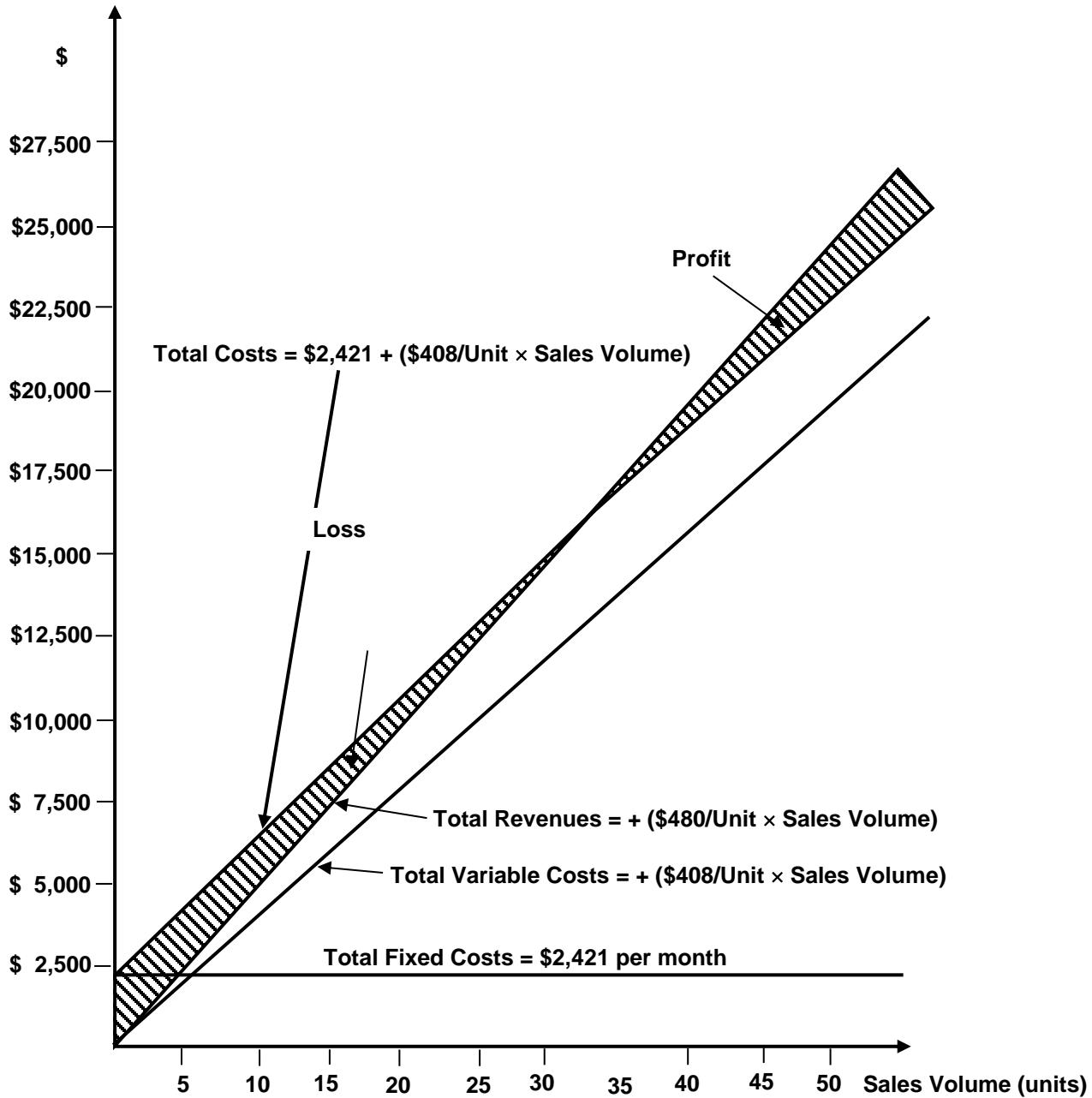
The revenue per unit will equal the selling price established by Cool Move Unlimited, namely \$480 if a 20 per cent margin is to be maintained. Total revenue will increase in direct proportion to the unit sales volume of the firm.

Cost-Volume-Profit Chart

A cost-volume-profit chart for the Cool Move Unlimited venture is illustrated in Figure 9. Only four curves are required to model the entire cost and revenue structure of the business within a relevant range of output of zero to 250 units. This model will facilitate Dalberg's planning and decision-making activities. It can be seen that if high enough volumes can be achieved, there certainly appears to be a worthwhile profit opportunity for Dalberg to pursue.

|

Figure 9
COST-VOLUME-PROFIT CHART



CONTRIBUTION ANALYSIS

Contribution analysis, which is a logical extension of the cost-volume-profit model developed above, is one of the most powerful and frequently used management accounting tools. It is an invaluable technique for analyzing short-run operating decisions, such as product pricing, subcontracting, and special orders. It is also a very useful method for evaluating the performance of operating units, product lines, and individual managers. Contribution analysis is frequently useful for financial planning and budgeting applications, as a timesaving device, if nothing else, and is particularly valuable in any analysis of a situation involving a change in the activity level of the firm. The contribution margin on a product is also a necessary input into a breakeven analysis, as will be seen subsequently. Most importantly, the concept of contribution provides an important and useful way of thinking about business situations.

Unit Contribution

What is the benefit to a firm from selling a single unit of output? At first glance, it is apparent that the firm gains revenue equal to the selling price of the item; however, there may also be several costs incurred specifically because of the decision to sell the unit. The cost price of the unit is certainly one such expenditure which would not have been required otherwise. Additional related costs might include packaging, commissions, and delivery charges. In fact, the costs related to the decision to sell one unit of output are measured by the unit variable cost of the item. The unit variable cost is the sum of all the individual variable cost items incurred in producing and selling the unit. The benefit to the firm of making the sale is the difference between the selling price received and the variable costs incurred. This figure is termed the contribution margin, or unit contribution, of the product (or service):

$$\text{Unit Contribution} = \text{Selling Price} - \text{Unit Variable Cost}$$

For example, a tavern selling beer at \$3.25, which is purchased for \$1.00 per unit, would be better off by \$2.25 ($\$3.25 - \1.00) from each bottle that is sold.

The total benefit, or loss, resulting from any change in the firm's activity level can be determined by multiplying the volume change by the unit contribution that the firm receives on each individual unit. Suppose the tavern was considering a \$1,500 promotional campaign which would produce a forecast sales increase of 1,000 units. The \$2,250 of contribution ($1,000 \text{ units} \times \2.25 per unit) from the increased sales is the expected benefit to the firm. Since this exceeds the cost of the campaign, the increased promotion should be undertaken. Clearly, contribution provides an extremely powerful analytical tool for evaluating scenarios which involve any change in output level, at least within the firm's relevant range of output.

Total Contribution

The total contribution for the firm at any particular level of volume can be simply calculated as:

$$\text{Total Contribution} = \text{Unit Contribution} \times \text{Volume}$$

Furthermore, since the unit contribution represents the difference between the selling price and unit variable cost, the total contribution must equal the difference between total revenues and total variable costs. This is seen mathematically by rearranging the two preceding equations as follows:

$$\begin{aligned}\text{Total Contribution} &= (\text{Selling Price} - \text{Unit Variable Cost}) \times \text{Volume} \\ &= \text{Total Revenues} - \text{Total Variable Costs}\end{aligned}$$

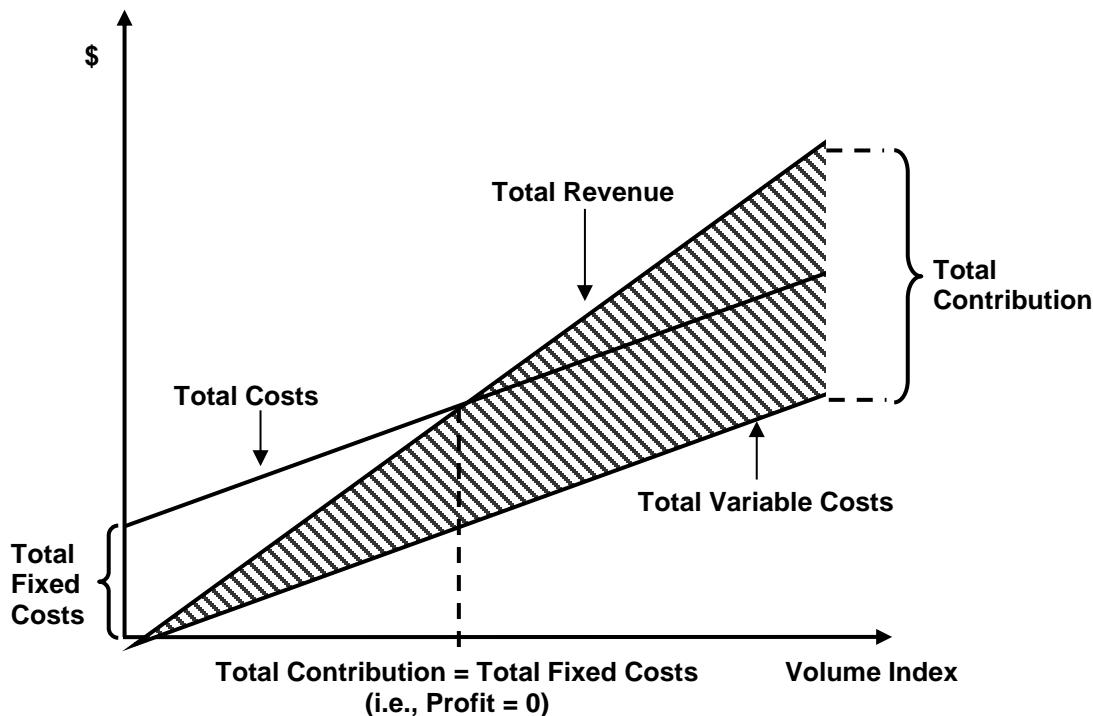
Graphically, then, total contribution for the firm can be shown in the cost-volume-profit model as the vertical distance between the total revenue and total variable cost curves (see Figure 10). Notice that total contribution could only be negative if the slope of the total variable cost line were greater than the slope of the total revenue line (i.e., if the firm were selling its output at a price below its variable cost per unit).

Furthermore, it can be seen that the firm's profit is determined by subtracting fixed costs from total contribution:

$$\begin{aligned}\text{Profit} &= \text{Total Revenues} - \text{Total Costs} \\ &= \text{Total Revenues} - \text{Total Variable Costs} - \text{Total Fixed Costs} \\ &= \text{Total Contribution} - \text{Total Fixed Costs}\end{aligned}$$

This is also shown graphically in Figure 10, and is an entirely expected finding since profit is computed by deducting all costs (i.e., fixed costs and variable costs) from the firm's total revenues. For example, a company selling 100,000 compact discs per year with a contribution of \$2 per unit on each sale and fixed costs of \$140,000 will generate total contribution of \$200,000 ($100,000 \text{ units} \times \2 per unit) and will earn a net profit of \$60,000 ($\$200,000 - \$140,000$).

**Figure 10
CONTRIBUTION ON THE COST-VOLUME-PROFIT CHART**



Income Statements Using Contribution

Using the contribution method of aggregating the firm's financial data, it is possible to produce an income statement on a contribution basis. Such a statement is very different in appearance from a normal financial accounting income statement, even though both will arrive at an identical net profit (see example below for a comparison of the two formats using a hypothetical firm called ABC Company). Income statements prepared under the contribution format are particularly useful for decision makers interested in projecting future operating results because they highlight those items which are sensitive to the activity level of the firm.

ALTERNATIVE INCOME STATEMENT FORMATS

ABC Company Conventional Condensed Income Statement For the year ended Dec. 31, 1998		ABC Company Income Statement on a Contribution Basis For the year ended Dec. 31, 1998	
Net Sales	\$100,000	Net Sales	\$100,000
Less: Cost of Goods Sold	<u>70,000</u>	Less: Total Variable Costs	<u>40,000</u>
Gross Profit	\$ 30,000	Total Contribution	\$ 60,000
Less Operating Expenses	<u>20,000</u>	Less: Total Fixed Costs	<u>50,000</u>
Net Profit	<u><u>\$ 10,000</u></u>	Net Profit	<u><u>\$ 10,000</u></u>

It should be noted that cost of goods sold expense and total variable costs are not necessarily equivalent. The cost of goods sold expense in a manufacturing company normally contains some fixed cost items in addition to variable cost items. As well, there will usually be some variable items which are administrative expenses rather than product costs.

Similarly, operating expenses do not necessarily equal total fixed costs. There are usually some operating expenses which vary with volume and there may also be fixed items which are included in the cost of the product.

However, total costs, and hence net profit, are equivalent under both methods. There is simply a difference between the way the financial accountant and the cost behavior analyst group the cost data caused by the different uses they intend to make of the information which is available.

Contribution Margin Ratio

Just as accountants calculate a gross margin ratio (gross profit divided by sales), it is frequently useful, when doing contribution analysis, to compute a contribution margin ratio:

$$\text{Contribution Margin Ratio} = \frac{\text{Total Contribution}}{\text{Total Revenue}} \times 100$$

The contribution margin ratio is a percentage which measures the portion of each sales dollar which actually benefits the firm after deducting all the variable costs incurred in obtaining the sale. The unit contribution on each sale is the amount of money which is actually available to help the firm cover its fixed costs and generate profits. A firm with a very low contribution margin ratio requires higher unit sales volume in order to cover fixed costs; whereas, a firm with a higher contribution margin ratio will be able to cover its fixed

costs at a lower sales volume. It should be noted that two alternative, and equally valid, methods of calculating the contribution margin ratio involve using unit data:

$$\text{Contribution Margin Ratio} = \frac{(\text{Selling Price} - \text{Unit Variable Cost})}{\text{Selling Price}} \times 100$$

or

$$\text{Contribution Margin Ratio} = \frac{\text{Unit Contribution}}{\text{Selling Price}} \times 100$$

Covering Fixed Costs

Contribution provides the basis for an important alternative way of thinking about the management of a business. Using the notions of fixed and variable costs, and contribution, it can be seen that:

1. Total fixed costs represent the overhead expenditures necessary for the firm to commence operations, and to continue in business, regardless of the volume of sales which result.
2. The firm's profitability results from its ability to generate more total contribution than the total fixed costs which it must incur in order to be in business (i.e., its ability to "cover" its fixed costs). Once sufficient units have been sold to pay for all the fixed costs, the contribution margin on each additional unit sold represents profit for the firm.
3. The firm should generally not take any action that results in negative contribution; in other words, it should not sell a unit if the selling price is less than the variable cost of the unit.¹
4. Since total fixed costs are constant in the short run at all activity levels, the firm should work to maximize total contribution in its short-run operating decisions.
5. It is not very meaningful in the short run to think in terms of the full cost of an individual unit or the profit generated by an individual unit. Full cost per unit or profit per unit data can be misleading because the fixed cost charges which get factored into these numbers are not really related to any individual units or specific level of volume. As a result, a false impression will be obtained about what is likely to happen to costs when sales volume is altered if full cost per unit data are examined. Unit variable cost and unit contribution, on the other hand, are valid measurements at any and all activity levels within the firm's relevant range.

Illustration: Cool Move Unlimited

Returning to the Cool Move Unlimited example, it can be seen that Dalberg will receive a positive contribution from each unit sold:

¹ The two exceptions to this rule are situations in which qualitative factors outweigh the financial disadvantages of negative contribution, and situations in which some or all of the variable costs are "sunk" (i.e., already paid for). Analysis of this second type of situation requires the use of a differential accounting framework, a further topic in management accounting.

Selling Price	\$ 480
Less: Unit Variable Cost	<u>408</u>
Unit Contribution	<u>\$ 72</u>

The firm's total contribution cannot be determined until sales have been estimated. Assume that on the basis of his market research, Dalberg has forecast low, expected and optimistic monthly sales volumes of 30, 60 and 110 units, respectively. It is a simple matter to project the financial results under these three scenarios using contribution analysis:

	LOW	MEDIUM	HIGH
Monthly Unit Sales	30	60	110
Unit Contribution	\$72	\$72	\$72
Total Contribution	\$ 2,160	\$ 4,320	\$ 7,920
Less: Fixed Costs	<u>2,421</u>	<u>2,421</u>	<u>2,421</u>
Net Profit	<u><u>\$ (261)</u></u>	<u><u>\$ 1,899</u></u>	<u><u>\$ 5,499</u></u>

There is no way of ascertaining in advance what level of sales will actually be achieved. If enough units are sold each month, Dalberg's venture will earn sufficient total contribution to pay for all its fixed costs and record a profit. Otherwise, a loss will occur. The level of sales required to achieve profitability can be determined by preparing a breakeven analysis.

BREAKEVEN ANALYSIS

One important application of cost behavior theory and contribution analysis is the determination of a "breakeven" operating volume for the firm. Intuitively, the breakeven level of operations is the zero profit point where total revenues exactly equal total costs. Breakeven analysis is useful because it calculates the minimum level of volume required to make a certain decision or venture generate a positive return. Thus, the breakeven point, when used in combination with sales forecasts and managerial judgement, helps to quantify the riskiness of a particular course of action.

Modelling the Breakeven Point

Using the cost-volume-profit model developed above, it can be seen that once the total revenue and total cost functions are known, then the profit of the firm is determined by the level of volume achieved. Furthermore, the total revenue and total cost curves must intersect,² and the x-axis coordinate of this intersection point is the level of output at which there will be a zero profit.

Another way to describe the breakeven point is that it is the level of output at which total contribution (which varies with activity level) precisely equals, or covers, total fixed costs (which are constant regardless of the activity level). This breakeven level is derived by substituting profit = 0 into the general equation for profit developed earlier.

$$\text{Profit} = \text{Total Contribution} - \text{Total Fixed Costs}$$

² The exception to this rule is the rare occasion when the unit variable cost exceeds the selling price (i.e., unit contribution is negative), in which case the total revenue and total cost curves will never converge (and, of course, the firm will never record a profit).

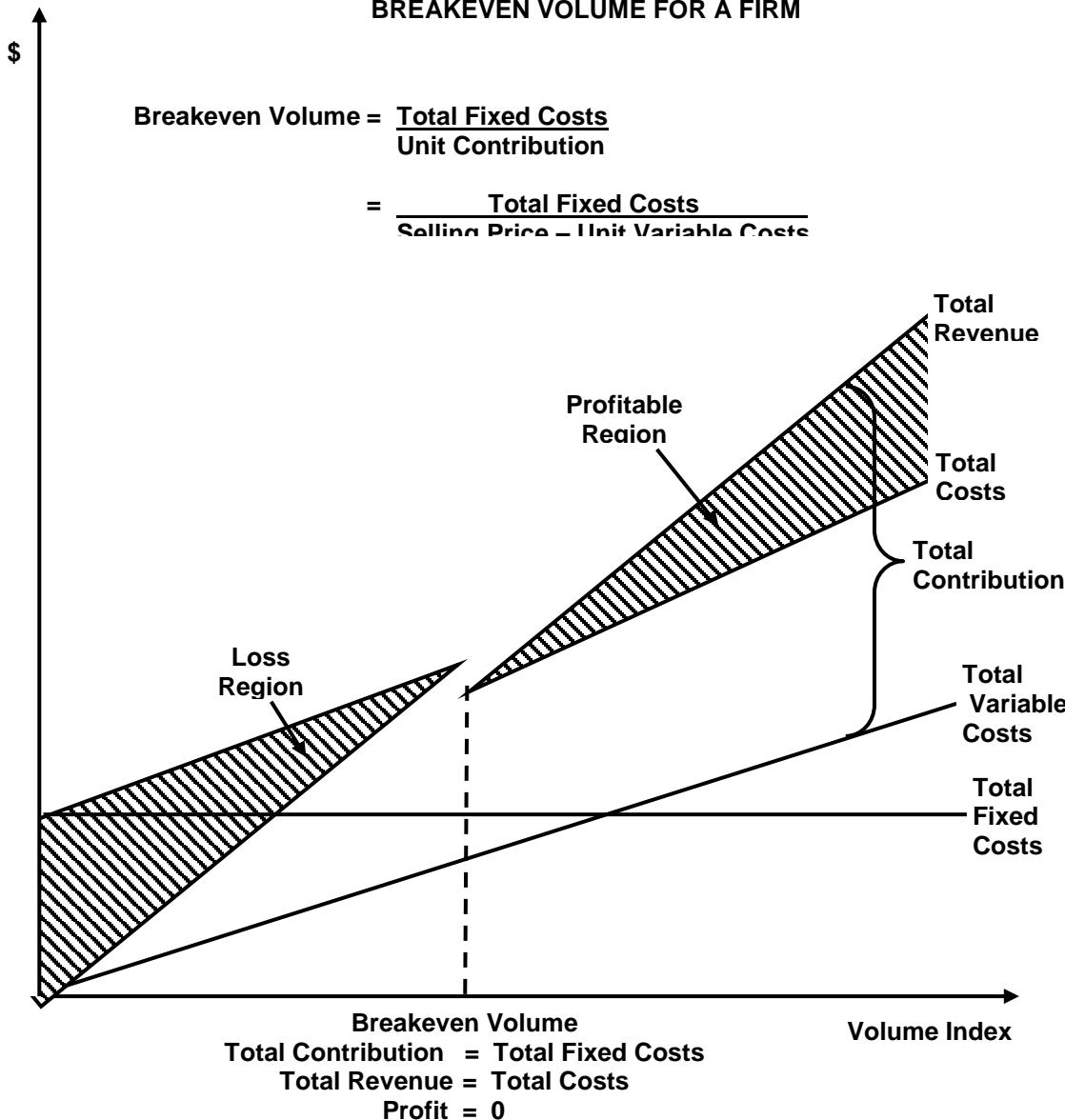
Thus, at the firm's breakeven point, the following relationship exists:

$$0 = \text{Total Contribution} - \text{Total Fixed Costs}$$

$$\text{Total Contribution} = \text{Total Fixed Costs}$$

Refer to Figure 11 for a graphical representation of the breakeven volume of a firm on a cost-volume-profit chart. It can be seen that at any volume below the breakeven point, the firm incurs a loss. The size of the loss increases as the volume declines. Conversely, all volumes in excess of the breakeven point represent profitable operations, with the size of the profit increasing as volume increases.

**Figure 11
BREAKEVEN VOLUME FOR A FIRM**



Calculating the Breakeven Level

A simple mathematical formula exists for calculating the breakeven point in a single-product firm, once its cost structure is known. The breakeven point for a firm can be expressed in many ways, including actual physical units of output, in terms of market share, in relation to plant capacity, or as a dollar value of sales.

Breakeven Level Expressed in Units of Output

In single product firms, the most common and convenient method of expressing the breakeven point is in terms of units of the firm's product. Using the fact that total contribution equals total fixed costs at, and only at, the breakeven volume, simple algebra produces the following formula:

$$\text{Total Contribution} = \text{Total Fixed Costs}$$

$$\text{Breakeven Volume} \times \text{Unit Contribution} = \text{Total Fixed Costs}$$

$$\text{Breakeven Volume} = \frac{\text{Total Fixed Costs}}{\text{Unit Contribution}}$$

or

$$\text{Breakeven Volume} = \frac{\text{Total Fixed Costs}}{\text{Selling Price} - \text{Unit Variable Cost}}$$

This formula reinforces the intuitive notion of what a breakeven point represents: it implies that the breakeven volume is the number of units which must be sold in order to generate enough contribution to exactly cover the firm's fixed costs. For example, in an ice cream shop with fixed costs of \$8,000 and a contribution on each cone of \$0.50, it will be necessary to sell 16,000 cones in order to exactly break even:

$$\begin{aligned}\text{Breakeven Volume} &= \frac{\$8,000}{\$0.50 \text{ per cone}} \\ &= 16,000 \text{ cones}\end{aligned}$$

Breakeven Level Expressed in Terms of Market Share

If data are available on the total size of the market, it is a simple and useful extension to express the breakeven point in terms of market share as well as units. Suppose a manufacturing firm has determined its breakeven volume to be 10,000 units. This piece of information becomes much more meaningful when compared to the size of the available market. If the total size is 100,000 units, then the firm requires 10 per cent of the total market in order to reach its breakeven point:

$$\begin{aligned}\text{Breakeven Market Share} &= \frac{\text{Firm's Breakeven Volume (in units)}}{\text{Size of Available Market (in units)}} \\ &= \frac{10,000 \text{ units} \times 100}{100,000 \text{ units}} \\ &= 10\%\end{aligned}$$

On the other hand, if the total market size were only 20,000 units, then the firm would have to capture 50 per cent ($10,000 \div 20,000 \times 100$) of the entire market just to reach its breakeven (zero point) level of operations.

Note that a breakeven market share can be equally well computed by comparing the firm's breakeven expressed in sales dollars (see below) with the total annual dollar value of the market for the product, if such data are more conveniently available. The result will still be expressed as a percentage.

Breakeven Level Expressed as a Percentage of Plant Capacity

Another potentially useful way to evaluate a manufacturing firm's breakeven volume is in relation to its production capacity. If the firm above operated a plant with a production capacity of 25,000 units, then its breakeven capacity utilization could be determined as follows:

$$\begin{aligned}\text{Breakeven Capacity Utilization} &= \frac{\text{Firm's Breakeven Volume (in units)}}{\text{Firm's Plant Capacity (in units)}} \\ &= \frac{10,000 \text{ units} \times 100}{25,000 \text{ units}} \\ &= 40\%\end{aligned}$$

The breakeven level as a percentage of plant capacity attempts to measure how much flexibility the firm has before plant capacity becomes a constraint. Had the firm above been operating an 8,000-unit plant, it is clear that even a breakeven position, let alone profitable operations, would have been impossible because a capacity utilization of at least 125 per cent ($10,000 \text{ units} \div 8,000 \text{ units} \times 100$ units) would have been required.

Breakeven Level Expressed in Sales Dollars

To compute a breakeven level in sales dollars, it is necessary to employ the contribution margin ratio which was defined above:

$$\text{Breakeven Margin Ratio} = \frac{\text{Selling Price} - \text{Unit Variable Cost}}{\text{Selling Price}}$$

In the simple case of a single product firm, the breakeven point measured in sales dollars can be computed as an extension of the breakeven volume expressed in units:

$$\text{Breakeven Sales Volume in Units} = \frac{\text{Total Fixed Costs}}{\text{Selling Price} - \text{Unit Variable Cost}}$$

Multiplying through both sides of the equation by the selling price yields the following:

$$\frac{\text{Breakeven Sales} \times \text{Selling Price}}{\text{Volume in Units}} = \frac{\text{Total Fixed Costs} \times \text{Selling Price}}{(\text{Selling Price} - \text{Unit Variable Cost})}$$

$$\text{Breakeven Sales Level in Dollars} = \frac{\text{Total Fixed Costs}}{\text{Contribution Margin Ratio}}$$

Multiple Product Firms

Attempts to calculate a breakeven level of output for multiple product firms are significantly more complex than the single product situation examined above. The complexity arises from the fact that it is no longer possible to use any single physical measure of output: units of dishwashers cannot be added to units of dryers and units of refrigerators. However, it is possible to use the dollar value of output of each product as a common denominator for measuring the firm's activity level.

For the multiple product situation, it is necessary to determine a weighted average contribution margin ratio for the firm by multiplying the contribution margin ratio of each individual product by the proportion it represents of the total sales. As long as the "product mix" is known, and is assumed to remain constant regardless of any expansion or contraction in total volume, it is possible to compute the breakeven sales level in dollars for a multiple product firm:

$$\text{Breakeven Level in Sales Dollars} = \frac{\text{Total Fixed Costs}}{\text{Weighted Average Contribution Margin Ratio}}$$

Consider a street hot dog vendor as a simple example of a multiple product breakeven analysis. Assume that the contribution margin on hot dogs is 30 per cent, compared to 45 per cent on pop sales. Also assume that pop sales represent one-third of the total sales. Then the vendor's average contribution margin ratio can be determined as follows:

$$\begin{aligned}\text{Weighted Average Contribution Margin Ratio} &= (2/3 \times 30\%) + (1/3 \times 45\%) \\ &= 35\%\end{aligned}$$

If the vendor's weekly fixed costs amount to \$350, a sales level of \$1,000 per week will be required to break even:

$$\begin{aligned}\text{Breakeven Level in Sales Dollars} &= \frac{\$350 \text{ per week}}{0.35} \\ &= \$1,000 \text{ per week}\end{aligned}$$

This breakeven point will be valid as long as the mix of hot dog sales and pop sales remains constant.

In practice, the assumption that the sales of all products will expand or decline in direct proportion with each other (i.e., that the product mix remains constant) is a severe constraint which imposes limitations on the usefulness of multiple-product breakeven estimates.

Target Profit Levels

A firm's breakeven level is an important threshold since at any volume below it, the firm will lose money. However, breaking even is a bare minimum objective; business enterprises exist to earn profits for their owners. Using the concept developed under contribution analysis that each unit sold contributes a certain amount (the unit contribution) towards fixed costs and, once they have been entirely covered, towards profit, it is logical to think about a breakeven level of volume for any target level of profit the firm wishes to achieve. The revised formulation of the breakeven equation to handle non-zero target profit levels is a simple extension of the original breakeven formula:

$$\begin{aligned} \text{Breakeven Volume to Obtain Target Profit} &= \frac{\text{Total Fixed Costs}}{\text{Unit Contribution}} + \frac{\text{Target Profit}}{\text{Unit Contribution}} \\ &= \frac{\text{Total Fixed Costs} + \text{Target Profit}}{\text{Unit Contribution}} \end{aligned}$$

or

$$\begin{aligned} \text{Breakeven Volume to Obtain Target Profit} &= \frac{\text{Total Fixed Costs} + \text{Target Profit}}{\text{Selling Price} - \text{Unit Variable Cost}} \end{aligned}$$

These formulas are derived from the general relationship underlying the cost-volume-profit model developed earlier:

$$\text{Profit} = (\text{Selling Price} - \text{Unit Variable Cost}) \times \text{Volume} - \text{Total Fixed Costs}$$

Thus to achieve any given target level of profit, the breakeven volume required is:

$$\begin{aligned} \text{Target Profit} &= \left[\frac{\text{Selling Price} - \text{Unit Variable Cost}}{\text{Selling Price} - \text{Unit Variable Cost}} \right] \times \frac{\text{Breakeven Volume for Target Profit}}{\text{Breakeven Volume for Target Profit}} - \frac{\text{Total Fixed Costs}}{\text{Total Fixed Costs}} \\ \\ \text{Breakeven Volume for Target Profit} &= \left[\frac{\text{Total Fixed Costs} + \text{Target Profit}}{\text{Selling Price} - \text{Unit Variable Cost}} \right] \end{aligned}$$

Suppose, for example, that a film developer forecasts total fixed costs of \$52,000 and wishes to earn a 20 per cent return on the \$40,000 of capital invested in the business. If the contribution per film amounts to \$1.50, it will be necessary to develop 40,000 films in order to achieve the established profit objective:

$$\begin{aligned}
 \text{Breakeven Volume to Obtain Target Profit} &= \frac{\$52,000 + (20\% \times \$40,000)}{\$1.50} \\
 &= \frac{\$60,000}{\$1.50 \text{ per film}} \\
 &= 40,000 \text{ films}
 \end{aligned}$$

The owner's assessment of the likelihood that a volume of 40,000 units can be obtained given local market conditions will assist in evaluating the riskiness of this type of enterprise compared with other investment alternatives.

Cash Flow Breakevens

The preceding discussion of breakevens has focused on zero profit or a selected target profit as the objective. It is also possible, and frequently desirable, to determine the level of output which will yield either a zero net cash flow from operations or a certain desired target level for net cash flow from operations.

Obtaining at least a zero, if not positive, net cash flow from operations is important for a firm because, in the long run, operations must be self-sustaining and because it is really cash, rather than profit, which is the relevant decision-making criteria in most business situations. A firm with cash-flow problems, or one that is worried about solvency, would be far more interested in a cash breakeven than a profit breakeven.

The method for computing a cash breakeven is very similar to the profit breakeven already discussed. Since revenues and variable costs are normally all cash items, it is usually only necessary to modify total fixed costs (i.e., the numerator of the formula) by removing any items which are non-cash costs. The usual deletion is depreciation. The breakeven is then computed normally using the adjusted figure for total cash fixed costs. Thus, for a single product company, the cash breakeven expressed in units would be computed as follows:

$$\text{Cash Breakeven (in units)} = \frac{\text{Total Cash Fixed Costs}}{(\text{Selling Price} - \text{Unit Variable Cost})}$$

Industries which are highly capital-intensive often have large amounts of non-cash costs resulting in cash-flow breakevens which are substantially below profit breakevens. For example, a small airline with total fixed costs of \$800,000 and a unit contribution equal to the average passenger revenue of \$50, would have a zero breakeven of 16,000 passengers ($\$800,000 \div \50 per passenger). However, if depreciation charges constitute \$300,000 of the firm's total costs, then it is possible for the firm to remain solvent at volumes as low as 10,000 passengers:

$$\begin{aligned}
 \text{Cash Breakeven} &= \frac{\$800,000 - \$300,000}{\$50 \text{ per passenger}} \\
 &= 10,000 \text{ passengers}
 \end{aligned}$$

This provides an important additional perspective when assessing the stability and potential solvency of such a company.

Uses of Breakeven Analysis

The breakeven point of a firm, whether expressed in units, sales dollars, market share or capacity utilization, and using a zero or management-defined target level for either profit or operating cash flow, is a calculation which helps to give managers and analysts better insight into the nature of a firm's financial structure.

The most important use of breakeven analysis is as an estimate of the riskiness of a particular venture or course of action. For example, if an entrepreneur is studying the feasibility of a new venture and determines the expected sales level to be 200,000 units, the calculation of a breakeven point assists in determining the degree of risk in the venture. A breakeven volume of 25,000 units would imply that there is relatively little risk that the business will not be profitable; whereas, a breakeven point of 190,000 units would indicate that there is virtually no room for error in the sales forecasts before the business turns into a losing, rather than a profitable, proposition.

Illustration: Cool Move Unlimited

Returning once again to the Cool Move Unlimited case, it is possible to obtain further insights into the attractiveness of the proposed venture through the use of breakeven analysis. There is clearly substantial uncertainty inherent in Dalberg's sales estimates, particularly because he is using a novel selling approach.

Zero Profit Breakeven

First and foremost, Dalberg is concerned about whether the business is likely to make any money. A breakeven volume expressed in units can be used to get a better insight into the firm's cost structure:

$$\begin{aligned}\text{Breakeven Volume for Zero Profit} &= \frac{\text{Total Fixed Costs}}{(\text{Selling Price} - \text{Unit Variable Cost})} \\ &= \frac{\$2,421 \text{ per month}}{(\$480 \text{ per unit} - \$408 \text{ per unit})} \\ &= \underline{34 \text{ units per month}}\end{aligned}$$

With a cost structure that requires only 34 units per month to break even, it appears highly likely, but not absolutely certain, that the business will be profitable as long as Dalberg's sales estimates are at all reasonable.

In Dalberg's case, it is not meaningful to relate the firm's breakeven level to capacity since there are no real constraints upon volume. Because no market size data were available to Dalberg a market share breakeven calculation is impossible. However, Dalberg intuitively estimated that the market in his local area was quite large, and that even his high projection of 110 units would probably amount to less than one per cent of the total potential buyers.

Breakeven in Sales Dollars

The zero profit breakeven point for Cool Move Unlimited could equally well be expressed in sales dollars rather than units. The first step required is to calculate the firm's contribution margin ratio:

$$\begin{aligned}\text{Contribution Margin Ratio} &= \frac{\text{Unit Contribution}}{\text{Selling Price}} \\ &= \frac{\$72 \text{ per unit}}{\$480 \text{ per unit}} \\ &= 15\%\end{aligned}$$

The breakeven volume expressed in sales dollars can then be determined:

$$\begin{aligned}\text{Breakeven Volume} &= \frac{\text{Total Fixed Costs}}{\text{Contribution Margin Ratio}} \\ &= \frac{\$2,421 \text{ per month}}{0.15} \\ &= \$16,140 \text{ per month}\end{aligned}$$

Because the contribution margin on the firm's sales is relatively low, over \$16,000 in sales must be generated each month in order to ensure that the firm's \$2,241 worth of fixed costs can be covered.

Cash Breakeven

Since Dalberg's parents have limited financial resources, he is very worried about the risk that the business will not be able to generate enough cash flow to remain self-sufficient. A cash breakeven can be used to assess the probability of this outcome:

$$\begin{aligned}\text{Breakeven Volume for Zero Cash Flow}^3 &= \frac{\text{Total Cash Fixed Costs}}{(\text{Selling Price} - \text{Unit Variable Cost})} \\ &= \frac{(\$2,421 \text{ per month} - \$46 \text{ per month})}{(\$480 \text{ per unit} - \$408 \text{ per unit})} \\ &= 33 \text{ units per month}\end{aligned}$$

The fact that almost all of Dalberg's costs are cash items, with the exception of \$46 in amortization expense, results in an only slightly lower cash breakeven of 33 units. Thus, there does still appear to be a risk, albeit a small one, of experiencing a negative operating cash flow.

³ It should be noted that cash and target profit breakdowns could also be expressed in terms of sales dollars, rather than units, simply by utilizing the contribution margin ratio rather than the unit contribution in the denominator of the formulas.

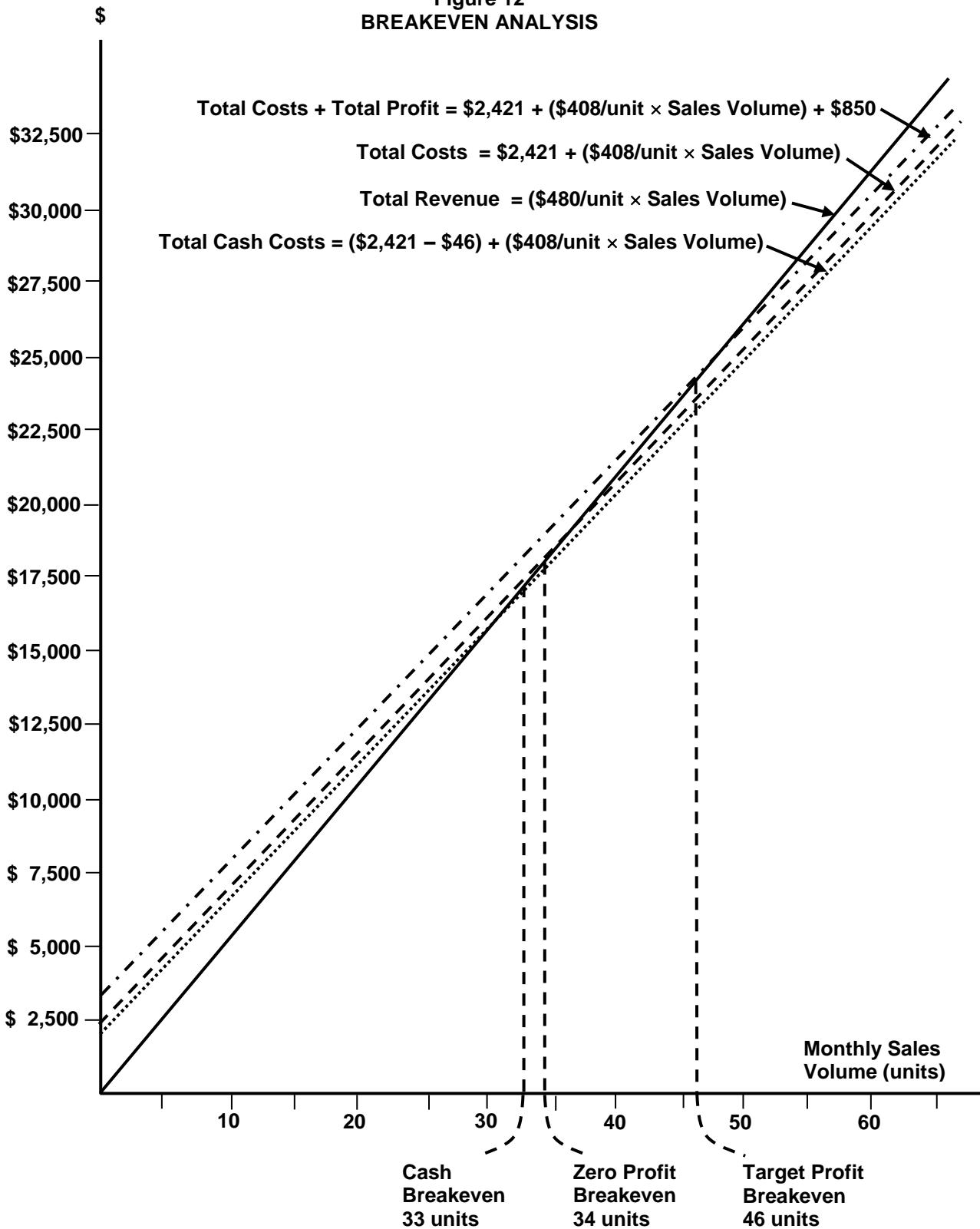
Target Profit Breakeven

Dalberg's final question before deciding whether to proceed with the venture was the likelihood of being able to save enough money to return to school. He believed that he might be able to obtain a part-time summer job paying \$850 per month. The sales volume necessary to produce an equivalent level of profit for Dalberg would be determined as follows:

$$\begin{aligned}\text{Breakeven Volume for Target Profit}^3 &= \frac{\text{Total Fixed Costs} + \text{Target Profit}}{\text{Selling Price} - \text{Unit Variable Cost}} \\ &= \frac{(\$2,421 \text{ per month} + \$850 \text{ per month})}{\$480 \text{ per unit} - \$408 \text{ per unit}} \\ &= \underline{46 \text{ units per month}}\end{aligned}$$

With this level of volume required to achieve his target profit level, Dalberg was left with a difficult decision. Somehow he would have to trade off the potential benefits, both in terms of profits and personal experience, available from opening his own business against the risks involved. Cost behavior, contribution and breakeven analyses (refer to Figure 12 for a graphical summary of the breakevens calculated for Dalberg's venture) can be used to clarify and quantify the pros and cons of the decision. The final choice, however, must depend upon his own intuition, personal objectives, and attitudes towards risks.

Figure 12
BREAK EVEN ANALYSIS



SUMMARY

The classification of a firm's costs according to whether they are fixed or variable with respect to the firm's activity level is a very useful analytical technique for future-oriented, decision-making purposes.

Understanding how costs are expected to change in response to volume changes is useful because the activity level is typically a highly critical and uncertain variable in most planning and decision-making situations. A cost-volume-profit chart can be used to summarize the firm's expected financial structure at any level of activity, within a certain defined relevant range of output.

Contribution analysis builds upon these cost classifications by measuring the net monetary benefit (or loss) to the firm of selling each unit of output. This benefit is equal to the selling price received for the unit less any variable costs incurred in the process of supplying it. In the short run, where fixed costs are established and difficult to change, the firm maximizes profitability by making decisions which generate maximum contribution towards fixed costs and profits.

For decision-making purposes, contribution is a much more useful, reliable, and convenient tool than full cost per unit or profit per unit data because unit contribution contains only elements which vary with volume. Unit contribution is a reliable figure at any volume level (within the firm's relevant range), whereas a full cost per unit calculation is valid only at one specific volume level.

Breakeven analysis is a tool which applies cost behavior patterns and the concept of contribution in order to evaluate the riskiness of future decisions. A breakeven point is not particularly useful in and of itself, but attains significance when compared with sales forecasts, market size, or plant capacity estimates.

Cost behavior patterns, contribution, and breakeven analysis are all simple, yet powerful, tools that practising managers and entrepreneurs rely upon to improve decision making in a wide assortment of problem situations.

ZENTEIN NUTRITION INC: RAISING THE BAR

Rula Al Halbouni wrote this case under the supervision of Ian Dunn solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2024, Ivey Business School Foundation

Version: 2024-01-25

In January 2023, William Wang, the founder of Zentein Nutrition Inc. (Zentein), had just finished another long production day for Zentein's signature collagen protein bars. Sales of Zentein's protein bars had grown rapidly in the last three years, since the company's inception in 2020. As a business that originated during the COVID-19 pandemic, Zentein's distribution centered around their online sales channels through their website and Amazon.ca. However, with recent success selling its products in a traditional retail store, Forest City Microgreens (FCM), a tough decision emerged. The high demand for Zentein's protein bars became difficult to fulfill across more than one distribution channel because of limited supply. Although this was a welcome issue, it posed a strategic challenge for Wang. Which channel should Zentein focus on to optimize the use of the company's limited resources and achieve Wang's goal to grow the business? Would a change in pricing strategy help Wang achieve his goals?

ZENTEIN NUTRITION INC.

Wang's early passion for food and entrepreneurship meant that he often spent hours in the kitchen creating healthy and nutritious recipes, which he dreamt of sharing with others someday. He believed that health and wellness resulted from how he fueled his body for his active lifestyle. Wang felt that good food needed to be reduced to its simplest form, with identifiable and pronounceable ingredients. To cook his meals, he grew his own vegetables, microgreens, and mushrooms in his home. He also had strong connections with local farmers that he frequented for high quality dairy, meats, eggs, and vegetables that he did not grow himself.

In 2020, Wang was admitted to the Ivey Business School HBA program at Western University. With a busy class schedule, a part-time job as a logistics officer in the Canadian Armed Forces, and rehearsals for the annual Canadian Asian International Student Association (CAISA) Fashion Show, Wang found it difficult to cook daily as a student. He was spending most of his time on campus, where nutritious food options were limited and long line ups for meals were inescapable. Weekly meal preparation meant eating repetitive, and sometimes week-old, food and carrying around Tupperware containers all day.

In late March 2020, a few days before the closing date for applications to the summer cohort of the Western Accelerator program, Wang decided to apply on short notice. The four-month program, which was run by the Western Morrisette Institute for Entrepreneurship, provided mentorship, promotion, and funding to a small group of high-potential start-ups. Wang saw the opportunity as his chance to realize his dream of

sharing his food creations with like-minded people. He put all of his ideas together for Zentein, was accepted into the program, and officially launched the business in the summer of 2020. In just two years, Wang turned the \$9,000¹ in Accelerator funding into a successful protein food business.

A source of pride for Wang was his ability to give back to the community through Zentein. He made donations to the Rotary Club for Polio, supported mobile gyms (gyms on trucks) in Africa to increase access to fitness in remote communities, and sponsored various social clubs at Western University (e.g., Western Women in Fitness, CAISA, Rehab Club, Marketing Association, and Pre-Business Students' Network). In 2021, while running Zentein, and meeting various of his other commitments, Wang also co-founded Terra Optima Labs, a company that strived to tackle the issue of food waste by upcycling it into agri-food outputs such as fertilizers. In recognition of his efforts, Wang received various awards, including the Ron and Nancy Clark HBA Entrepreneurship Award and RBC's Rock My Business Start-up Award.

PRODUCT OFFERINGS

Protein Bars

Zentein was dedicated to providing clean and nutritious food to affluent, health-conscious, and health-knowledgeable individuals. Focused on perfecting the product, Wang offered Zentein protein bars in only one flavour: peanut butter cup. The protein bar contained only five ingredients from the highest quality suppliers: collagen, peanut butter, 100 per cent Canadian honey, Belgian dark chocolate, and oats. Each bar contained 25 grams of protein derived from the use of collagen, an animal-based protein found in connective tissue that contributed to skin health, muscle recovery, and reduced joint pain.² The use of collagen was a key selling point for many consumers. Zentein protein bars were produced in a commercial kitchen and made-to-order to minimize food waste. This process also ensured that customers were receiving the freshest-possible product. The bars were sold in boxes of 12, with box prices that differed between Zentein's three sales channels: the company website (zentein.ca), Amazon.ca, and in-store.

Wang noted that customers for the protein bars were predominantly female (70 per cent), over the age of 40 (60 per cent), and residing in Ontario, British Columbia, and Alberta. Each year, approximately 90 per cent of customers placed reorders on the company website. The overwhelmingly positive feedback from customers quickly outpaced Zentein's production capacity, making it difficult for the company to keep up with demand. A notice had to be added to the website informing customers that the wait time for making their protein bar order was around one week, which did not include shipping time. Further, Zentein also began to limit the number of boxes that a customer could purchase within a two-week period. Demand was still apparent in Zentein's sales growth of 100 per cent from 2021 to 2022. Correspondingly, profits also grew 100 per cent in the past year.

To produce each box of 12 protein bars, the cost of raw materials (which included the ingredients, individual protein bar packaging, and the box) totaled \$15. Wang also purchased general liability insurance for his products at an annual cost of \$2,000. Wages for kitchen labourers were paid on a piece-work basis, at \$2 per box. Rent for the commercial kitchen was \$1,500 per month. To safely transport his materials to and from the kitchen, Wang typically used UberXL service, which amounted to \$1,000 per month. Finally, to help sell the protein bars and educate consumers on Zentein, website fees were \$70 per month.

¹ All currency amounts are in CA\$ unless otherwise specified; all financial information has been adapted for the purposes of this case study.

² "Collagen," Harvard T.H. Chan School of Public Health, last modified May 2021, <https://www.hsph.harvard.edu/nutritionsource/collagen/>.

Other Products

Although protein bars were the current focus of the company, Wang was eager to expand his creative output into new product offerings. Zentein also produced two other products: protein truffles and tea.

Originally, Wang had introduced the protein truffle—a bite-sized protein bar covered in chocolate—with no intention of selling it. He had created the truffle for a 2022 Christmas event held by the London Economic Development Corporation. The truffles were presented as samples of Zentein protein bars, but in chocolate-covered, bite-sized portions. After the event, however, Wang received requests from interested consumers who were eager to purchase the truffles, so he decided to provide the new product exclusively as a promotional item for the company's most loyal customers. He shipped a free four-pack of protein truffles to his most loyal website customers once a year with their orders. He estimated that his cost to provide the free samples was approximately \$500 per year.

The other new product, Elixir, was Zentein's non-caffeinated flower tea. Elixir was introduced in early January 2023, after Wang realized that many of his target customers were regular consumers of tea. To capture some of this demand, Zentein produced an adaptogenic tea that contained four types of flowers: butterfly pea, chrysanthemum, rose, and jasmine. The aesthetic, colour-changing tea was meant to stimulate focus without the use of caffeine. When taken at night, the tea helped promote calmness and sleep. Zentein priced 10 sachets (20 servings) of Elixir at \$25. At this time, Wang felt that the sales of this product were still too marginal to use as justification for decisions currently facing the business.

COMPETITORS

Wang noted that the protein bar market was a fragmented and highly competitive industry. Zentein stood out for its innovative use of collagen and its simple, sustainable, and made-to-order protein bars. Zentein's high protein content and clean ingredients appealed to most athletic and health-knowledgeable consumers, but these two features alone did not capture the priorities of all customers in this large industry. Competitors were not in short supply of consumers who prioritized lower price points, a variety of flavours, and specific diets (i.e., plant-based or ketogenic).

Zentein faced many large competitors such as Built, Grenade, and Alani Nu (see Exhibit 1). Built protein bars were priced at an average of \$2.50 per bar and contained 17 grams of protein, an alternative cheap enough that consumers would not be bothered by a lack of desired taste and texture. Grenade Bars, a company recently acquired by the food giant Mondelēz International in 2021,³ offered 14 flavours and wide distribution that consumers could easily access, including at their local Walmart. Alani Nu, a fitness and wellness brand founded in 2018, had a variety of premium-priced health products and captured the attention of a young, female-majority customer base.⁴

Many other competitors existed, like Quest Nutrition and Simply Protein (a plant-based bar), that were easily accessible at discounted prices through wholesalers like Costco. All of the mentioned competitors and countless others were mass-produced and could be found through any sales channels that a customer desired.

³ "Mondēlez International acquires Grenade, a leading UK performance nutrition company," Mondēlez International, March 22, 2021, <https://ir.mondelezinternational.com/news-releases/news-release-details/mondelez-international-acquires-grenade-leading-uk-performance>.

⁴ "Alaninu.com," Similarweb, accessed June 7, 2023, <https://www.similarweb.com/website/alaninu.com/#overview>.

PROMOTION

Wang was confident in Zentein's competitive advantages, and so were Zentein's consumers. Anyone that tried a Zentein protein bar could taste the superior quality and was often immediately converted into a returning customer. However, Wang noted that a key factor of customer acquisition took place before a potential customer took the first bite – consumers needed to be educated on Zentein's advantages. Wang wanted more people to become aware of Zentein's product, but he worried about his limited ability to fulfill any additional demand.

Wang was familiar with and had personal relationships with many members of the high-level fitness community. Therefore, most promotional and advertising efforts involved social media influencers, professional athletes, and celebrities that knew Wang and usually offered their services for free. However, Wang also advertised Zentein bars on Instagram by sponsoring selected Zentein posts to reach a wider audience. In early 2022, when demand started exceeding the supply for Zentein protein bars, Wang decided to pause all advertising to control production wait times and ensure that he could maintain the satisfaction of his loyal customers. Nevertheless, he quickly noticed that much of the success in sales was a result of word-of-mouth since, even with minimal effort put into promotion, Zentein's sales continued to climb dramatically.

Now, Zentein relied only on word-of-mouth and used social media to stay engaged with existing customers. The only marketing cost Zentein incurred was a \$900 monthly expense for social media management outsourced to a freelance professional. Wang also used the company website to educate customers about the benefits of Zentein protein bars, which he expected to continue regardless of which distribution channel he would eventually choose.

ZENTEIN.CA

The company website was currently Zentein's main sales channel. All promotional information directed consumers to the website (at zentein.ca) for online purchases. On the company website, Wang sold the protein bar boxes at different price points, depending on the quantity purchased. Customers were encouraged to purchase higher quantities in exchange for a discounted price. For example, one box was priced at \$55, two boxes at \$100, three boxes at \$135, and four boxes at \$165. The pricing structure was based around the high shipping costs; shipping costs became cheaper per unit sold if Wang shipped out bigger packages. This meant that shipping one protein bar box would cost \$12, whereas shipping three boxes would cost only \$15. To partially alleviate Wang's cost of shipping, all customers were charged a \$5 shipping fee at checkout on the company website.

The average order size on the Zentein website was three boxes. Wang expected between 900-1,000 orders in 2023, including any reorders, if he chose to focus on the website alone. The company website provided Wang full control of sales, without the need to forfeit a portion of his profits to an intermediary. However, given his busy schedule, Wang wondered if having an intermediary would help decrease some of the workload associated with logistics and customer acquisition.

AMAZON.CA

In 2012, the US e-commerce global giant Amazon.com Inc. (Amazon) launched its Canadian platform: Amazon.ca.⁵ Since that time, Canadian entrepreneurs who once struggled to get their business idea up and running now had help from the e-commerce giant in building an online store, facilitating distribution, and reaching a world-wide audience. Each day, Amazon.ca helped more than 41,000 sellers across Canada reach an audience that would have otherwise been very difficult to capture.⁶ The online platform provided convenience for early-stage entrepreneurs to manage the many moving parts of their business. As well, Amazon made available to entrepreneurs its 69 Canadian facilities, including 18 fulfillment centres and 36 delivery stations.⁷ With its widespread facilities and its Amazon Prime subscription service, most customers no longer had to wait more than two days to get products delivered to their doorstep.

Zentein began taking advantage of Amazon's seemingly smooth operation in the fall of 2021, listing only their protein bars. The average order on the Amazon platform was one box, priced at \$54. Zentein used Fulfillment by Amazon (FBA), a service that allowed businesses to outsource the fulfillment of their orders to Amazon. FBA fulfillment specialists would pick, pack, and ship customer orders in exchange for a fee.⁸ Wang found the FBA service a significant source of convenience for his business operations. All Zentein was required to do was simply pack and send a large package of product to Amazon's fulfillment centre without worrying about any of the subsequent steps in the selling process. Zentein experienced success on this channel since customers typically visited Amazon with the intention of making a purchase. Additionally, the widespread trust in Amazon's services also had a positive impact on Zentein's brand image and reputation. However, Wang noted that there had recently been a growing number of people that did not like nor trust Amazon.

Although Wang enjoyed the simplicity of marketing reach on Amazon and their customer-facing operations, the seller-facing operations quickly became a nightmare for him. Wang learned that FBA specialists often took apart sealed boxes of 12 protein bars to ship individual protein bars to customers, rather than a full box. As a result, Wang received hundreds of customer complaints via email, requests for refunds, and negative reviews during the time he sold on Amazon. To the contrary, he received no emails from Amazon Seller Support to help with rectifying the issues.

Getting seller support from FBA often meant waiting longer than 24 hours for just one message exchange with a customer service representative, which was often preceded by a stubborn and unhelpful bot. Wang also encountered language barriers with some customer service representatives. Despite sending long detailed emails, he would often receive a vague scripted response that did not address his issues. In addition, since Zentein shipped large quantities to fulfillment centres at a time, the protein bars on Amazon lacked freshness and had a drier texture. Eventually, citing all of these issues, Wang decided to recall his remaining inventory and pause all sales on the Amazon platform in December of 2022.

However, even with Zentein's subpar past experience, Wang wondered if he should resume selling the protein bars on the Amazon platform simply due to the high sales volume. With the required attention and exclusive focus, Wang estimated that he could generate 3,000 to 4,000 orders, including reorders, from this sales channel in 2023. Based on past experience, he expected the average order size to be one box, Amazon referral fees to be \$8 per unit, FBA fees to be \$8 per order, and annual Amazon seller subscription fees to be \$360.

⁵ "What You Should Know about How Amazon Is Affecting the Market in Canada," ProMerit, accessed June 10, 2023, <https://pro-merit.com/insights/measure-amazons-influence-in-canada>.

⁶ Amazon, *Going the Distance: 2022 Amazon Canada Impact Report*, October 19, 2022, <https://assets.aboutamazon.com/1f/0e/868aefcb431885b4355b6ddec13/amazon-canada-2022-impact-report.pdf>.

⁷ Amazon, *Going the Distance*.

⁸ "Amazon FBA: Fulfillment Services for Your Ecommerce Business," Amazon, accessed June 10, 2023, <https://sell.amazon.com/fulfillment-by-amazon>.

TRADITIONAL RETAIL STORES

With the existing focus on selling through zentein.ca and the limited production supply, Zentein was only able to meet the demand of one retail store partner: FCM. Committed to organic and locally-grown nutrition, FCM purchased protein bar boxes from Zentein at a discounted wholesale price of \$35 per box. FCM then sold the protein bars individually for \$4.50 per bar in its downtown London, Ontario store. A retail store offered Zentein customers the opportunity to purchase the protein bars and an in-person interaction. At FCM, this interaction was typically met with many smiles and helpfulness.

Wang also found sales through FCM efficient because most of the time-consuming work was accomplished early on, when first establishing the partnership. Otherwise, operating through FCM generally only required brief phone calls for taking orders, which freed up Wang's time to focus on website sales.

If Wang decided to focus on in-store sales in 2023, he expected to be able to partner with eight to 12 stores in the London area. Due to proximity, Zentein would save on shipping costs. Wang could use his personal vehicle to deliver retail store orders or a store representative could pick up the order. Based on his data from FCM, Wang estimated that each retail store would place orders bi-weekly to maintain freshness, and that the average order size would be 10 boxes. So far, working with FCM provided Wang with an enjoyable relationship based on similar values, organized operations, and strong customer relationships that he could benefit from. However, he was concerned that not all future partners would necessarily have the same positive qualities as FCM.

CONCLUSION

The sudden growth in sales of Zentein protein bars was unexpected. Wang found it difficult to increase production capacity fast enough, without sacrificing quality. Although Wang planned to purchase and set up an automated production machine to increase supply in 2024, he needed a short-term plan for 2023 that would maximize the current growth rate and customer reach for the time being. This meant resolving several key questions. Which of the three sales and distribution channels should Wang choose to focus on? Should he reconsider his pricing strategy to better align with his goals? Wang also hoped to draw a salary from the business, but how would he generate enough profit to make that possible? Finally, how should he prepare for the arrival of a new production machine in 2024 and how would this affect his marketing strategy?

Wang sat back in his car, tore open a Zentein protein bar, and made his way back to his home office to work out a plan.

EXHIBIT 1: COMPETITOR PROTEIN BAR INFORMATION (IN CA\$)

Company Name	Average Price Per Bar	Average Protein Content	Available Flavours
Quest Nutrition	\$3.75	20 grams	7
Alani Nu	\$3.42	16 grams	8
Grenade	\$3.75	21 grams	14
Built Bars	\$2.50	17 grams	10

Sources: Created by the case authors with information from "Quest Bars Box of 12," Popeyes, accessed June 7, 2023, https://shoppopeyes.com/en/products/barres-quest-boite-de-12?_pos=4&_sid=c39df0189&_ss=r; 'Protein Bar,' Alani Nu, accessed June 7, 2023, <https://www.alaninu.com/en-ca/products/protein-bar-peanut-butter-cup?variant=40270519140450>; "Grenade bars box of 12," Popeyes, accessed June 7, 2023, <https://shoppopeyes.com/en/products/grenades-barres-boite-de-12?variant=41178876706875>; "Built Bars Whey Protein," Built, accessed June 7, 2023, <https://built.com/pages/built-bars>.

THE GROW GREEN PROGRAM

Melissa Jean prepared this case under the supervision of Elizabeth M.A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2001, Richard Ivey School of Business Foundation

Version: 2014-01-14

In March 2001, Jim Graham, president of Try Recycling & Aggregates (Try), located in London, Ontario, had to make a final decision whether Try should sell its products through a new fundraising initiative — the Grow Green Program. This program would involve approaching organizations taking part in fundraising activities to determine if they would be interested in selling Try's gardening products through a fundraising activity. If they were interested, Try would then be contracted as the supplier.

Graham had already determined the five gardening products Try would sell and the details of the program; however, he wondered which organizations Try should target and how to promote the new fundraising initiative. As the spring gardening season was fast approaching, Graham knew that he needed to make a decision quickly.

COMPANY HISTORY

Try Recycling was founded in 1991 when Bill Graham, a sand and gravel contractor, convinced two men in the excavating business to join him as partners in a recycling venture. The growing strength of the environmental movement had focused attention on a long-standing problem. Municipalities were under growing pressure to find solutions for the garbage problem other than dumping it in increasingly expensive and full landfill sites. Bill Graham eventually bought out his partners and then Jim Graham bought the business from his father in 1999, becoming president and sole owner.

JIM GRAHAM

Graham graduated from the University of Western Ontario in 1992 and joined Try in May 1997. His previous experience in the construction industry as a general contractor in the London region had helped him establish numerous relationships within the construction trade in the local area. In addition, Graham chaired the London Chamber of Commerce Environmental Committee and represented the Commercial Industrial sector on the City of London's Advisory Committee on the Environment.

THE COMPANY

A wide variety of useful and innovative products was produced from the waste received. Try accepted materials primarily from the City of London, demolition contractors, roofing companies, and homeowners who paid a fee for the disposal of materials not acceptable for landfill sites. Try earned the majority of its revenues from tipping fees. The rest of the revenue was earned through the sale of recycled products to the end consumer. Approximately 65 per cent of Try's recycled product sales were generated locally. The remaining 35 per cent of sales came from American customers. Since Try's inception in 1991, the London depot had recycled about one billion pounds of material.

Try supported a continuous research program to develop new uses for various waste products, boasting a record of recycling 90 per cent of all material received. For example, wood waste was recycled into landscape mulch and animal bedding; garden refuse was composted; shingles were shredded and mixed with asphalt to create a better, longer-lasting road surface; and drywall was transformed into kitty litter. Recently, Try expanded its customer base to include industrial customers such as Phillips Lighting Canada. Phillips provided Try with two to three tonnes of defective light bulbs daily in 2001, which were converted into a winter sand.¹

TRY AND THE COMMUNITY

Graham believed that successful businesses should give something back to the community. A number of projects had already been completed and one in particular was in the planning stage. With part of the 35-hectares adjacent to its current facility, Try planned to build a 10-hectare nature park and sports field for the Memorial Boys' and Girls' Club of London. The long-range plan was to set up a foundation either through the club or under Try's direction.

In addition to helping the community, Try received a number of awards and citations recognizing the company's leadership and involvement in promoting and supporting recycling over the past five years. One such award was the Ethics in Action 2001 award for leadership in corporate social responsibility.

RECYCLING IN LONDON

Residents of the City of London had reduced the amount of garbage generated by 37 per cent since 1987. In 1987, the average Londoner generated 420 kilograms of garbage annually. By the end of 2000, this number had been reduced to just 264 kilograms annually. London's cost per household for all waste management programs was among the lowest in Canada at \$80 per year.²

During 2000, residents of the City of London placed 8,700 tonnes of yard materials and fall leaves at the curb and delivered 2,400 tonnes to recycling depots. Approximately 90 per cent of Londoners were taking part in the city's recycling program. This effort translated into more than 17,000 tonnes of material being recycled into new products — or enough to fill 1,700 garbage trucks.

London area businesses, organizations and the City of London were becoming more involved in recycling initiatives as demonstrated by the growth in environmentally-conscious groups. One such group, London Composts, was a unique partnership of environmentally-minded London businesses, non-profit

¹ A grade of sand that is mixed with salt and applied to road surfaces and parking lots during winter months.

² "Top Ten Reasons Why We Should Celebrate our Waste Management Achievements," *Envirowatcher*, Spring-Summer 2001.

organizations and the City of London that had grown from five partners in 1998 to seventeen by 2001. Try Recycling was one of the founding partners. This partnership worked collectively to raise awareness of the value of composting, the use of compost materials and the benefits of sharing compost. The Thames Valley District School Board and the London District Catholic School Board were two of the newest members to join London Composts.

RETAIL SALES

Until about five years ago, Try's depot had been considered a "destination site". This term meant that typically recycled materials were sold to a diverse group of customers including municipal governments, the University of Western Ontario, and construction companies. Over the past five years, Try changed its selling focus to one of generating and increasing sales to residential customers as well as improving customer service. During the spring of 2000, Try created a self-serve facility for retail sales at the front of the depot. Customers interested in purchasing products such as woodchips, compost, and garden mulch were able to bag their own products using Try's shovels and bags. Graham believed that bringing customers to the site was an excellent way for them to see firsthand and understand the process of recycling. To date, retail sales represented five per cent of Try's 2000 gross revenues.

The success of the retail sales facility prompted Graham to think of other ways to create awareness of recycling initiatives and to allow Try to become more involved within the local community.

THE GROW GREEN PROGRAM

Graham thought that the fundraising initiative, designated the Grow Green Program, would provide an excellent opportunity to create awareness for Try in the local community, generate interest and excitement about recycling and help organizations raise funds for worthy causes.

Products

The five products proposed for the Grow Green Program were compost, landscape mulch, two-way topsoil, tri-mix topsoil, and landscape woodchips. All five of these products were also sold at Try's self-serve facility.

Pricing

Graham had decided that the end consumer should pay the regular retail selling prices when buying through the Grow Green Program. Participating organizations would purchase the products from Try at the wholesale selling prices (see Exhibit 1). Currently, no other customers purchased gardening products at the wholesale prices proposed for the Grow Green Program; however, Graham would consider offering these prices if a customer ordered a large quantity of product.

Graham believed sales of these five products for the Grow Green Program would be similarly proportionate to the product sales mix currently experienced at the self-serve facility. See Exhibit 1 for expected percentage of units sold breakdown.

Other Details

Each organization would need to designate an individual from its group as fundraising chair. Try would provide the chair with brochures, samples, product information sheets and order forms that would cost Try approximately \$500 per organization. Graham estimated that an average user of gardening supplies would purchase between five and seven yards of product. Products would be delivered to a central location chosen by the participating organization. Delivery charges were included in the quoted prices.

OTHER FUNDRAISING PROGRAMS

Fundraising ventures had expanded from the traditional chocolate bar and magazine subscription sales to a more diverse assortment of products. Fundraising selection ranged from seasonal items such as Christmas wrapping paper and ornaments to more unusual products including gourmet pies, exotic coffee, cheese and portrait sales.

Most companies offering their products or services for fundraising programs provided incentives such as free delivery, promotional items (giveaways), sorting and/or prizes as rewards to the organization's participants to increase sales. In most cases, these incentives depended on a minimum quantity of ordered product. Profit margins for participating organizations typically ranged from 30 per cent to 55 per cent of sales and depended on company policy, the quantity and type of product sold.

POTENTIAL CUSTOMERS

Graham thought about potential organizations he could approach:

Local Schools

The recent move to reduce public school funding by the provincial government had prompted local administrators and parent-teacher groups to take self-help measures to fill the financial void. Consequently, most of the over 80 elementary and secondary public schools in the city of London participated in outside fundraising projects to generate funds for such things as field trips, playground equipment and computers for the classrooms.

These public schools were administered by the Thames Valley District School Board. This board's policy on Fundraising Projects for Schools stated:

Fundraising projects for schools shall be undertaken only after thoughtful consideration of student safety, parental support, proper financial controls and proposed use of funds. With these considerations in mind, the Board authorizes school principals to determine which fundraising projects may be undertaken at their respective schools consistent with the policies and procedures of the Board and (Ontario) Ministry Regulations and directives.³

³ *Thames Valley District School Board Policy.*

Community Groups

All other organizations wishing to raise funds could be classified under the general heading of Community Groups. Such organizations would include church groups, sports teams, as well as not-for-profit agencies such as Kids Help Phone and Scouts Canada. Graham knew from personal experience that not-for-profit agencies tended to delegate one individual to be responsible for fundraising efforts on the board of directors and that board approval would be required before pursuing a fundraising initiative. Other organizations tended to take a less formal approach when making fundraising decisions; however, usually committee approval was required.

CONCLUSION

Graham was unsure of the success he could expect with the Grow Green Program; however, he had set a target profit of \$35,000 for this initiative. With the spring gardening season approaching quickly, Graham needed to decide within the next few days if he should commit Try to this initiative.

Exhibit 1**PRICE, VARIABLE COST & SALES BY PRODUCT**

Product	Retail Selling Price/yard ¹	Wholesale Selling Price/yard ¹	Variable Cost/yard ¹	Expected % of Units Sold
Compost	\$18.00	\$13.00	\$11.00	12%
Landscape Mulch	\$12.50	\$10.00	\$4.00	8%
Two-Way Topsoil	\$19.00	\$12.00	\$8.50	51%
Tri-Mix Topsoil	\$22.00	\$17.00	\$11.75	9%
Landscape Woodchips	\$32.00	\$27.00	\$18.00	20%

¹ One yard is equivalent to five heaping wheel barrows.

NOTE ON MARKETING MANAGEMENT

Professor Michael Pearce prepared this note solely to provide material for class discussion. The author does not intend to provide legal, tax, accounting or other professional advice. Such advice should be obtained from a qualified professional.

Ivey Management Services prohibits any form of reproduction, storage or transmittal without its written permission. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Management Services, c/o Richard Ivey School of Business, The University of Western Ontario, London, Ontario, Canada, N6A 3K7; phone (519) 661-3208; fax (519) 661-3882; e-mail publishcases@ivey.ca.

Copyright © 2003, Ivey Management Services

Version: (B) 2010-01-13

The role of marketing in any organization, whether it is a business or a nonbusiness,¹ is to improve the performance of the organization. Good performance is achieved through a disciplined focus on creating, developing, and maintaining profitable relationships between customers and the organization. Marketers have so many different ways to accomplish this result that the practice of marketing is much more complicated than any short discussion of it can convey. There is far more to the marketing profession than the unfortunate stereotypes of fast-talking salespeople and manipulative advertisers. In this note, I will attempt to explain the major choices that professional marketers face and the ways in which marketing decisions are made. Preparing a marketing plan is not a simple, repetitive exercise of filling in the blanks of a checklist, rather each circumstance requires you to decide which analysis and decisions are appropriate. I have provided a ten-step process (shown as Figure 1) that I have found very useful to formulate marketing plans. I have organized the discussion in this note around this framework.

¹*Throughout this note, reference is made to business marketing. The special issues of non-business marketing are briefly discussed at the end of this note.*

Figure 1**FRAMEWORK FOR MARKETING DECISION-MAKING**

- 1. Define the marketing challenge**
 - What are the performance objectives?
 - What decisions need to be made?
- 2. Identify the market opportunities**
 - What are the competitors doing?
 - What are customer needs, wants, habits?
 - How can the market be segmented?
- 3. Select a primary target market**
 - Which customers are particularly attractive?
 - Which customers are available?
- 4. Decide on the product/service offering**
 - What are customer perspectives on the product/service?
 - How should the company differentiate from competition?
- 5. Decide on the distribution approach**
 - What channels are available and interested?
 - What channels make the most sense?
- 6. Decide how to attract customers**
 - What message should be sent?
 - What mix of communication methods should be used?
- 7. Decide on pricing**
 - What should be the price at each level of distribution?
 - How should price changes be handled?
- 8. Decide how to keep/grow the customer base**
 - What customer service program should be offered?
 - What retention/development program should be used?
- 9. Ensure the financials make sense**
 - What will the marketing program cost?
 - What results are expected?
 - Does it fit with corporate capabilities and aspirations?
- 10. Decide how to learn for the next round of decisions**
 - What market research should be done?
 - What results and experiences should be monitored?

Marketers are at the intersection of the firm and the market. This means that they have the dual responsibility of representing the market (customers, competitors, and trade) to the other members of the company and of representing the company to the market. For example, a marketer helps other managers understand what customers want and how this affects managerial decisions. A marketer also makes promises to customers about what the company has to offer. In the final analysis, marketing is more about people than about products or techniques. The marketer's job is to understand, influence, and serve people.

DEFINE THE MARKETING CHALLENGE

There are many ways to approach marketing. The best place to start as a marketer is with a clear understanding of what performance one is trying to effect. For example, suppose you were operating a store and you wondered how to improve it with marketing techniques. Before examining all the marketing options, you would want to know what exactly you are trying to achieve. Do you need more people to come through the door? Do you need to convert more of the current browsing traffic into paying customers? Do you need to find a way to get each customer, on average, to spend more? These questions matter greatly in terms of what marketing plan you would develop. For example, if the marketing challenge were to get more people to come into the store, you might focus attention on media advertising to ensure people know about your store. On the other hand, if the marketing challenge were to convert more browsers into customers, you might focus attention on your sales associates: Do they need more training, a different compensation scheme, or what? Or perhaps the store isn't carrying the right kind of products and thus browsers can't find what they want to buy. On the other hand, if the marketing challenge were to increase the transaction size of customers, you might rearrange displays to encourage more related item purchases (a technique often used in clothing stores) or consider changes in the selection of products carried.

You would want to know, as well, if you should focus on deciding which marketing strategy to undertake (the direction to go in), on implementing a strategy (the execution), or both. This means you would need to determine first whether the current marketing strategy is appropriate (and change it, if it needs improvement) and second, whether the current marketing strategy is being properly implemented (and work on that, if it needs improvement). Sometimes, it becomes obvious that the majority of the marketing approach is fine, but there is a need to make changes to part of it. For example, sometimes competitors drop their prices, thus requiring you to reconsider your price. This may or may not necessitate a review of the entire marketing approach you are following.

In other words, there are so many possible marketing activities that it is critical that you define the marketing challenge at the outset. Not only does this help decide what to do, but it also (a) avoids unnecessary work on other topics and (b) makes it easier to gauge success later. After all, marketing activities cost money and management wants to know if the money was well spent.

How to Assess Marketing Performance

The usual measures of performance that concern marketers are as follows:

Total sales — This might be expressed in dollar or unit volume

Sales per customer — This might be expressed in dollars or units per customer, share of a customer's total purchases in a category (e.g., books) over time, or frequency of purchase.

Market share — This is usually expressed as a percentage of the total sales (by all competitors) in this category in a specified market area accounted for by the firm.

Sales growth — This indicates the trend, usually expressed in percentage terms, from one period to another.

Total profitability — This is expressed either as the dollar gross profit (margin) or dollar net profit.

Customer profitability — This is expressed as the average dollar profit per customer or by customer group.

Awareness — This is expressed as the percentage of the target market who are aware of the firm or specific things about the firm.

Loyalty — There are a variety of measures used, but the idea is to express what percentage of customers are repeat customers versus new customers.

There are many other measures of performance that marketers use, both to set objectives and track progress. The point is to establish what the marketing effort is supposed to accomplish and then use that as a guide for what to do and how to measure results.

IDENTIFY MARKET OPPORTUNITIES

A continual challenge for any marketer is to find attractive market opportunities. Marketing is much more than simply selling what the company makes or advertising what the company has. Marketing is about deciding what to do and for whom. In other words, marketing should lead the firm's strategy by determining that the firm will make what can be sold, not sell what can be made. This distinction is critical. Marketing starts before products are made; marketing is much more than just selling existing products.

The Gap

The Gap began in 1969 in San Francisco. Initially it was intended to serve the “generation gap” (the baby boomers in their teen years) with a wide variety of jeans (especially Levi’s) and a limited selection of casual, “basic with attitude” clothing at moderate prices. If the Gap’s management had thought marketing was just selling what they had, they would never have become such a retail winner. Over the years, the Gap has responded to a changing market (the boomers are now pushing 50) by broadening its assortment and its appeal. They continue to attract today’s teens, but they have not lost the teens’ parents, the boomers. New lines, higher price points, fashionable advertising, more stores, and above all a strong focus on associating its brand with a contemporary “cool” lifestyle image have all contributed to its remarkable success.

Differentiate From Competition

An important part of market opportunity assessment is competitive analysis. Who else is seeking the patronage of various segments of the market, and how successful are they? Are there any exploitable deficiencies in competitive products or services, in their service, in their prices, in anything that matters to the target customer? For example, if the competition is slow to respond to service calls, perhaps a company can differentiate itself by providing rapid response. It is important, however, to focus on factors that matter

to customers, not simply to marketers. The key is to look at everything from the customer's perspective. From the customer's perspective (those in the target segment) how does our offering compare with competitors? Competitive analysis includes comparison of marketing programs and marketing performance. If the competition has a much greater share of market, much greater financial resources, and so on, then they will have significant advantages that a marketer must overcome to compete directly. Perhaps the business should find another market to focus on. Finally, what changes are expected in the competitive environment (new competitors, new ways of competing) that will affect a business's performance? Understanding, anticipating, and dealing with competition is a core part of every marketer's job — so thinking about competition actually comes in at every step in the marketing decision-making model in Figure 1.

Customer Analysis

Marketers are always looking for customers. *Prospects* are individuals, households, or organizations that a marketer thinks might be converted into customers — *customers* and *clients* are those people who actually buy. *Consumer* is another term often used to describe members of a market, but more accurately these are the people who actually use a product or service.

Customers buy products and services to satisfy their needs and wants, so it only makes sense that marketers must work hard to understand what these needs and wants are, through what is typically called a customer analysis or consumer analysis. Marketers want to know what customers are looking for and how they go about making their own choices of which marketers to patronize and which products and services to buy from them.

For this reason, many marketers start their thinking by considering individual potential customers or groups of customers (also known as segments, discussed later in the chapter). These customers or segments may be in the *consumer market* (meaning individuals, households, etc.) or the *business/institutional market* (meaning organizations). Some usual questions marketers pose about potential and current customers are as follows:

- What wants and needs are people trying to satisfy? What is particularly important to them? For example, is lowest price more important than product performance? Are these needs and wants strong or weak?
- What motivation lies behind the choice of a product or service? For example, what is the reason that they are interested in buying a sport utility vehicle when the car they have is working just fine? Is the business buyer more interested in low price or reliability of performance?
- Where do they get information about products, services, stores, and so on, as they proceed through a process of considering a purchase? Where do they shop, and why there? For example, why are some shoppers purchasing books on the Internet rather than from book stores?
- When do they go through this shopping/purchasing process? For example, do shoppers make their weekly grocery trip on Thursday or Saturday?

All of these questions are designed to discover insights into how the marketer can influence this shopping/purchasing process so that the marketer gets the business. In other words, research and analysis about prospects and customers are conducted not to uncover interesting facts, but rather to find actionable ideas. In your analysis of a situation, I suggest you consider these questions, but as you do, focus on whether there are any meaningful implications of your analysis. For example, you may conclude that there is a group of customers who really prefer to shop for your product in the middle of the night (maybe they are shift workers unable to shop during daytime hours). You should explore (a) whether there are enough of these potential customers to warrant a marketing effort and (b) what this means for your store hours or, for example, whether you should offer a new service online.

Market Segmentation

Market segmentation is a concept with great power for marketers. It is very helpful in the process of target market selection and in making other marketing decisions. The basic idea is very simple: people differ, so divide them into different groups of similar people. Because people differ, some segments will be far more attractive to the marketer than others. Consider the difference between “tweens” (seven to 12 year olds) and “the mature market” (over 50 years old) for a marketer of cosmetics. Preferences for colors and fragrances, how much they are willing to pay, and much more will vary tremendously between these two segments. In other words, the customer analysis questions posed above will be answered differently for each segment..

Kool-Aid

Kool-Aid appeared in 1927 as a successor to Fruit Smack. This powdered drink mix remained at five cents for over 30 years. Positioned as “for five- to 12-year-old kids who are looking for a fun, hip, tasty drink with lots of flavor variety that Moms find inexpensive,” Kool-Aid has been a long-term marketing success, with a dominant share in its category. Its competitors include other powdered drinks of all kinds, as well as soft drinks and juices. More than 2,600 million litres of Kool-Aid are consumed in a year worldwide. Its yearly sales in packages, laid end to end, would go around the equator twice.

The practice of segmentation can be complicated. For example, if the challenge were to segment the bicycle market, the marketer might begin by bicycle types (a product-based segmentation approach) and thus separate children’s bicycles, touring road bikes, off-road mountain bikes, and so on. Or the marketer may begin by considering different users (a customer-based segmentation approach) and thus separate weekend users, enthusiasts, racers, and so on. Similarly, the marketer may consider segmenting by differences in sensitivity to price (high, medium, low sensitivity), or place of distribution (specialty store, mass merchant, etc.), and so on. The choice of dimensions is endless because of the many ways people differ from one another. The point of segmentation is to find groups that make marketing sense. If the marketer chose to focus on children’s bicycles, the rest of the marketing program should be consistent with everything he or she knows or suspects about this segment of the market. For example, if the marketer knows that children’s bikes are usually purchased by their parents and that parents are especially concerned about safety, he or she might emphasize safety in product selections, advertising, in-store merchandising, and so on. In other words, a marketer’s understanding of segmentation leads to target market selection, which in turn leads to the rest of the marketing decisions.

SELECT A PRIMARY TARGET MARKET

Early on in the process of making marketing decisions, the marketer must deal with the question, “Who are we trying to serve?” In other words, a major marketing decision is the selection of a primary target market. Having a primary target market does not necessarily mean that a business won’t sell to people who don’t fit the target characteristics, but rather that the marketing offer is being designed with a particular audience in mind. A target market enables a marketer to focus the offer and the delivery of that offer. There can be more than one target market group; for example, McDonald’s targets children and targets adults, but targets each separately and specifically. Most marketers find the selection of a primary target market a useful way to focus their efforts and we suggest this approach to you.

The idea is to select the part of the market that represents an attractive opportunity for the marketer because the marketer may be able to serve it better than competitors and hence build a profitable business. The

alternative, not specifying a target (which is trying to be all things to all people), is rarely successful in today's competitive, crowded marketplace. For example, many full-line department stores were once the one-stop shopping places for the majority of the population. However, they have been outmaneuvered and outperformed by specialist retailers such as The Gap who target segments of the public with more compelling, more narrowly defined offers.

Again, there are as many ways to specify target markets as there are to describe people. For example, one might select:

- A certain age group (such as teenagers);
- An income group (such as \$50,000 to \$100,000 in household income);
- An attitudinal or behavioral group (such as those who ride motorcycles);
- A geographic group (such as those who live in a particular city); or
- A psychographic group (such as those whose lifestyle involves experience rather than accumulation of possessions).

With such a broad range of options for describing a target market, the marketer should be wary of simplistic target market specifications such as "women between the ages of 25 to 34."

The key is to meet the following criteria in selecting a target market:

- Does this definition include a large enough market to be worth serving? This is the important issue of substantial market size (and its potential growth).
- Is the target accessible to the marketer? For example, specifying "all Canadians" as the target market makes little sense if one is able to distribute only to those who live in Halifax.
- Does the target specification provide us with a different way of thinking about customers than our competition? Does it identify a group we can serve in a differentiated, better way than competitors?
- Does the target specification provide guidance for the rest of the organization in terms of obtaining the performance outcomes desired? For example, specifying a target customer who has "blue eyes and feels young at heart" may not help the marketer find, reach, or affect such customers. This criterion of actionability is very important.

DECIDE ON THE PRODUCT/SERVICE OFFERING

Marketing means taking into consideration what customers need and want, how they make decisions about how to satisfy themselves, and so on, and then doing something with that knowledge. The decision of what to offer for sale in the marketplace should be made not just by considering what one can offer. Simply trying to convert into cash what one can and wants to make is not marketing; it is merely selling. From a marketing perspective then, we should think about the product or service offering as a "package of benefits" that customers find worth their time, energy, and money. In this way, we realize that people want solutions to their problems (they don't want a can opener for its own sake, but rather they want opened cans) and answers to their wants (they subscribe to a wireless phone not to own a phone but because they want to talk to people when on the move).

Typically, a marketer must decide exactly what to offer in the way of products and services — and what not to offer. How many variations are needed? What branding should be created (own name or someone else's)? What packaging should be used? For example, consider the number of individual products that might be produced to satisfy one style of jean: 8 waist sizes \times 8 leg lengths \times 3 colors = 192 different products. The

number of products can quickly increase, thus adding complexity to the marketing challenges. Furthermore, in almost all product categories there is an amazing number of new product entries every year, which means a marketer has to think about product decisions continually.

There are many considerations when making product or service decisions. What features or characteristics are most important to potential and current customers? What are they willing to pay for the package of benefits they want? Is a business underachieving or overachieving in relation to that “ideal”? How can it differentiate its offering from that of competitors so that customers will prefer its offering? Can it sustain a competitive edge over time?

FedEx

FedEx wouldn't exist if Fred Smith believed the C grade he got from his economics professor for a business proposal over 25 years ago. Undaunted, he went ahead with his ideas and changed the parcel delivery industry to become the world's largest express transportation company. The success of the FedEx brand is undisputed; in fact, recognition and use of the FedEx brand name was so successful that it became synonymous with “ship it overnight.” The company had to alter its advertising and promotion campaign to avoid losing control of the slogan “FedEx it.”

The success of FedEx is often attributed to Fred Smith's foreseeing how information technology could be applied to change traditional business practices and principles with respect to inventories, order processing, and distribution in parcel delivery. FedEx has avoided the temptation to engage in price wars, steadfastly remaining focused on customer service as a means to create and sustain competitive advantage. Through the use of information, FedEx has improved customer satisfaction and profitability by understanding the needs of its customer segments and consequently developing products and services to satisfy them better than the competition.

Products and services that have a short life are usually referred to as fads. Toy items frequently last only one season. On the other hand, some products and services have a long life cycle. The Boeing 747 has been around for decades. The projected length of the product life cycle and where the product or service currently is in its life have a big impact on the remaining marketing decisions that a manager will make. For example, if a product appears to be nearing the end of its life cycle, a manager may lower its price to clear inventory, offer it to different distributors, and so on. The fashion business is a good example of the impact of the life cycle on marketing decisions.

At a conceptual level, products and services are quite similar, but there are some important differences to bear in mind. Most services are performed and consumed at the same time. This means that they cannot be inventoried, so managing demand to match the service provider's capacity is a key marketing challenge. For example, a hair stylist cannot inventory haircuts and would prefer to spread demand over a week rather than have all customers appear at the same time. Another distinguishing feature of services is that many are intangible, that is, they cannot be touched like products. This intangibility creates challenges for the marketer in communicating about services and challenges for the customer in choosing among competing services. For example, a visit to a museum is intangible and therefore it is difficult (yet essential) for the museum marketer to communicate what a visit will be like to a potential visitor.

DECIDE ON THE DISTRIBUTION APPROACH

Distribution refers to the movement of the product or service to the customer. There are many methods of distribution, typically called *channels of distribution* — some of these may be owned by the marketer (e.g., own store or website or direct selling organization) and some may be third parties (e.g., wholesalers, other retailers, etc.). The marketer must decide which channel(s) to use. The entire *business system* or *market chain* includes all participants, from the raw materials provider to the end customer. A marketer may find him- or herself at different locations in the total system. For example, a vendor of fabric will be a marketer to apparel manufacturers, an apparel manufacturer will be a marketer to retail stores, and a retail store will be a marketer to the end consumer. Those marketers who sell to the end consumer are called *consumer marketers*, while those who sell to other businesses are called industrial or *business-to-business marketers*. This classification sometimes helps explain differences in marketing challenges (e.g., selling to a business may require a price quotation process) and differences in marketing programs (e.g., a business-to-business marketer may rely more on a direct sales force, while a consumer marketer may rely more on media advertising). Notice that all participants in that distribution system still need to understand the end consumer and do their part to satisfy that buyer. If the end customer doesn't buy, the whole system is stopped.

When trying to understand a distribution system in a particular industry or product category, it is usually helpful to prepare a diagram of it, rather like a plumbing diagram showing flows. This allows you to examine who does what for whom — for example, who carries inventory, who ships the product, who collects market information, and who provides after-sale service. Generally, there are a variety of distribution tasks such as the above which are divided among several intermediaries (members of the distribution system). In return for performing these tasks, the intermediaries take a portion of the ultimate sales dollar (called their margin). The calculations for this margin (the marketing arithmetic) will be discussed later in this chapter.

Distribution Alternatives

Some of the many distribution alternatives include:

- Selling direct through one's own sales force or stores;
- Selling direct through mail order or telemarketing;
- Selling direct through the Internet; and
- Selling indirectly to wholesalers (or other distributors such as agents), who sell to others in turn.

Deciding which combination of channels to use is a major marketing decision with long-term implications. Distribution is usually the most difficult dimension of the marketing program to change quickly. Considerations include what distribution tasks need to be performed to add value to the product or service, who can perform these tasks most cost effectively, what the financial implications are, and what the management implications are. On this last point, any time a marketer deals with an intermediary between her- or himself and the ultimate customer, he or she gives a measure of control over what happens to that intermediary. For example, a manufacturer of jeans cannot dictate the ultimate retail selling price a retailer charges for those jeans or control what the retail sales associate says to potential customers. By the same token, the manufacturer may not be able to perform those distribution tasks at the same cost as the retailer, so doing them instead of the retailer may not be an option. This means that a major issue in distribution decisions is power and control over the marketing efforts of other channel members.

Distribution channels change over time. An alert marketer seeks channels that make sense for his or her target market and does not simply accept historical practice in the industry. Challenges to conventional

industry practice have given us new approaches and major success stories, such as FedEx (hub-and-spoke courier service) and Dell Computers (direct sales of personal computers). At the same time, we have seen the demise of catalogue showrooms and the struggles of conventional department stores.

Chapters Indigo

After the recent purchase of Chapters by Indigo, Chapters Indigo is the major bookseller in Canada and operates through several distribution channels. Its SmithBooks and Coles stores are primarily located in malls. These stores are typically about 140 square meters and carry a limited selection of books. On the other hand, the Chapters and Indigo book superstores are approximately 3,250 square meters in size. These stores carry 10 to 12 times as many books as the mall-based stores, plus CDs and other items. These superstores are freestanding, often near major malls or in downtown locations. While catalogues and special orders have long been possible ways to buy books with Chapters, in 1998 Chapters began selling on the Internet. Chapters.Indigo.ca is now a major venture for the company, representing a new channel of communication and distribution. This channel has assumed new importance since the launch of Amazon.ca in Canada.

DECIDE HOW TO ATTRACT CUSTOMERS

Some people erroneously think that marketing simply means advertising or promotion. Certainly, advertising and promotion are very visible aspects of a marketing program, but these activities are but a part of the whole marketing program, and even only a part of the whole effort to attract customers. Marketers need to *communicate incentive to buy*, and they do this through a variety of communication methods, including the following:

- Advertising — The use of mass media such as broadcast (e.g., radio, television), print (e.g., newspapers and magazines), and electronic (such as Web sites and emails);
- Promotion — The use of coupons, samples, sales, contests, and other sales incentives;
- Point-of-purchase displays — The use of in-store techniques such as shelf signs;
- Direct mail — The use of materials sent through the regular postal system;
- Telemarketing — The use of the telephone to contact customers via voice or fax;
- Packaging — The use of graphics and other packaging elements;
- Personal selling — The use of people to speak for the product or service; and
- Publicity — The use of the media to provide free coverage in their stories related to their product or service.

Many other techniques are used to reach out and speak with customers and prospects. In each instance, typical decisions include whom to target, what the purpose is (the objectives), what to say (the message), how to say it (the execution), who will convey the message (media), when it will be done (the schedule), how much will be spent (the budget), and how it will be assessed (the evaluation). When developing a marketing program, all of these questions need to be addressed.

Communication Objectives

The first step is to establish objectives that are consistent with the overall marketing challenge being faced. Here are some possible examples:

- Communicate attributes, benefits, product/service improvements;
- Make service tangible, more understood;
- Introduce extensions, incentives, special deals;
- Increase amount or frequency of use;
- Decrease frequency of use;
- Increase uses;
- Attract new users; and
- Motivate/educate staff service providers.

Message Design, Budget, and Media

The next step is to design the message, which some call the *creative strategy*. To design the message, the marketer considers the target market, the desired response from that target, the basic selling proposition, the desired image and tone of the message, and the attention-getting techniques that might be used (e.g., a product demonstration or testimonial from a well-known athlete).

Deciding how much to spend is difficult. Typically, there are several aspects to a communications campaign, and a marketer must decide how much to spend on each part of the campaign. Some marketers use approaches such as an “advertising to sales ratio,” while others use an “all we can afford” approach. Some set a total amount and then divide it into pieces, while others establish what each piece might cost and the amounts to create a total budget. In short, there is no common agreement on how to decide on a budget, but nonetheless, it is important to set a limit and plan communications activities accordingly.

Media choices include deciding which media to use (e.g., television or radio), the placement within each medium (e.g., the section of the newspaper) and scheduling (e.g., when an outdoor ad should appear). Each choice involves many considerations, such as the ability of the medium to deliver color, the costs to reach the target, the media’s audience characteristics, when the medium is available, and what media competitors use. Each medium usually provides some statistics to help marketers decide whether the prices charged are worthwhile. Here are some common audience measurement terms:

- Circulation — In print media, circulation measures the one-time physical distribution of the publication to any individual or household. In broadcast media, anyone tuned in once or more often to a station in a week is in that station’s weekly circulation.
- Reach — This measures the cumulative, unduplicated target audience exposed to the advertiser’s message, by media, expressed as a percentage of the target group population in a defined geographic area (also known as penetration).
- Frequency — This means the average number of occasions that the persons reached have been exposed to an ad during a given period of time.
- Impressions — The number of impressions equals the total number of ads scheduled times the total target audience exposed to each occasion.

If all of this suggests to you that making marketing communication decisions is a complex business, you are correct. The basic rule is to evaluate as much as possible before, during, and after any marketing communication campaign because the answers as to what to do are in the marketplace, not in a book.

BMW

In the early 1900s, Bayerische Motoren Werke AG (BMW) was a maker of aircraft engines. In 1922, the company began producing motorcycles, and in 1928 the first BMW car was introduced. Over the years BMW has become a global company and also a global brand. As new models were introduced, the company continued to focus on quality, engineering, and performance. The quality reputation earned by BMW is grounded in the company philosophy that the driver is an integral part of the car itself. Generally, the target segments for BMW cars are 35- to 55-year-old drivers who value handling performance with a degree of luxury and are willing to pay for a quality car.

The consistency in marketing is evident in the strong identity and image that BMW has developed. The personality of the brand is one of performance. The continuing slogan of the brand, first introduced in 1975, is “The Ultimate Driving Machine.” The emblem of BMW contributes to the image and reaches back to the beginning of the company: a roundel from an aircraft propeller provided the inspiration in 1917. BMW has also developed secondary associations with their brand of their technical superiority in aircraft, automobile, and motorcycle design and manufacture and their country of origin.

Advertising has been a critical component of BMW’s brand building. Its “Ultimate Driving Machine” tagline, which allowed BMW to dominate the performance sedan category, has remained through numerous executive changes, agency changes, and economic downturns. The company has won countless advertising awards. Jim McDowell, vice-president of marketing for BMW North America, has said that their ads don’t sell cars — they reinforce the brand and position it against competitors. “Once we get them behind the wheel, we’ll likely sell them a car,” said McDowell. With this in mind, Ultimate Driving Experience Test Drives and performance driving instruction programs are held around the country and are by invitation only. The corporate Web site has interactive features designed to encourage the driving experience. As part of their direct marketing efforts, people are invited to dealerships to test drive the cars, and BMW donates one dollar for each mile of test driving to the Susan G. Komen Foundation for breast cancer research. Every promotional program is designed to get people behind the wheel.

In addition to charity sponsorships, BMW reaches an audience through participation in motorcycle and auto racing. BMW’s product placement in recent James Bond films has also garnered broad awareness for new product launches. BMW provided vehicles, as well, for the Olympic Torch Run, and their cars transported Olympic athletes in a caravan from Los Angeles to New England and then Atlanta. Recent ads included copy such as “Happiness is not around the corner. Happiness is the corner.”

Evaluating Communication Effectiveness

Evaluating communications can be tricky because so much else is occurring at the same time in marketing. With the exception of carefully controlled direct marketing campaigns (such as direct mail), most communications are difficult to relate directly to sales results. Typically, marketers begin their evaluation of a communications idea qualitatively, asking questions such as:

- Does it focus on benefits important to customers?
- Is it believable and compelling?
- Is it clear and memorable?
- Is it true and in good taste?
- Does it stand out from competitive campaigns?
- Does it represent the company appropriately?

Then, the marketers typically move to more quantitative evaluation of communications to answer the basic question “Does it pay off?” Measures used include:

Non behavioral measures

- Awareness of company, product, or message,
- Aided and unaided recall of the advertising, and
- Opinions, attitudes, and intentions.

Behavioral measures

- Inquiries,
- Traffic (e.g., number of people coming into a store), and
- Sales (e.g., trial and repeat rates, dollars spent, frequency of purchase).

Personal Selling

Unlike mass media or direct communications, personal selling requires people to interact with prospects and customers. Personal selling can range from simple transaction processing at a cashier’s desk in a grocery store to complex team selling in a business-to-business situation. For some companies, personal selling is their prime marketing communications approach.

There are many ideas about how to effectively sell. Conventional wisdom about personal selling dictates that the marketer follow these steps:

1. Do your homework first (know the product, know the customer), then
2. Approach the customer (the opening),
3. Present to the customer (focus on the benefits), and
4. Ask for the order (the close).

Sales training helps a salesperson learn what to say about a product or service and the company (e.g., what can be promised about delivery and installation) and helps a salesperson learn selling techniques. Selling techniques include learning how to deal with customer resistance and objections. For example, Xerox’s selling techniques suggest providing evidence for one’s claim when a prospect expresses doubt or objection, offering endorsement when a prospect expresses agreement, and probing when a prospect expresses indifference. Highly effective salespeople typically say that they ask and listen well before they talk and show, that they focus on the customer as an individual rather than doing a canned presentation, and that they focus on product/service benefits, not features.

The sales management task is to establish and support the sales force. The sales manager often has little time for selling. Much of the sales manager's job involves recruiting, selecting, training, organizing, deploying (e.g., allocating territory), motivating, and compensating salespeople and working on the sales strategy.

DECIDE ON PRICING

Pricing decisions are rarely made first when putting together a marketing program because setting an appropriate price depends so much on what other decisions have been made. Price decisions involve much more than costs. The two major types of pricing decisions are establishing initial prices and margins and making changes to prices and margins.

Pricing is a powerful marketing tool that is often highly visible to customers and competitors alike. Prices can be changed very quickly relative to other marketing decisions (such as distribution method), and the impact of pricing changes can be seen directly on financial performance.

When establishing price, think of price as a representation of what the total product/service “package of benefits” is worth to the customer. For example, a customer may be willing to pay more for diapers at midnight at a convenience store than during a regular grocery shopping trip. If so, the convenience store is justified in charging more, which in turn helps pay for the cost of being open for longer hours than the grocery store. In general terms, the marketer should think about establishing price within a range where the ceiling is what customers are willing to pay and the floor is what the marketer is willing to accept, given costs and other constraints.

Prices may be fixed or negotiable. In many countries, negotiated pricing is more common than in North America. In North America, negotiation tends to occur only with high price consumer products (cars, houses, etc.) and in business-to-business marketing. Another variation in establishing prices is the distinction between bundling all options into a package or unbundling them. For example, some car manufacturers offer a series of options that the customer may add, with prices for each option, while other car manufacturers bundle options together into an “all included price.”

Pricing Objectives

Deciding on what price to charge depends, in part, on one's objectives. For example, pricing objectives may include the following:

- Obtaining quick market penetration (a high volume, low margin approach called “penetration pricing”);
- Obtaining high margins and slower penetration (called “skimming the market” with low volume and high margins);
- Discouraging new competitors from entering the market or encouraging existing competitors to quit;
- Discouraging competitive price cutting; and
- Matching demand to capacity.

Methods of Establishing Price

A price may be based on *cost* (less than, same as, or more than costs), on *competition* (lower than, the same, or higher), on *customer value* (what the customer is prepared to pay), or on what one is *allowed to charge*.

when the market is regulated. It may seem odd that sometimes price is set lower than cost (called *loss leader pricing*), but this strategy is used to draw customers to the marketer in the hope that the customers will buy other, higher margin items at the same time. Some marketers set their prices lower or higher than competitors as a matter of strategy. For example, Wal-Mart is a discount mass merchandiser that prides itself on finding ways to lower, not raise, its prices. On the other hand, some cosmetics marketers charge very high prices, regardless of the actual cost of their products — they want the image of exclusive, fashionable products and believe that higher prices contribute to that image.

There are many notions about pricing. For example, some marketers believe that customers who lack product knowledge will use price as an indicator of quality. For example, when confronted with a wine list of unknown wines, a customer may think that the prices indicate the relative worth of the wines and will choose a bottle accordingly. Also, some believe that price endings are important influencers of consumer behavior. For example, odd endings like seven or nine are used to indicate value, whereas even endings like zero are meant to convey that price is not critical. Similarly, “sale” is often used with pricing to indicate that there is a bargain to be had, as in “regular price \$19.95, sale price \$14.99.” There are so many ways to express price that sometimes customers have difficulty comparing competitive offerings; some marketers like this confusion, but others do their best to avoid it. The issues in pricing calculations will be dealt with in Section 9 below.

Chanel No. 5

When Gabrielle “Coco” Chanel, a fashion designer for the rich and famous, set out to create her first perfume in 1922, she knew that, in the same way that she had revolutionized the way women dressed, she would change the way women wore their fragrance. At the time, perfume was the domain of the parfumiers, and women habitually doused themselves in heavy floral scents, the only fragrances available. These natural scents were highly concentrated and faded quickly, because of their unstable molecular structure, causing the wearers to over apply them, rather than letting their own “natural fragrance” emerge. Chanel wanted a perfume that smelled like a woman, not like a flower — an abstract fragrance that enhanced, rather than masked.

After much experimentation and consultation, she was presented with 10 samples. She chose No. 5 — the fifth sample, and Chanel’s lucky number. This was to become the name of the perfume, as far removed as possible from the fanciful names currently in use. Chanel was told that because this perfume contained over 80 elements, including a great deal of the pricey jasmine essence, it would be extremely expensive. At that, Chanel ordered, “In that case, add more of it. I want to create the most expensive perfume in the world.”

Chanel brought small bottles of No. 5 back to Paris with her to give to her most eminent clients as gifts, claiming that she barely remembered where they came from. She spritzed her fitting rooms and the air around her at social functions, knowing that her fragrance was like no other. She created a frenzied demand for the scent but claimed that it was unavailable, all the while preparing to launch its sale. When the perfume was ready for sale, Chanel at first made it available only to a few of her most privileged clients, and only through her salon. As word of the perfume spread and demand skyrocketed, she kept tight control of its distribution, and therefore of its exclusivity. She also ensured that, by distributing it to a select class, she was creating a brand association with that class.

The first and only slogan ever associated with Chanel No. 5 was “Share the Fantasy,” implying that even if you are not part of the upper class, you can join it by wearing the perfume. It is, and always has been, an

exclusive product and is priced at a premium (although it is no longer the most expensive — that distinction belongs to Jean Patou's 1000 in Canada).

A price war occurs when competitors change price to match or undercut one another because they believe that there is an advantage to be gained. Price wars often occur when there is excess capacity relative to demand (e.g., of gasoline), when a market matures or demand is slackening (e.g., end-of-season fashion items), and when one competitor achieves a lower cost position and wants to exploit it. Price wars can be extreme. They end when all competitors stop dropping their prices because they decide there is no longer an advantage to be gained from price cuts.

Governments impose rules and regulations on pricing, which vary from country to country. Two Canadian laws are particularly noteworthy. First, it is illegal to conspire to fix prices; that is, it is illegal to get together with one's competitor to set prices. Second, it is illegal to set or attempt to impose a resale price. That means that a manufacturer cannot dictate or control the price at which a retailer sells its product; it is legal to suggest a resale price, but not to require it.

DECIDE HOW TO GROW AND KEEP CUSTOMERS

A marketer can focus attention on acquiring new customers (called *prospecting*) or on developing existing customers (called *development and retention*). Customer acquisition costs money; studies have consistently shown that it costs more to acquire a customer than to keep a customer. Retained customers often can be developed into even more valuable customers than new customers. For these reasons, it is not surprising that savvy marketers try to balance their attention between customer acquisition and customer retention and development. In these ways, marketing performance can be dramatically improved.

While examining alternative ways to grow, a marketer may consider different combinations of customer development and new customer acquisition. There are four major approaches:

- Market penetration — Focus on current customers — can we sell them more of what they are already buying from us? Can we increase their usage of our product or service, such as by convincing them to use our product at new times of the day (e.g., drinking a cola with breakfast instead of coffee or tea)?
- New product/service offerings — Seek to sell something new to current customers, such as a related product or service. In this instance, the marketer would build on the current relationship as a supplier (e.g., a retailer might add new products to her store).
- New segments/market areas — Seek new customers for the current product or service (e.g., enter a new geographic area).
- Diversification — Seek new customers and offer them new (to the marketer, anyway) products and services.

Customer Retention

One way to think about customer retention (the opposite is *customer defection* or *churn*) is in terms of the value of a customer over time. A single visit to the grocery store may only mean a transaction value of \$100, or a profit of \$1.50 (a net profit of 1.5 per cent is considered good in grocery stores). However, that customer is worth a great deal to the store over several visits, over several years. No wonder grocery stores and other marketers have devised so many different schemes to reward their loyal, repeat customers. These loyalty

programs are intended both to retain customers and to provide information about customers so that the marketers can do an even better job of attracting and serving them.

The concept of customer development means increasing the value of a customer. For example, if a customer purchases a computer printer at a computer store, that store wants to develop the customer further by selling computer software, printer cartridges, paper, and other supplies.

The key to customer retention and development is not simply a clever loyalty program. Loyalty programs differ greatly. For example, a “buy 10, get the next one free” paper punch card does not provide much marketing information for the company. On the other hand, a sophisticated loyalty program that identifies a customer and matches her with a purchase can help develop a valuable customer database that may improve marketing effectiveness.

Customers stay and buy more from a particular marketer if they believe this gives them more value than switching their patronage to someone else. Smart marketers constantly look for ways to understand what customers expect of them (e.g., “What does the customer think is good service?”) and what customers want more of (e.g., “Is it possible to speed up the checkout process?”). With these insights, marketers can continually refine their marketing programs and maintain competitive advantage.

ENSURE THE FINANCIALS OF THE MARKETING PROGRAM MAKE SENSE

As a marketer decides what to do to acquire, retain, and develop customers — all profitably — a *marketing program* is established. This program, sometimes called a *marketing plan*, formally expresses the strategy and implementation of the company’s marketing effort. Fully developed, such a program says what the company is trying to do, how it will do it, and why it is worth doing. It is important to realize that there is no single “right” format for a marketing program or plan; however, there are three key criteria for assessing a good program.

Does It Make Market Sense?

The first test of a proposed marketing program is whether it makes sense for the market. Is there reason to believe that the target market will respond favorably and in sufficient numbers? Is there reason to believe that consumers will regard the offer as better than competitive offers? Is there reason to believe that the trade (all members of the distribution system) will respond favorably? In other words, a marketer conducts a market analysis not simply for interest’s sake, but rather to determine whether there is an adequate market opportunity and then to determine how to obtain it. Market information should be studied in order to derive implications for marketing decisions and performance. For example, if one learns that a competitor has just lowered prices 10 per cent, the questions are, “What does that mean for us?” and “What are we going to do?”

Is It Complete and Consistent?

The second test of a proposed marketing program is its completeness and internal consistency. Do the parts fit together well? For example, if the intent is to excel in customer service, is there adequate provision in the program for recruiting, training, and managing customer service personnel? Or if the intention is to seek customers who value high performance, does the product measure up?

Does It Make Financial Sense?

The third test of a proposed marketing program is its financial feasibility. Marketing decisions always have financial implications, and it is important for the marketer to figure these out. Marketing activities (such as sending direct mail or deploying salespeople) cost money and are intended to bring in revenues. A marketing program should be translated into the costs expected, the investments needed, and the returns expected.

Calculating the costs involved requires a careful estimation of all the costs and then a classification of those costs into different categories. Some costs are directly related to unit volume and are called *variable costs*. For example, if each item sold required \$30 of raw materials to make, that \$30 is a variable cost. Or if each time an item is sold a commission of \$10 is paid to the sales force, that commission is a variable cost. On the other hand, some costs do not vary (at least within a broad range) by unit volume sold; these are called *fixed costs*. For example, the marketing manager's salary may be \$100,000 and not vary with changes in volume sold. The test for variable versus fixed is whether within a reasonable range the costs vary with each unit of volume. The categorization of costs helps in doing some simple calculations of economic feasibility, which we'll get to in a moment.

Sometimes the financial implication of a marketing decision is a change in costs; other times, it is a change in investments. For example, if the proposed marketing program requires that additional inventory be carried, that means an additional working capital investment. If additional delivery trucks or facilities must be purchased, these are fixed, depreciating investments. The test is whether the additional expenditure will appear on the income statement (a cost) or on the balance sheet (an investment). Advertising and other communication expenditures are regarded as costs, not investments. A marketer should be able to respond to the question, "What will the marketing program require financially to undertake it?"

Forecasting

The marketer is constantly being asked to forecast sales revenue because that estimate is so crucial to every other forecast for a company, yet sales forecasting can be difficult to do with any accuracy, particularly in new situations. Sales forecasts can be prepared based on several approaches:

- Previous experience (last year's results plus a change factor);
- What experts say will happen (pooling of individual salespeople's forecasts);
- What has happened in test markets (extending results to a bigger area); and
- Judgment (what the manager thinks might happen, all things considered).

There is seldom a perfect method to forecast sales, but it is usually required of the marketer when asking approval to undertake a marketing program.

Contribution Analysis

A key question asked about a proposed marketing program is, "How will this affect profitability?" One way to answer this question is to prepare detailed projected statements (such as income statements and balance sheets). A faster way to do this is through marketing contribution analysis. Both techniques should give you the same results, provided you use the same numbers and assumptions. The value of the contribution approach is that it provides a quick and straightforward way to examine relationships between price, costs, volume, and thus profit. The financial impact of a marketing program will boil down to what happens to these items.

Before we get to marketing contribution analysis, first let's look at prices and margins in a market chain. Sometimes you may be given all the information you need, but sometimes you may have to calculate a missing value in the total picture. For example, suppose a retailer sells an item for \$100 that cost it \$70 to buy from a wholesaler whose margin was 25 per cent. What was the manufacturer's selling price? If the manufacturer's unit variable cost is \$22.50, what is the manufacturer's unit contribution? The way to calculate these is by constructing a logical flow diagram as follows:

Retail Selling Price		
Retail Variable Cost	= Wholesale Selling Price	
Retail Unit Contribution	Wholesale Variable Cost	= Manufacturer Selling Price
	Wholesale Unit Contribution	Manufacturer Variable Cost
		Manufacturer Unit Contribution

Notice the following about this diagram:

1. It can be constructed for any number of levels in a distribution system. Each level has a column.
2. One level's selling price is another level's variable cost. For example, the manufacturer's selling price is the wholesaler's cost. (In practice there can be some other adjustments to these numbers, but in this book we will not deal with these adjustments.)
3. Items in a column are arithmetically related to one another. For example, unit selling price minus unit variable cost equals unit contribution.
4. If you know most of the numbers in this diagram, you can calculate the missing numbers.

Now, fill in the numbers you know and figure out the missing values. For example:

Retail Selling Price = \$100		
Retail Variable Cost = \$70	Wholesale Selling Price	
Retail Unit Contribution	Wholesale Variable Cost	Manufacturer Selling Price
	Wholesale Unit Contribution = 25% WSP = \$17.50	Manufacturer Variable Cost = \$22.50
		Manufacturer Unit Contribution

1. Retail unit contribution will be \$30 (RSP – RVC).
2. WSP = RVC = \$70
3. Since WSP – WVC = WUC, therefore WVC = \$70 – \$17.50 = \$52.50
4. WVC = MSP = \$52.50
5. Since MSP – MVC = MUC, therefore MUC = \$52.50 – 22.50 = \$30.00

Sometimes numbers are given as percentages, rather than in monetary values. These percentages are called *margins*. Margins are usually expressed as a percentage of selling price.

For example, suppose in the above example, we were told:

“The wholesale unit contribution is now 40% (it was 25%)”

We would then proceed the same way as above, but add a step. Since in step 3 above we determined that the WSP was \$70.00, we now need to calculate the WUC. Since $WUC = .4 \times WSP$, this means $WUC = .4 \times \$70.00 = \28.00

Always take your time and do these sorts of calculations step by step rather than trying to do too much at once.

Here are the Five Steps to do Contribution Analysis

1. Calculate the contribution per unit in dollar terms.

Contribution per unit = Unit selling price — Unit variable costs

For example, if raw materials cost \$10 per unit, processing costs \$20 per unit, and the selling price was \$50 per unit, then the contribution per unit would be \$20.

2. Calculate the total fixed costs.

For example, if advertising costs were \$25,000, the sales manager’s salary \$75,000, and the corporate overhead \$200,000, then the fixed costs would be \$300,000. (Note: It would be inappropriate to divide these costs by a projected unit sales volume and express them on a per unit basis as if they were variable costs. These costs do not change with volume sold (at least within a reasonable range) and thus should be treated as fixed costs.)

3. Calculate the profit target.

A profit target means the amount the marketer wants to make beyond covering costs. Some people advocate doing a break-even analysis, which means setting a profit target of zero, but rarely does a marketer want to undertake a program that returns zero profit. The profit target may be expressed in dollar terms, such as \$10,000, or it may be in percentage terms, such as 10 per cent of revenue. If no profit target is given, you may wish to make an assumption you regard as reasonable.

There are two approaches:

- If the profit target is expressed as total dollars, add this amount directly to the total fixed dollar costs.
- If the profit target is expressed as a percentage of revenue, calculate this percentage, add it to the unit variable costs, and recalculate the unit contribution. This has the effect of lowering the dollar contribution per unit figure.

4. Calculate the volume required to meet the profit target.

$$\text{Required volume (in units)} = \frac{\$(\text{Fixed costs} + \text{Profit target})}{\$ \text{Unit contribution}}$$

5. Interpret the result of this scenario.

An example may help. Suppose the manufacturer's selling price is \$52.50, variable costs per unit are \$22.50, fixed costs are \$100,000, and the profit target is \$10,000. How many units must be sold to reach this profit target?

1. Contribution per unit = $\$52.50 - \$22.50 = \$30.00$
2. Total fixed costs = \$100,000
3. Profit target = \$10,000
4. Target + Fixed costs = $\$10,000 + \$100,000 = \$110,000$
5. Required volume = $110,000 \div 30.00 = 3,667$ units (always round up to next unit)

Interpretation: 3,667 units sold at \$52.50, costing \$22.50 each, will cover \$100,000 in fixed costs and provide \$10,000 profit. We could also multiply 3,667 units by \$52.50 to arrive at the required sales in dollars (which is \$192,518).

Sensitivity Analysis

The advantage of the contribution analysis approach is the speed and ease with which you can calculate another scenario. For example, what would happen if you changed the selling price to \$60 and kept everything else the same? The impact would be an increase in the unit contribution of $\$60 - \$52.50 = \$7.50$. This should mean that fewer units would need to be sold to cover the same fixed costs and profit target. All you have to do is calculate $110,000 \div 37.50 = 2,934$ units, a decrease of 20 per cent in volume required compared to the above scenario at \$52.50.

Trying several different numbers, that is trying different contribution scenarios, is called a sensitivity analysis. The intent is to find out what happens to the relationships among the numbers as they are changed. For example, does increasing the selling price 10 per cent have as much impact as decreasing costs by 10 per cent?

Sensitivity analysis can be quickly done, for example, to assess the impact of an increase in advertising spending. Suppose the current ad budget is \$300,000 and the contribution per unit is \$20. A proposal is put forward to increase advertising to \$440,000. How many more units must be sold to make that increase worthwhile? This analysis can be done incrementally. The proposed increase is \$140,000. In principle, the \$20 contribution can be thought of as the contribution toward (fixed costs + profit target + incremental advertising spending), but here we only have to consider the additional advertising. The calculation would be $\$140,000 \div \$20 = 7,000$ units. We would interpret this as: "the incremental advertising spending has to bring in at least an additional 7,000 units in sales to pay for itself". If it is unlikely that the additional advertising will increase sales by 7,000 units, it is not a good idea to spend it.

The usual elements to look at in a sensitivity analysis, one element at a time, are the following:

- What happens if there is a price change?
- What happens if there is a change in variable costs?
- What happens if there is a change in fixed costs?
- What happens if there is a change in the profit target?

A scenario can be constructed for each change. This helps the marketer assess whether making the change is a good idea or how a possible change (such as an increase in manufacturing costs that might be anticipated) will affect the financial feasibility of the marketing program.

What Might Happen versus What Will Happen

None of the calculations in contribution analysis and sensitivity analysis are forecasts or guarantees of what will happen. They are only numbers calculated in relation to one another. For example, when we calculated above that we needed to sell 3,667 units at \$52.50 to hit the profit target, this doesn't mean this will actually happen. Interpretation and judgment are required to see if this is the likely outcome. If, for example, the total market is estimated to be 100,000 units per year, we could calculate target market share at $3,667 \div 100,000 \times 100 = 3.7$ per cent share. Is this reasonable to expect? If no competitor has over three per cent share and we are new to the category, this may be a stretch. If, on the other hand, test market results showed a 40 per cent preference for our product over all others, this may be achievable. It is a judgment call until it is actually tried.

The important point is to try to figure out the financial implications of marketing decisions. There is considerable uncertainty about such economic forecasts, but nonetheless they help everyone else in management make their plans for the future.

DECIDE HOW TO LEARN FOR THE NEXT ROUND OF DECISIONS

Marketing is not a science. It is impossible to anticipate all the things that happen in the marketplace and to sort out all the factors that affect marketing performance. For these reasons, a savvy marketer constantly endeavors to learn from experience. What happened last time, and most important, why? Even partial answers help the marketer make better decisions in the future.

One major set of tools for decision making is market research techniques. Marketing research may be used to explore, to explain, to predict, or to monitor marketing. For example, marketers might use *focus groups* (small groups of about eight people at a time) to explore how customers think about a product or a store and thus gain some insights into how to improve. Or they might use a *survey* to gauge satisfaction with service performance and thus predict retention of customers.

Another approach is to carefully *track* results. For example, one might track repeat purchase rates through a customer database driven by point-of-sale systems to assess a loyalty program. The key is to decide at the outset what measures of marketing performance to monitor.

In each instance, the marketers are asking focused questions about the market or the marketing program and seeking answers in a systematic way. There are a host of research and tracking methods, but the essence is providing good answers to questions that help marketers make better decisions. This detective work is a critical part of the marketer's job. Good marketing programs always have a market research component so that learning about the market is continuous.

The Special Case of Social and Nonprofit Marketing

At the outset of this chapter, mention was made of nonprofit marketing (some call this non-business or social marketing) but the chapter has focused on profit-oriented marketing. Marketing is an approach to deciding what to offer to whom — a set of activities to make promises and to deliver. In that sense, marketing can apply to art galleries, symphonies, blood donor clinics, political candidates, and charitable drives. There are five major differences between profit and nonprofit marketing management.

1. The performance dimensions often differ. Whereas a profit-oriented marketer may wish to sell as much product to make as much money as possible, a social marketer may be trying to change behavior (e.g., promote wearing condoms for safe sex) and an arts marketer may be trying to educate (e.g., expose a certain percentage of the public to an exhibition and thus educate them about an aspect of history). Marketers need a purpose (a performance objective), but it need not be profit.
2. Most profit-oriented marketers gain their revenue by selling something to a customer, who gives them money in return. In nonprofit marketing, often the exchange of money is less straightforward. For example, a museum marketer may engage in fundraising to gain revenue from sponsors in order to provide a program to a public that pays little or nothing for admission. This separation of sponsorship from benefits to clients is very common in nonprofit marketing and means that such marketers require multiple marketing programs, for example, to attract sponsorship and to attract audience.
3. Many nonprofit organizations are resistant to using marketing terminology. Arts organizations and social agencies prefer to think about clients, audience, and visitors rather than customers, to think about information campaigns rather than advertising and promotion, and so on.
4. Many nonprofit organizations are not organized in the same way as profit-oriented organizations. Instead of a marketing or sales manager, there may be someone in charge of programming who also deals with marketing. More commonly, there may be several people who have overlapping interests in the marketing function and, thus, need to coordinate their marketing efforts.
5. Many nonprofit organizations have few resources explicitly available for marketing activities. The challenge in such situations is either to persuade other people to reallocate money (e.g., in a museum, to take money from exhibit development and use it for audience attraction) or to find creative ways to accomplish marketing objectives with little money (e.g., to harness volunteers as salespeople).

SUMMARY

Marketing is all about connecting an organization to customers. It requires:

- *Discipline*, to remember that customers are not all alike (and usually quite unlike the marketer). A marketer must go through the analytical steps to ensure good understanding of the marketing situation and alternative approaches;
- *Creativity*, to discover new ways of attracting and developing customers; and
- *Courage* to take action in an uncertain, competitive environment.

The 10 step approach shown in Figure 1 and discussed throughout this note should help you tackle most marketing challenges.

ROLLUP SOLUTIONS INCORPORATED: GOING TO MARKET

Eleni Petrou wrote this case under the supervision of Ian Dunn solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveycases.com.

Copyright © 2018, Ivey Business School Foundation

Version: 2019-07-04

On July 1, 2017, Megan MacKay and Nicole Plant, co-founders of RollUP Solutions Incorporated (RollUP), had just finished an exciting meeting with their shareholders, Grant McNaughton and Leanne McKinnon. They had received great news regarding a partnership with Goodwill Industries International Inc. (Goodwill Industries) that would enable RollUP to operate more efficiently and grow rapidly within its social enterprise business model. Concerned with using business as a catalyst for positive change, RollUP collected used mobility devices from long-term care (LTC) homes, upcycled¹ them, and sold them at discounted prices to people in need.

With only a couple of months until a full-scale implementation of their new sourcing and upcycling process, the four shareholders needed to develop a marketing strategy. To solve their most pressing issue—generating sales—they had to decide on their target market, sales channel, and pricing scheme and decide how they would allocate their promotional budget. They wanted to ensure that these decisions would contribute to the long-term sustainability of their business.

THE COMPANY

Used Mobility Device Opportunity

MacKay and Plant first met while attending Western University in London, Ontario. Having a great interest in entrepreneurship, they decided to resurrect the university's Enactus chapter, which functioned as an incubator for students to develop and implement their entrepreneurial ideas. MacKay learned that LTC homes in London had an excessive oversupply of gently used mobility devices. Cognizant of changing demographics, MacKay and Plant saw a business opportunity of their own.

The pair developed an initial business plan for RollUP as a feasibility study project in the Business 2257: Accounting and Business Analysis course at Western University. The shareholders then began operating RollUP under the umbrella of Enactus. Student ventures within Enactus were separate entities from the parent organization—owned entirely by the students who founded and operated them. RollUP received a lot of recognition in both the social enterprise and entrepreneurship sectors. Most recently, the shareholders

¹ Upcycling was the process of converting used or waste materials into new materials or products with higher functionality.

had won CA\$10,500² after placing first in the Spin Master Ivey HBA Business Plan Competition.³ They thought it was important to capitalize on this momentum.

Though the RollUP shareholders were still students, they were a highly motivated and talented team, working tirelessly to build their brand and partnerships in order to ensure the company's success. Mainly through their involvement in Enactus and the entrepreneurship community, MacKay and Plant developed strong connections with key people in the start-up and social enterprise spaces. McNaughton's experience as owner and operator of a successful graphic design consultancy, Ventus Business Solutions, was a crucial asset to RollUP. McKinnon's experience and knowledge of accounting also proved useful, as she was primarily responsible for RollUP's finances.

Sourcing

Canada, like many Western nations, faced a demographic shift as the baby boomers aged. As this significant portion of the population aged and consequently required more care and assistance, the Canadian government focused on how this need would strain the country's health-care resources. To mitigate the resource repercussions, Ontario established a strategy called Aging with Confidence,⁴ which shortened the average length of stay in an LTC home from 11 years to 11 months.⁵

Over 90 per cent of residents in LTC homes required mobility devices such as wheelchairs or walkers. As a consequence of Aging with Confidence, these devices were typically left behind after 11 months.⁶ There were over 4,300 mobility devices in use in London, Ontario, LTC homes at any given time, and approximately 358 devices went into disuse every month. The surplus of gently used mobility devices in LTC homes, in line with demographic trends, was expected to continue for the foreseeable future.

LTC homes in London and the surrounding area tended to store used mobility devices on their premises. With such a large oversupply, they sought ways to dispose of the devices. If MacKay and Plant could arrange for pickup and transport, the homes would give them mobility devices at no cost, because it spared them storage and disposal fees. RollUP had already reached agreements with McCormick Home, The Village of Glendale Crossing, and Dearness Home in London. However, the shareholders had not signed any formal exclusivity agreements and had not reached out to the rest of the LTC homes in London.

Upcycling Process

The mobility devices collected from LTC homes were upcycled to prepare the devices for resale. All the devices were cleaned and sanitized, and minor repairs, such as installing new screws, pads, or wheels, were performed. Devices that were not deemed appropriate for resale were sold as scrap and sent to recycling facilities.

Since the repair work required expertise, and parts necessary for repairs varied greatly by brand, the RollUP shareholders realized that the upcycling process would be somewhat complicated and labour-intensive. All

² All currency amounts are in Canadian dollars unless otherwise specified.

³ The competition was sponsored by Spin Master Toys, an innovative global toy company founded in 1994 by Ivey Business School and Western University graduates Ronnen Harary (HBA 1994), Anton Rabie (HBA 1994), and Ben Varadi (HBA 1994). With a prize pool of over \$20,000, the competition was open to undergraduate teams from universities across Canada and the United States and included a stellar panel of experienced investors and entrepreneurs.

⁴ Ontario Long Term Care Association, "About Long-Term Care in Ontario: Facts and Figures," Ontario Long Term Care Association, accessed June 20, 2018, www.oltca.com/oltca/OLTCA/LongTermCare/OLTCA/Public/LongTermCare/FactsFigures.aspx.

⁵ Don MacKay (President, Focus Healthcare Group), interview with case author, July 12, 2016.

⁶ Ibid.

four shareholders were operating RollUP while attending university, so it was not possible for them to upcycle the mobility devices themselves. They decided to outsource the upcycling and collection processes to Goodwill Industries. This strategy would ensure operational efficiencies, cost savings, and the standardization necessary to maintain consistency and quality.

RollUP Brand

The RollUP shareholders worked to ensure that only the highest quality and most gently used mobility devices were selected for upcycling and resale. Outsourcing the upcycling process to Goodwill Industries guaranteed standardization of the products sold by RollUP. Because there was no cost associated with the initial sourcing of the product, RollUP would be able to sell comparatively higher quality products for comparably lower prices, something that was not typically possible in many business contexts. It was imperative that this strategy was communicated to RollUP customers.

THE INDUSTRY

Mobility Devices and the Assistive Devices Program

The mobility device market in Canada was decentralized and unregulated, with low barriers to entry. Consumers could purchase devices of varying quality and price from many sources. Although there were many vendors, there was also significant demand. London's largest population increase from 2006 to 2011 was in the 50–54 and 60–64 age groups.⁷ As the general population aged, more people would require extensive medical care, beds in LTC homes, and mobility devices.

Ontario's mobility device industry catered to people with a variety of physical disabilities ranging from complete immobility to minor activity limitation. In London, 21 per cent of the population would benefit from using a mobility device for assistance because of injuries or disabilities.⁸ Notably, 26.9 per cent of the low-income population lived with disabilities.⁹

The Assistive Devices Program (ADP) dominated Ontario's medical and mobility device industry. Funded by the Ontario Ministry of Health and Long-Term Care, ADP assisted Ontarians with long-term physical disabilities to pay for customized health equipment.¹⁰ In addition to being an Ontario resident with a valid health card, an applicant had to have a disability requiring the use of equipment for a minimum of six months.¹¹ The mobility device had to be used daily with the aim of increasing the user's independence.¹²

For a person to access ADP funding, a therapist, physician, or LTC home staff member had to recommend that the client purchase a mobility device.¹³ Then, an ADP authorizer would assess the client, determine the

⁷ City of London, "2011 London Census: Fact Sheet 2 – Age and Gender," City of London, accessed June 20, 2018, www.london.ca/About-London/community-statistics/population-characteristics/Documents/2-20AgeandsexhighlightsJune21.pdf.

⁸ City of London, "Disabilities," City of London, August 10, 2015, accessed June 20, 2018, www.london.ca/About-London/community-statistics/population-characteristics/Pages/Disabilities.aspx.

⁹ The Mayor's Advisory Panel on Poverty, *London for All: A Roadmap to End Poverty*, City of London, March 2016, accessed June 20, 2018, www.london.ca/city-hall/mayors-office/Documents/London-for-All-final-report.pdf.

¹⁰ Government of Ontario, "Assistive Devices Program," Government of Ontario, December 7, 2016, accessed June 20, 2018, www.ontario.ca/page/assistive-devices-program.

¹¹ Ibid.

¹² Ibid.

¹³ MacKay, op. cit.

client's needs, and arrange product trials with vendors. ADP divided wheelchairs and walkers into types. If the client was approved for funding, ADP covered 75 per cent of the cost.¹⁴ The client would be responsible for the remaining 25 per cent. A Manual Type 2 wheelchair, the cheaper of the types classified by ADP, retailed for roughly \$2,500. Even with the ADP subsidy, clients would still be responsible for \$625 at the very least. The most common type of wheelchair retailed for \$4,000.¹⁵ Though ADP qualification did not cover the full cost, purchasing a wheelchair was even more difficult for the many people who could not qualify for ADP funding because of the stringent applicant conditions.

THE COMPETITION

Manual Wheelchair Recycling Program

The Manual Wheelchair Recycling Program (MWRP), a partnership between ADP and the Canadian Red Cross, accepted donations of adult manual wheelchairs and rented them out after a restoration process.¹⁶ The devices were rented for \$40 per month for up to six months, contingent on a referral from a registered health professional. The program only accepted gently used ADP wheelchairs that were less than five years old and accompanied by the original receipt.¹⁷ MWRP did not offer tax receipts on donated equipment. In 2012, approximately 15,000 clients were serviced, while only 350 wheelchairs were donated to the program.¹⁸

Consistory Club

The London Consistory Club (CC) refurbished donated mobility devices and loaned them to members of the surrounding community on the promise that they would eventually be returned. Owing to the wide variety in brands and models of the donated mobility devices, the refurbishment process occurred on a case-by-case basis. All CC operations depended on the generosity of its members—who were typically over 65 years old—to donate time, equipment, and personal funds.¹⁹ The organization benefited from the Good Samaritan Act, which protected CC from all legal liability because the equipment was distributed on loan.

Dura Med

Dura Med Mobility & Home Health Care Products (Dura Med), an independent medical equipment provider, was founded in London in 1999. As a licensed ADP vendor, the company sold new and used mobility devices. Used devices were not a primary focus and were priced inconsistently. Dura Med operated seven days a week. It offered delivery and repair services and provided customers with the opportunity to pay in instalments.²⁰ Despite being established in the London market, Dura Med generated 35 per cent less revenue than the industry standard in 2016. In attempts to contact the company, MacKay and Plant noted that it was difficult to obtain information and quality customer service from store representatives.

¹⁴ Ibid.

¹⁵ Ibid.

¹⁶ Canadian Red Cross, "Health Equipment Loan Program," Canadian Red Cross, accessed June 20, 2018, www.redcross.ca/how-we-help/community-health-services-in-canada/health-equipment-loan-program.

¹⁷ Kimberly Colvin (Community Service Assistant, Red Cross—London Middlesex Elgin Branch), interview with case author, July 20, 2016.

¹⁸ Isabel Teotonio, "Recycling Wheelchairs, Medical Devices Proves Challenging, But Red Cross Can Help," *Toronto Star*, August 17, 2012, accessed June 20, 2018, https://www.thestar.com/life/2012/08/17/recycling_wheelchairs_medical_devices_proves_challenging_but_red_cross_can_help.html.

¹⁹ Norm Dix (Club Member, London Consistory Club), interview with case author, August 1, 2016.

²⁰ Dura Med, "Dura Med Mobility & Home Health Care Products," Dura Med, accessed June 20, 2018, www.duramed.ca/.

Private Sales

Internet sales channels such as Amazon.com, Inc., Kijiji, Craigslist, Inc., and eBay Inc. allowed individuals to post items for sale independently. Though it was possible for consumers to find used mobility devices on such e-commerce sites, products were not standardized, and pricing and supply were variable.

THE CONSUMERS

The shareholders believed that at least 630,000 Ontarians who required the use of a mobility device were ineligible for ADP funding and were unable to finance a purchase on their own. With this information, RollUP's shareholders identified two groups that would be interested in the company's products: end-users and primary caregivers. End-users depended greatly on mobility devices, typically to help manage disabilities or recover from injuries. Though not necessarily part of a particular demographic group, most of these people were elderly. They valued cleanliness and overall quality, which encompassed durability and comfort.

The majority of primary caregivers fell in the baby boomer age group, 53–72 years of age. These caregivers tended to assist aging parents, spouses, or children in researching and procuring mobility devices. Due to a lack of personal experience with such devices, they often relied heavily on the information provided by physicians, therapists, and LTC home staff. They sought high-quality, clean, and cost-effective mobility devices for their dependents, as they were often responsible for financing the equipment.

KEY DECISIONS

Target Market

The RollUP shareholders realized the need to define a narrow core target market as they looked toward generating sales. It was imperative that they keep in mind that their product best served low-income individuals in need of mobility devices.

Branding and Placement

Since RollUP had generated much success and public recognition from the social good aspect of its business, the shareholders wondered if it would make sense to change to a non-profit business structure. Regardless of this decision, they knew that their partnership with Goodwill Industries, which gave an employment opportunity to people who would otherwise not be able to find jobs, would be a key aspect of a continued strong reputation in the entrepreneurship environment.

The shareholders had to decide on a sales channel that best fit their market. As a result of a sponsorship deal with Enactus, they had an opportunity to sell their refurbished mobility devices online through Shopify for free; the basic Shopify plan would normally cost US\$348 per year. Shopify was an e-commerce platform that could be seamlessly embedded in a third-party website so that it would appear to customers that they were purchasing directly from the company they were buying products from. Leveraging this opportunity, the RollUP shareholders planned to sell wheelchairs and walkers through their website (see Exhibit 1) using an embedded Shopify store. The shareholders did not want to activate their one-year free term with the basic Shopify plan until the end of September 2017, when they would have a chance to develop a promotional plan.

The shareholders were also considering hiring sales representatives to contact consumers personally. If they decided to go with this option, they planned to compensate these representatives with commissions of between 10 and 15 per cent of the sale price.

Finally, RollUP had a promotion opportunity through Geri Fashions of London Ltd. (Geri Fashions), a retailer of wheelchair-adaptable clothing. The clothing sold at Geri Fashions was intentionally designed to make daily functions, such as changing clothing, easier for people who used wheelchairs. The products were sold through the company's retail location, online, and in pop-up locations at local LTC homes. This opportunity would see Geri Fashions recommend and promote RollUP's mobility devices to its customers using rack cards²¹ developed by RollUP. In return for the promotion, RollUP would compensate Geri Fashions between 5 and 10 per cent of the sale price on a commission basis.

Pricing Strategy

The shareholders needed to consider many factors in deciding on a price for RollUP's mobility devices. These factors included, but were not limited to, RollUP's costs for sourcing and upcycling, competitor pricing, and consumer willingness to pay. RollUP's costs were unusually low due to the lack of cost associated with sourcing from LTC homes and the arrangement with Goodwill Industries. Based on transport, labour, storage, and other associated costs, the shareholders believed they could not sell refurbished wheelchairs for less than \$200 and walkers for less than \$75. Being a social enterprise, they did not want to sell mobility devices for more than the cost to buy a new, average-quality device through ADP, which was \$625 for a wheelchair and \$125 for a walker. With this range in mind, the shareholders wanted to settle on consistent prices for both wheelchairs and walkers.

Promotional Strategy

Once the online Shopify store was launched, the shareholders planned to set aside \$2,000 per month for the ongoing marketing of RollUP products. With this budget in mind, they knew that their promotional strategy would have to reach their target market in the most cost-effective and efficient way possible.

Search engine marketing through Google AdWords was one option. Paid advertisements (ads) would appear when a user searched on Google for a word or phrase, such as "used wheelchairs." Companies could choose their daily budget, and the words or phrases they would like to use as key words. Advertising costs were split into two categories: cost per click (CPC), where a company was only charged when a user clicked on an ad, and cost per impression (CPM), where the company paid each time the ad was displayed. CPM was typically priced per 1,000 impressions. CPC was much more expensive; it was priced per single click because it was more likely to convert to actual sales. Google's CPM charge was \$7 and its CPC charge was \$3.

With the rise of social media, many companies turned to advertising on platforms such as Facebook. For RollUP to place ads on Facebook, it would cost \$7 CPM and \$2.50 CPC. To advertise effectively on Facebook, it was necessary to select user characteristics to target, such as location, gender, age, and interests (see Exhibit 2). These characteristics tended not to align well with either of RollUP's target markets. The only filters that could properly be applied were location and age. However, targeting the entire baby boomer age group was expensive and unlikely to result in many sales, since this was a large portion of the population and not all members of the group served as primary caregivers to people needing mobility devices.

²¹ A rack card was a commercial advertising document, used frequently in locations that had significant foot traffic. Rack cards bore high impact graphic design and were typically 4 by 9 inches.

Placing ads through Kijiji, an e-commerce platform, was also an option. The shareholders thought that this website would attract people in the market for used or refurbished mobility devices. Promoted ads would bring RollUP's ads to the forefront of Kijiji and direct users to the RollUP website, where they could purchase a refurbished mobility device. RollUP obtained a weekly cost breakdown for Kijiji advertising (see Exhibit 3).

Another alternative was to distribute physical promotional materials—mainly rack cards—to local medical offices, clinics, physical therapy centres, and hospitals. This strategy would require obtaining permission from health care professionals to distribute RollUP's materials. Having already received positive responses from many companies, the shareholders did not view this requirement as a great obstacle. Though the cost of developing rack cards would normally be significant, McNaughton offered to provide his design services to RollUP at no cost to the rest of the shareholders. Consequently, the company would only incur printing costs. The printing company charged \$55 for a package of 250, and RollUP's shareholders planned to distribute 20 rack cards to about 25 organizations each month.

The shareholders were also open to any additional promotional ideas that fit with RollUP's target market and supported their vision for the RollUP brand.

CONCLUSION

MacKay, Plant, McNaughton, and McKinnon needed to make some important decisions in a short amount of time. They had to select a target market and develop a comprehensive marketing plan, including distribution, pricing, and promotional decisions.

EXHIBIT 1: ROLLUP WEBSITE HOMEPAGE

Source: RollUP home page, accessed August 28, 2017, <http://rollupsolutions.ca/>.

EXHIBIT 2: SUGGESTED FACEBOOK DEMOGRAPHIC CHARACTERISTICS

Location	London, Ontario
Gender	No preference
Age	53-72
Likes and interests	No preference
Relationship status	No preference
Workplace	No preference
Education	No preference

Source: Company documents.

EXHIBIT 3: WEEKLY COST BREAKDOWN OF KIJIJI ADVERTISING

Features	Price Per Week (in CA\$)
Urgent label	\$8.99
Website URL	\$0.60
Highlight advertisement	\$2.99
Sort as top advertisement	\$9.99
Total	\$22.57

Source: Company documents.

ALLSWELL PRODUCTIONS: A TOUGH ACT TO FOLLOW

Lauren Nicolaas wrote this case under the supervision of Ian Dunn solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2022, Ivey Business School Foundation

Version: 2022-07-15

Christine Gruenbauer's smile could have lit up an entire stage. It was January 2019, and Allswell Productions (Allswell) had just won Outstanding Musical at the 2018 Brickenden Awards. Having founded Allswell less than one year ago, Gruenbauer, who was also Allswell's executive director, could not believe how far her little theatre company had come. Sharing a congratulatory toast with her artistic team, she started to wonder how next season could possibly top this feeling.

Back in her home office, Gruenbauer was in full planning mode. What production should Allswell stage next? Where should they stage it? Who was the ideal target audience for Allswell, and how would she ensure those people came to Allswell's show? Audience and critic responses to Allswell's inaugural musical had been overwhelmingly positive, but Gruenbauer described the ticket sales as "simply average." She knew that with the right marketing plan, she could improve ticket sales and bring the joy of musical theatre to even more people.

COMMUNITY THEATRE

Community theatre referred to theatre productions that were produced for the creative team's enjoyment rather than as a job. While some artists used community theatre as a means to grow their skills and transition into professional theatre, the majority of community theatre artists were amateurs who had other careers and were simply interested in a creative outlet. Community theatre artists were typically volunteers. Some theatre troupes even charged their artists a membership fee to be part of the production. The exception to this standard was for pit musicians,¹ who, in London, Ontario, were paid CA\$50² per performance, including any dress rehearsals.³

As a result of the low personnel costs, the largest costs in producing an amateur musical were the show rights and royalties. The legal rights to produce a musical were sold by publishing houses (also known as royalty houses) on behalf of the author of the show. Almost all shows written in the last ninety-five years were copyrighted and therefore could not be produced without written permission. Most publishing houses

¹ Pit musicians played instruments in the musical orchestra that accompanied the performance.

² All dollar amounts are in Canadian dollars.

³ A dress rehearsal was a performance of the show with no audience.

charged both a fixed and a variable fee for show rights. For a small community theatre group, this cost could amount to 15 per cent to 25 per cent of total revenues.⁴

THE LONDON THEATRE SCENE

The London theatre community was close-knit and vibrant. There were over twenty active community theatre troupes in London, including children's groups, university clubs, and traditional troupes, with over sixty years in operation. The troupes in London were very collaborative, often offering to share set pieces, costumes, and even advertise each other's shows. Theatre troupes never viewed themselves in competition for ticket sales. On the contrary, over the years, Gruenbauer had noticed that the more community theatre productions that happened around the same time, the more tickets each production sold. She attributed this to the advertising space each troupe provided the other. When audience members were leaving a show, hopefully after a very enjoyable evening, they would be more likely to purchase tickets to the next production happening in the area.

Ticket sales to a production tended to grow exponentially. The closer a show got to being sold out, the more general media buzz it would garner and the more patrons would buy tickets. A sold-out run was a badge of honour for theatre troupes and could even result in additional ticket sales for their next production, as patrons purchased tickets early for fear of the show selling out.

AUDIENCE GROUPS

Attending a theatre performance was a popular year-round activity for Canadians. In 2016, 40 per cent of adult Canadians attended at least one theatre performance, with 6 per cent attending at least five productions throughout the year. Given that a theatre performance was a non-essential purchase, individuals with higher household incomes were more likely to attend theatre productions. A higher education level also increased the likelihood that an individual would attend a production.⁵ Based on her experience in arts management, Gruenbauer divided her potential target markets into the following groups:

Post-secondary Students

Incredibly busy post-secondary students often attended theatre productions as a group activity with friends. Students were typically very open to seeing different shows. Most often, these consumers attended community theatre shows because they knew someone who was performing or involved in the production. University students seldom attended shows they had no connection to. They had very little disposable income and relied on public transit. As such, they looked for inexpensive shows that were happening on or near their school campus.

“The Regulars”

“The regulars” were musical theatre enthusiasts for whom theatre was an eventful evening out. Regulars were typically forty years of age and older, with more than half being retired individuals sixty-five years of age and older. These consumers typically had season tickets to a professional production company and

⁴ “Cost Estimator,” Music Theatre International, accessed July 7, 2021, <https://www.mtishows.com/cost-estimator/501>.

⁵ Kelly Hill, *Canadians’ Arts, Culture and Heritage Participation in 2016* (Hill Strategies Research Inc., November 2018), http://hillstrategies.com/wp-content/uploads/2018/11/cultural_participation2016_canada.pdf.

looked for ways to add to that calendar, particularly around the December holidays. They enjoyed upward of six productions per year. For the regulars, a night at the theatre included a nice dinner at a restaurant. To facilitate this, regulars preferred shows that began at 8:00 p.m. and almost always drove to dinner and the show. After dinner, they would go to the theatre, where they might enjoy an alcoholic beverage in the lobby before the show started.

These consumers were much less price sensitive. They looked for traditional shows they recognized, at venues they were familiar with. They also looked to theatre troupes that were known for putting on high-quality productions.

Young Professionals

Young professionals aged 25 to 40 were the fastest-growing group of theatre attendees in Canada. With more musicals being turned into films, young people's interest in musical theatre had been renewed.⁶ In recent years, it had become "cool" to be a musical theatre fan. The young professionals sought unique and creative shows that they could attend with their friends or significant others. They also had an interest in other art forms such as visual art and classical music.

Young professionals used a mix of cars and public transportation. They had a moderate amount of disposable income and were therefore willing to pay more for an individual show, but they did not often hold season tickets to any particular theatre troupe. Typically very busy, these young professionals preferred shows that began at 8:00 p.m. and often met their group at the theatre.

Families

Live theatre was a wonderful family activity, particularly in the wintertime, when outdoor family activities were limited. Families liked to switch up their activities and therefore typically saw only one or two shows per year, if any.

The biggest barrier to family attendance was price point. Caregivers had to purchase tickets for themselves and their children, which could quickly become too costly for an afternoon out. After price point, the biggest consideration for caregivers was finding something the entire family would enjoy. The show had to appeal to children of different ages while also holding something of interest for adults. Caregivers were also conscious of bedtime, so evening shows that ended by 9:00 p.m. and matinee⁷ shows were especially appealing.

CHRISTINE GRUENBAUER

Gruenbauer had been involved in musical theatre from the time she could talk. She started performing in shows at a young age but quickly fell in love with behind-the-scenes roles. When she began her studies at King's University College at Western University, she joined the King's Players Theatre Company, where she went on to produce and stage-manage several plays and musicals.

⁶ Jennifer Ashley Tepper, *Are We Living in a New Golden Age of Musical Theatre?*, February 23, 2016, https://essayzilla.org/wp-content/uploads/2020/12/20190521191531are_we_living_in_a_new_golden_age_of_musical_theatre____playbill.pdf.

⁷ A matinee was a performance that took place in the afternoon, typically with a 2:00 p.m. start time.

Gruenbauer had a bachelor of arts and a graduate diploma in arts management from Western University. Since graduating, Gruenbauer had held numerous important roles in the London theatre community, including that of associate producer for the London Fringe Theatre Festival. She currently worked at the Grand Theatre coordinating professional artist contracts and bookings.

Having spent five years in the London theatre community, Gruenbauer noticed a lack of opportunities for young directors, artists, producers, and stage managers. When these young artists left their respective university-sanctioned theatre companies and programs, opportunities for mentorship and hands-on experience were rare. Driven by the desire to create these opportunities, Gruenbauer founded Allswell.

ALLSWELL PRODUCTIONS

Established in 2018, Allswell was an amateur theatre company based in London, Ontario. Allswell's mission was as follows: "We believe in telling exceptional stories, sharing profits with the rest of the company, and leading a younger generation into leadership roles in community theatre."

Allswell's first production was ambitious. In September 2018, they staged a production of the musical *Dogfight* by Benj Pasek, Justin Paul, and Peter Duchan. *Dogfight* was a contemporary musical and therefore appealed generally to an audience of young professionals in their 20s and 30s. The show was hosted at the Wolf Performance Hall, which was a lecture hall in the London Public Library. The show was met with resounding praise from viewers and critics alike. At the 2018 Brickenden Awards,⁸ Allswell's *Dogfight* stood out against more established theatre companies, with significantly larger budgets, and was awarded the Outstanding Musical Award. The show was also awarded for Outstanding Lighting Design and Outstanding Director.

NEXT SEASON

One of the biggest challenges that new community theatre groups faced was upfront financing. Most costs related to a production were paid in advance of receiving any ticket revenues. Fortunately, Allswell had an anonymous group of supporters who granted an interest-free loan to the company for up to \$25,000. Gruenbauer intended to use this loan again for their 2019 production.

Gruenbauer and her team had spent several months discussing their next production. They wanted to consciously choose a show that fit with the company's mission. Regardless of which show they chose, Gruenbauer had selected early December as the best time for the performance.

The Allswell team had narrowed their decision down to two very different shows.

Sweeney Todd: The Demon Barber of Fleet Street

The first production being considered was *Sweeney Todd: The Demon Barber of Fleet Street* (*Sweeney*) by Stephen Sondheim and Hugh Wheeler. The legend of Sweeney Todd dated back as early as fourteenth-century Europe and was the subject of many horror stories in nineteenth-century England. In 1973, the legend was written into a play, and in 1979, it was adapted into a Broadway musical that won nine Tony Awards, including Best Musical.⁹ Today, the musical was perhaps best known for the 2007 film adaptation starring Helena Bonham Carter and Johnny Depp.

⁸ The Brickenden Awards celebrated and acknowledged excellence in independent theatre in London.

⁹ "Show History," Music Theatre International, accessed July 7, 2021, <https://www.mtishows.com/show-history/1721>.

Like most Sondheim musicals, *Sweeney* was considered a “classic” and was beloved by fans of traditional musical theatre. A story of murder, revenge, and cannibalism, the show featured comedic twists, great music, rich characters, and opportunities to create grand costumes and set pieces.

The rights to *Sweeney* would cost a flat fee of \$480 per performance plus 5 per cent of ticket revenue. Gruenbauer had estimated all non-personnel costs for *Sweeney* (see Exhibit 1). The show had last been presented in London in 2012, and it had been a success by all measures. Still, Gruenbauer wondered whether the show was a good fit for Allswell at this time. With the right marketing plan, Gruenbauer thought she could sell between 700 to 1,100 tickets to *Sweeney*. This was a big range, but many productions with movie adaptations had recently sold out in London. Still, Gruenbauer wanted to be cautious in her optimism for ticket sales.

Peter and the Starcatcher

The second production being considered was *Peter and the Starcatcher (Peter)* by Rick Ellice. *Peter* was a uniquely quirky and theatrical show that explored the backstory of Peter Pan, Tinker Bell, and Captain Hook.¹⁰ The show first hit Broadway in 2012 and won five Tony Awards.

Peter provided a unique opportunity for creativity; the show had very few set pieces and props and relied heavily on actors to communicate ideas and inspire the audience’s imagination. Because of its unique presentation, *Peter* appealed to an audience that was looking for something artistic and different from the typical show, and the tale of mermaids, pirates, and magic was beloved by children.

Peter had been performed in London twice: once by a young children’s group (who performed an abridged version) and once by a high school drama club. The show was intended to be performed by adults, and Gruenbauer felt that her team could do this show well and bring it to a broader London audience. Gruenbauer also saw opportunities to bring on an assistant director in this production, creating yet one more opportunity for mentorship on her team.

The rights to *Peter* would cost a flat fee of \$350 per performance plus 4.5 per cent of ticket revenue. Gruenbauer had estimated all non-personnel costs for *Peter* (see Exhibit 2). Compared to *Sweeney*, *Peter* was less well known. Gruenbauer estimated that, with the right marketing plan, she could sell between five hundred and seven hundred tickets for *Peter*—depending on price point.

THE VENUES

TAP Centre for Creativity

The TAP Centre for Creativity (TAP) featured an expansive art gallery, a multi-purpose studio space, and a small, intimate black box theatre.¹¹ The theatre sat eighty patrons, and the seats were very close to the stage. Many patrons liked the venue at TAP because it made them feel part of the show. The venue also had a relaxed feel to it, and most patrons wore casual dress.

¹⁰ “Peter and the Starcatcher,” Music Theatre International, accessed July 7, 2021, <https://www.mtishows.com/peter-and-the-starcatcher>.

¹¹ A black box theatre was a rectangular room with four walls and a flat floor, all of which was painted black. These theatres provided room for creative and interactive theatre, as directors could rearrange the audience or the stage layout to create their production.

TAP had very little parking of its own, but there were several paid parking lots that were three or four blocks away from the theatre. The location was easily accessed by public transit, but most restaurant options were a few blocks away. TAP did not have a liquor licence, but the lobby area was the art gallery itself, which featured many works to admire during an intermission. TAP charged \$700 per week plus 2 per cent of total ticket sales. The theatre could only be rented in full-week increments.

The Auburn Stage at the Grand Theatre

Located in the heart of downtown, across from some of London's top-rated restaurants, the Grand Theatre was the centrepiece of the London performance scene. The theatre had two performance halls: the first was the Spreit Stage, an 839-seat traditional theatre that hosted some of London's best professional plays and musicals year-round; the second performance hall was the Auburn Stage (Auburn), a 144-seat traditional theatre that featured a large backstage area. The high ceilings provided a lot of potential for multi-level set design.

The lobby at the Auburn was upscale and well furnished, and featured a bar with snacks and alcoholic and non-alcoholic beverages. The Grand Theatre had a large parking lot and was easily accessed by public transit.

Gruenbauer knew that the Auburn was a great location, but she wondered under what circumstances it would be worth the additional cost. The Auburn charged \$340 per day plus 7.5 per cent of ticket sales. If the show was staged at the Auburn, she would also need to pay a professional lighting technician \$27.50 per hour. Gruenbauer estimated that for each day they rented the theatre, the technician would be required for an average of six hours.

PRICE

Gruenbauer also needed to determine how to price the show. All of her venue choices were open seating, meaning that all seats in the theatre were priced the same. Approximately 85 per cent of tickets were bought with credit cards, incurring a 2.4 per cent fee. The rest of the tickets were bought with cash at the box office. For *Dogfight*, she had sold all tickets for \$25; however, she noticed that other amateur troupes were offering concession prices for certain groups such as students, seniors, or children (see Exhibit 3). She wondered whether offering a concession price to a certain group might boost her overall sales.

Regardless of which show they chose, Gruenbauer wanted to put on an eight-show run. There would be one show per day. She wanted to move into the theatre five days early to facilitate set up and two dress rehearsals in the venue. On the last day of the production, it was typical for troupes to strike the stage¹² immediately after the final show. The troupe therefore did not have to rent the theatre for an extra day to move out.

Gruenbauer was also conscious of her goal to share profits with her artists. In order to account for any unexpected expenses, and ensure that she could share profits, she wanted to price the show with a target profit of \$3,000 in mind.

¹² To strike a stage was to have the entire production team assist with tearing down and packing up everything related to the production.

PROMOTION

Gruenbauer had some time to determine promotional strategies before the show in December, but wanted to start brainstorming some ideas. She considered using her connections at the Grand Theatre to put an advertisement in the programs¹³ of professional productions throughout the seasons. This would take up most of her promotional budget, but would reach over 18,000 attendees.

Alternatively, she could focus her promotional dollars on online advertising, with targeted Google, Facebook, or Instagram adverts. Allswell had focused mostly on this form of promotion for their production of *Dogfight*. Gruenbauer had learned a lot through this process and felt that she could do an even better job targeting the advertisements this year by employing what she had learned.

Another idea she had was to use printed promotional cards in strategic places. Gruenbauer had placed some of these small cards around town for people to take for the production of *Dogfight* (see Exhibit 4). Many attractions around London were happy to support the arts and display the cards at their front desk or posters on their community boards. Gruenbauer thought that the London Children's Museum, the London Public Library, and several local cafes would display the cards if asked.

CONCLUSION

Gruenbauer was excited at the thought of staging Allswell's next show, but she had much to consider. Her artistic team was happy with the two shows they had chosen, but they only had the upfront capital to stage one show this year. She looked at a picture of the *Dogfight* cast and crew, the Allswell logo prominent in the background, and sighed, "Sure, all's well that ends well, but where does one begin?"

¹³ A program was a printed booklet given to each audience member that outlined information regarding the production, such as principal performers, synopsis, and scenes.

**EXHIBIT 1: PRODUCTION INFORMATION FOR
*SWEENEY TODD: THE DEMON BARBER OF FLEET STREET***

Personnel	Required
Actors	16
Musicians	8

Other production items	Cost (CA\$)
Sound rentals	\$ 1,500
Makeup	290
Props	660
Advertising	1,080
Set construction	1,780
Costumes	950
Total other production costs:	\$ 6,260

Source: Company files.

EXHIBIT 2: PRODUCTION INFORMATION FOR *PETER AND THE STARCATCHER*

Personnel	Required
Actors	12
Musicians	2

Other production items	Cost (CA\$)
Sound rentals	\$ 700
Makeup	200
Props	400
Advertising	700
Set construction	1,500
Costumes	600
Miscellaneous	700
Total other production costs:	\$ 4,800

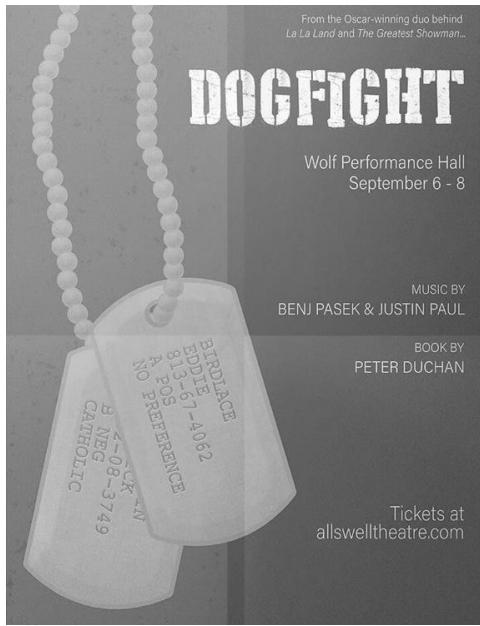
Source: Company files.

EXHIBIT 3: SELECT HISTORICAL PRODUCTIONS IN LONDON

Production	Theatre	Primary audience	Company type	Ticket price (CA\$)
<i>Seussical</i>	Palace Theatre	Families	Amateur	Children—\$15 Adults—\$25
<i>Next to Normal</i>	TAP	Young professionals	Amateur	All tickets—\$30
<i>Mamma Mia!</i>	Spiet Stage	The “regulars”	Professional	Average—\$75
<i>Gamer Boy</i> (sold-out run)	TAP	Young professionals	Amateur	All tickets—\$15
<i>Hello, Dolly!</i>	Auburn Stage	The “regulars”	Amateur	All tickets—\$35
<i>A Chorus Line</i>	Mustang Lounge	University students	Amateur	Students—\$15 Regular—\$20
<i>The Little Mermaid</i> (sold-out run)	Auburn Stage	Families	Amateur	All tickets—\$30

Note: MTP = Musical Theatre Productions; TAP = TAP Centre for Creativity.
Source: Company files.

EXHIBIT 4: *DOGFIGHT* PROMOTIONAL CARD



Source: Company files, artwork by Sarah McNeil, communication design lead, Allswell Productions.

CASH BUDGETING/CASH MANAGEMENT

Sarah Lee prepared this case under the supervision of Richard H. Mimick solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 1986, Ivey Management Services

Version: 2010-04-22

Efficient cash management is an integral part of any business. A company can go bankrupt even though it is profitable and growing simply by running out of cash. On the other hand, having excess amounts of cash sitting idle is not desirable either. The optimal situation is for a company to have sufficient cash resources on hand to meet obligations as they fall due but, at the same time, to avoid over-investment in an asset that provides little revenue. This situation can be monitored through the use of a cash budget, which projects cash inflows and outflows over a period of time.

A cash flow forecast provides the following information:

1. A schedule of the expected timing of cash receipts.
2. A schedule of priorities for paying outstanding accounts.
3. A format for planning the most efficient use of cash.
4. A measure of the significance of unexpected changes in circumstances (e.g. a drop in sales, a delay or reduction in funding as a result of tight credit situations, etc.).
5. An estimate of the amount of money needed to finance daily operations.
6. An outline to show to a prospective lender the details of cash available to make loan payments.

Since cash budgets necessarily involve forecasting the future, they are not entirely accurate or immune from changing circumstances. However, they provide a solid basis from which to start when managing the cash flows of a business.

Cash budgeting is an ongoing process, not a one-time attempt at forecasting cash needs. When actual circumstances differ from forecasted flows, the budget must be revised to determine the impact of these changes on the cash needs of the firm. Such analysis is an easy and effective way to estimate any revised cash requirements for a lender.

Why worry about cash when net profits are more likely the objective of most businesses? While profit is certainly an important figure to consider and strive to improve, cash is the life-blood of any business. The accrual basis of accounting, upon which financial accounting is based, records revenue as it is earned and expenses as they are incurred (matching principle). A net profit (or loss) is thus calculated by subtracting total expenses from total revenues over a specified period of time. However, the accrual basis doesn't reflect

the timing of cash flows (i.e. when cash is actually received or paid out). The cash flow in a given period is rarely, if ever, equivalent to the profit made during that time. But it is cash that matters when operating any company, large or small. Items such as receivables and payables, which play a large role in determining the solvency of a business, are ultimately reduced to cash. A business is solvent if it can meet its obligations as they fall due; thus, a business could continue to operate successfully with a negative profit but a positive cash flow position. A cash budget illustrates the critical effects of timing differences of actual receipts and disbursements of cash.

METHODOLOGY

Inflows

The starting point in preparing a cash budget is to identify the nature and timing of all inflows to the business. These inflows generally fall into three main categories:

1. Collections from sales (recurring over time)
2. Financing (usually one-time flows)
3. Other (could be one-time or recurring flows)

Collections from Sales

A sales forecast is the logical basis to work from, considering carefully any seasonal fluctuations in the forecast. Sales from previous years coupled with the estimates of the sales force could be used to forecast sales for the upcoming year. Preparation of the “most likely” case when the business will receive payments from sales is possible by dividing sales into cash and credit segments. An “aging” list of receivables would help in developing the payment trends in the latter section.

Financing

Financing could include additional investment(s) by the owner(s), any new loans negotiated with lenders, or issuances of stock or bonds. These sources are generally classified as long-term or permanent sources.

Other

Examples of these items would be rental income (recurring), the sale of a fixed asset (one-time), interest income (recurring), etc.

An example of the cash inflows described above would be as follows:

	JAN.	FEB.	MAR.	APR.	MAY	TOTAL
Collections:						
Cash	\$100	\$50	\$75	\$120	\$150	\$495
Credit	35	50	40	80	100	305
Financing:						
Bank Loan	750	0	0	0	0	750
Other:						
Sale of Fixed Asset	0	0	0	350	0	350
Total Inflows	<u>\$885</u>	<u>\$100</u>	<u>\$115</u>	<u>\$550</u>	<u>\$250</u>	<u>\$1,900</u>

Outflows

The second step in developing a cash budget is to determine the nature and timing of all cash outflows in a business. The main categories of cash outflows include the following:

1. Operating expenditures (i.e. rent, supplies, inventory, etc.)
2. Capital expenditures (i.e. purchase of equipment, machinery, etc.)
3. Financial commitments (i.e. interest payments and/or principal repayments)
4. Equity reductions (i.e. drawings, dividends)

Operating expenditures are divided into two categories: fixed (regular and monthly), or variable. Examples of fixed expenditures include payments such as rent, telephone, salaries, utilities, etc. Variable expenses are determined partly by sales volume (i.e. sales commission), or inventory levels (i.e. direct labor or possibly raw materials purchases).

Capital expenditures could be made in a lump sum, through a lease contract (regular payments monthly), or on installment terms.

Financial commitments include interest charges on debt, principal loan repayments, or payments to a bond sinking fund. Other commitments take the form of long-term investments. The terms of the loan or bond financing dictate the amount and timing of payments.

Equity reductions, such as drawings or dividends, are generally dependent on the amount of cash available to be paid to the owners. Unless some sort of policy has been established or payment is warranted given the specific circumstances, the amounts and timing of these outflows are determined by the owners. Once the cash budget is completed, these amounts, if necessary, can be postponed, reduced or eliminated.

An example of the cash outflows described above would be as follows:

	JAN.	FEB.	MAR.	APR.	MAY	TOTAL
Operating Expenditures:						
Direct Labor	\$50	\$50	\$50	\$50	\$50	\$250
Raw Materials	300	0	100	0	150	550
Rent	25	25	25	25	25	125
Heat, Light & Power	15	20	18	17	18	88
Capital Expenditures:						
Equipment Purchase	500	0	0	0	0	500
Financial Commitments:						
Loan Principal Repayment	0	0	0	0	100	100
Interest on Bank Loan	10	10	10	10	10	50
Equity Reductions:						
Drawings	<u>25</u>	<u>0</u>	<u>30</u>	<u>0</u>	<u>25</u>	<u>80</u>
Total Outflows	<u>\$925</u>	<u>\$105</u>	<u>\$233</u>	<u>\$102</u>	<u>\$378</u>	<u>\$1,743</u>

Total figures for cash-in and cash-out are then tabulated and compared (cash-in minus cash-out) to find the cash surplus or deficit for each month. Finally, the opening cash position for each month (which equals the cash at the end of the previous month) is added to or subtracted from the net change in cash in the current month to find the total amount of cash needed (or available) up to that point in time.

Comparing the total cash inflows of the previous two examples would result in the following table:

	JAN.	FEB.	MAR.	APR.	MAY	TOTAL
Total Inflows	\$885	\$100	\$115	\$550	\$250	\$1,900
Total Outflows	<u>925</u>	<u>105</u>	<u>233</u>	<u>102</u>	<u>378</u>	<u>1,743</u>
Cash Surplus (deficit)	<u>\$(40)</u>	<u>\$(5)</u>	<u>\$(118)</u>	<u>\$448</u>	<u>\$(128)</u>	<u>\$157</u>
Beginning Cash	<u>0</u>	<u>(40)</u>	<u>(45)</u>	<u>(163)</u>	<u>285</u>	<u>0</u>
Ending Cash	<u>\$(40)</u>	<u>\$(45)</u>	<u>\$(163)</u>	<u>\$285</u>	<u>\$157</u>	<u>\$157</u>

INTERPRETATION

Once the cash budget has been completed, the cash needs (or surpluses) for each month become evident. In the preceding example, there is a cash shortfall of \$40 in January. In February, the cash shortfall is only \$5, causing the total cash deficit after two months to be \$45. The cash deficit reaches a maximum of \$163 in March for the five-month period. However, the positive cash flow of \$448 in April is sufficient to reverse the deficit in March so that the ending cash balance is a surplus of \$285. Finally, the negative flow in May reduces the surplus in April to a closing positive cash balance of \$157. The total column serves as a check on the inflows and outflows and cumulative balances for the period.

CASE STUDY: AQUA-PURE CO.

To illustrate more clearly the mechanics of a cash budget, consider the case of David Dalberg, a young entrepreneur who had just started his own door-to-door water purifier distributorship called Aqua-Pure Co. His plans included hiring students to do the actual selling, and handling the various other business tasks himself. His immediate task was to determine how much financing the business would need in its first six months of operations.

Sales Forecast

Since the business had just been formed, there were no historical sales records on which to base sales forecasts for the upcoming year; therefore, Dalberg had to thoroughly research the market which he intended to enter. As a result of his extensive research (which included interviews with many knowledgeable people in the water purifier field as well as perusal of some published data), Dalberg came up with the following sales forecasts for the next six months.

May	40 units	August	60 units
June	45 units	September	55 units
July	50 units	October	50 units

The selling price was set at \$480 for each water purifying unit which Dalberg thought was competitive and yet still offered a reasonable profit margin. Given the nature of the water purifier industry and the fact that Dalberg was a newcomer to the business, his estimates of receivables collections were as follows:

1. Ten per cent of sales would be in cash, with the remainder on credit.
2. Sixty per cent of credit sales would be collected in the month following the sale, 30 per cent would be collected in the second month following the sale, and the remainder would be collected in the third month following the sale.
3. Due to the nature and size of the sales, Dalberg hoped for (and expected) no bad debts.

Other Sources of Cash

Since Dalberg had exhausted all of his personal savings while at school, he would need to borrow money from his parents for the initial investment in inventory and other start-up costs. His parents were willing to loan him \$10,000 at the beginning of May at an interest rate of 12 per cent per annum, payable monthly. Their rationale for the small loan was that if he intended to go into business for himself and found that he needed more money, then he should have to learn to deal with a bank. They also wanted him to start paying the loan back as soon as he could afford it, in \$100 blocks.

If additional financing was required, Dalberg thought that he could secure a line of credit at the bank. The interest charge would be 13 per cent per annum, payable monthly on the previous month-end balance.

Operating Expenses

Inventory

The wholesale price to Dalberg for the water purifiers was \$384 per unit. Dalberg planned to order 100 units initially in May, and then 50 units each month for the following five months. In this way, he would be able to slowly build up his inventory on hand for the following six-month period when sales, he hoped, would increase dramatically. Inventory purchase terms were 2/10, net 30, and Dalberg always made a policy of paying within 10 days of purchase.

Miscellaneous

Dalberg's parents were willing to rent him a room in the basement of their house until his business got off the ground. The rent per month was \$100, payable in the month incurred.

He had a telephone installed for business purposes and was to pay \$20 a month the following month in service fees. He anticipated that his average long distance bill would amount to \$50 a month, also payable in the following month.

Insurance on the inventory was \$250 for six months, payable in advance. Dalberg estimated that supplies and miscellaneous items would amount to approximately \$25 a month, payable in the month incurred.

The three persons who did the selling were each paid a base salary of \$200 a week plus a five per cent commission on total sales. Commissions were paid in the month following the month of sale.

Capital Expenditures

The only capital expenditure that Dalberg would make was for office equipment. In May, he found a second-hand desk, chair and filing cabinet in good condition for \$725 total. He planned to amortize these items over two years, at which time he hoped he would be in another office with new furniture.

Financial Commitments

The 12 per cent interest on the \$10,000 loan from his parents was Dalberg's only financial expense. He hoped to be able to start paying back the loan as early as September if he had enough cash on hand.

Equity Reductions

Since David would be living at home while running the business, he chose to take only \$50 a month in personal drawings and to keep the remaining cash in the business.

Case Analysis: Aqua-Pure Co.

A cash budget based on Dalberg's assumptions helps to determine the financing required for the first six months of operations of his new venture (refer to Exhibits 1 and 2).

The cash budget for Aqua-Pure Co. illustrates the net effect of the cash flows for the first six months of operation. The ending cash balance in July of (\$42,748) is the largest deficit balance in the six-month period. In essence, Aqua-Pure Co. must borrow approximately \$43,000 in total by July in order to remain in operation and pay all its obligations on time.

All of the last three months show positive cash flows, but they are not large enough to balance the earlier negative cash flows. As a result, at the end of October, Aqua-Pure Co. remains in a negative cash position. If external financing had been secured to cover the cash deficit, \$34,783 would still be outstanding at the end of six months.

Interpretation of a Cash Budget

Decisions arising from analysis of the cash budget generally involve how to finance a deficit position or, conversely, what to do with any surplus cash. However, before these decisions can be finalized, sensitivity analysis must be performed on various items in the cash budget to see what impact changes from the original assumptions would have on the final balances. Items to be modified are generally controllable (could be changed through management action) or uncontrollable (affected by external circumstances). Examples of controllable flows include the following:

1. Renting instead of buying assets which involve large capital expenditures.
2. Altering the amount and/or timing of dividend payouts or drawings, investment by owner(s), and sales of stocks or bonds.
3. Paying current liabilities later, possibly by negotiating extended terms or by not paying within discount limits (usually a very short time period).
4. Encouraging faster receivables collection through improved credit terms.
5. Altering the timing and amounts of inventory purchased.

Examples of flows that a business has relatively little control over but which could dramatically affect a cash budget include:

1. A change in the amount of sales.
2. A change in the timing of receivables collections.
3. A change in suppliers' prices.
4. Unexpected increases in operating expenditures that are large enough to be significant.

Modifications to the original cash budget using one or a combination of changes provide a more precise picture of the cash needs for the upcoming year. Controllable adjustments illustrate how cash could be generated internally and thus reduce the amount and/or timing of cash needed. Uncontrollable adjustments illustrate the potential variability in amount and timing of cash flows and thus affect the type and amount of financing required.

Once the cash budget has been forecasted, and critical flows modified to determine the effect on the ending cash position, decisions can be made regarding what to do with any excess cash or what type and amount of financing to secure.

When the ending cash figure in any one month contains excess cash that is not immediately required or when it has permanently increased to a higher amount than is necessary, the extra funds might be more effectively used in one of the following ways:

1. Investing in short-term income-earning investments.
2. Paying down payables which are excessively high or long past due.
3. Repaying any high-interest debt ahead of its maturity date.
4. Undertaking equipment renovations or replacement projects.

When the closing cash figure for any month(s) is negative, some type of financing is required. However, the nature of the required financing (whether it is to be short-term or long-term) is partially dependent on why the cash deficit exists. For instance, if the inflows arising from operations (i.e. sales revenue) fall short of the general operating expenditures for any one month, some form of short-term financing would be most appropriate. In general, two types exist:

1. A working capital loan
2. A line of credit

A Working Capital Loan

A working capital loan is essentially a short-term loan offered for a period from several months up to one or two years. Interest and principal repayments are calculated in many ways, depending on the particular terms of the loan.

A Line of Credit

A line of credit, on the other hand, sets an upper limit on the total amount to be borrowed but allows small amounts to be borrowed at any time until the cumulative total of these borrowings reaches the upper limit. Often, a line of credit is required to be entirely paid back at some point in the operating cycle, or one year, whichever is shorter. Interest is usually calculated on the outstanding balance at any one point in time (i.e. daily or monthly). The main advantage of securing a line of credit instead of taking out a short-term loan is that the same total amount of money can be borrowed, but only on an as-needed basis, resulting in lower interest charges.

A cash deficit might also arise because a large capital expenditure was made in a single month; in this case, some form of long-term financing would be more appropriate. The benefits to be received in the future as a result of this expenditure should be matched with the costs (i.e. interest) incurred in financing the outflow.

The specific aspects of a particular situation will determine the best use for or source of cash. Additional analysis may be required to help make this decision. Nevertheless, a cash budget is still useful for financial planning, for formulating credit and collection policies, and for planning inventory purchases. It is one of the most important tools an owner/manager has to control his or her business.

Case Analysis: Aqua-Pure Co.

The cash budget prepared using Dalberg's assumptions illustrates only a "base case" from which to begin determining the company's cash needs. Some sort of sensitivity analysis must be performed before a final decision is made.

The largest flows in the cash budget include sales revenue and inventory purchases. Since 90 per cent of sales are not collected until the months following the month in which the sale was made, Dalberg might consider some way to encourage faster payment (e.g credit terms of 2/10, net 30). Sales could also be altered by changing the unit volume sold per month either up or down to determine the impact on the cash position.

Dalberg's determination to stock up on inventory could also be putting an unnecessary strain on the young company. A revised cash budget would illustrate the cash needs when inventory purchases are based only on the sales forecasts. If sales are greater than anticipated, then David should consider the length of time needed for the goods to arrive from the wholesaler and order as soon as he sees the stock running low. In this way, if sales are lower than expected, he is not stuck with a huge level of inventory and no cash coming in.

Other adjustments could be made to see how a change (whether controlled or uncontrolled) would affect the closing cash balance. However, when altering assumptions, the changes should be realistic and significantly large so that the impact on the ending cash figure will be noticeable. For instance, in the preceding example, changing the office equipment from a buy to a lease option would have a negligible effect on the ending cash balance.

Once several adjustments have been made and the impact determined, and any other relevant factors considered, a decision on the type and amount of financing to secure can be made. The interest expense on any form of financing should be included as part of the cash outflows so that the budget is as accurate as possible. For instance, if a line of credit was secured for Aqua-Pure Co., the interest expense for each of the first three months would be calculated on the previous month-end balance. Exhibit 3 illustrates the details of these calculations.

If another form of financing was secured, then any interest expense to be included in the cash budget would be determined by the terms of the financing. When negotiating these terms, Dalberg should consider the variability in cash needs that arose from the sensitivity analysis so that he is not locked into a payment schedule that he cannot meet if one or more factors change slightly.

SUMMARY

Projecting the cash inflows and outflows for a business is a good starting point when determining the financing requirements for a firm's operations. Adjustment of certain assumptions that could easily change and/or vary dramatically helps to illustrate the sensitivity and variability in cash needs. However, the forecasted cash flows and resulting surpluses or deficits are not permanently set; a cash budget must be continually updated and modified as soon as actual circumstances vary from forecasts so that management can anticipate cash problems before they arise. This forecasting nature is what makes a cash budget so useful.

EXHIBIT 1: CASH BUDGET FOR THE MONTHS OF MAY THROUGH OCTOBER

	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	TOTAL
INFLOWS							
Sales ¹	\$1,920	\$2,160	\$2,400	\$2,880	\$2,640	\$2,400	\$14,400
Cash Receivables Collections	0	10,368	16,848	20,520	23,976	24,192	95,904
Loans	10,000	0	0	0	0	0	10,000
Total Cash In	<u>\$11,920</u>	<u>\$12,528</u>	<u>\$19,248</u>	<u>\$23,400</u>	<u>\$26,616</u>	<u>\$26,592</u>	<u>\$120,304</u>
OUTFLOWS							
Operating Expenditures:							
Inventory ²	\$37,632	\$18,816	\$18,816	\$18,816	\$18,816	\$18,816	\$131,712
Rent	100	100	100	100	100	100	600
Telephone	0	70	70	70	70	70	350
Insurance	250	0	0	0	0	0	250
Supplies,							
Miscellaneous	25	25	25	25	25	25	150
Sales Salaries	2,400	2,400	2,400	2,400	2,400	2,400	14,400
Sales Commissions	0	960	1,080	1,200	1,440	1,320	6,000
Capital Expenditures:							
Office Equipment	725	0	0	0	0	0	725
Financial Commitments:							
Interest (12%)	100	100	100	100	100	100	600
Equity Depletions:							
Drawings	50	50	50	50	50	50	300
Total Cash Out	<u>\$41,282</u>	<u>\$22,521</u>	<u>\$22,641</u>	<u>\$22,761</u>	<u>\$23,001</u>	<u>\$22,881</u>	<u>\$155,087</u>
Surplus or Deficit (Cash in – Cash out)	<u>\$(29,362)</u>	<u>\$(9,993)</u>	<u>\$(3,393)</u>	<u>\$639</u>	<u>\$3,615</u>	<u>\$3,711</u>	<u>\$(34,783)</u>
Opening Cash Balance	<u>0</u>	<u>(29,362)</u>	<u>(39,355)</u>	<u>(42,748)</u>	<u>(42,109)</u>	<u>(38,494)</u>	<u>0</u>
Closing Cash Balance	<u>\$(29,362)</u>	<u>\$(39,355)</u>	<u>\$(42,748)</u>	<u>\$(42,109)</u>	<u>\$(38,494)</u>	<u>\$(34,783)</u>	<u>\$(34,783)</u>

¹ Refer to Exhibit 2.² Inventory purchases were made within the discount period.

EXHIBIT 2: SALES AND RECEIVABLES COLLECTIONS

	May	June	July	Aug.	Sept.	Oct.
Units	40	45	50	60	55	50
Selling Price	\$480	\$480	\$480	\$480	\$480	\$480
Total Sales	\$19,200	\$21,600	\$24,000	\$28,800	\$26,400	\$24,000
Cash Sales (10%)	1,920	2,160	2,400	2,880	2,640	2,400
Credit Sales (90%)	\$17,280	\$19,440	\$21,600	\$25,920	\$23,760	\$21,600
Collections:						
Of Previous Month's Sales (60% of credit sales)	\$ -	\$10,368	\$11,664	\$12,960	\$15,552	\$14,256
Of Sales from Two Months Previous (30% of credit sales)	-	-	5,184	5,832	6,480	7,776
Of Sales from Three Months Previous (10% of credit sales)	-	-	-	1,728	1,944	2,160
Total Collections from Receivables (excluding cash sales)	\$0	\$10,368	\$16,848	\$20,520	\$23,976	\$24,192

EXHIBIT 3: INTEREST CALCULATIONS

	MAY	JUNE	JULY
Initial Closing Cash Balance	\$ (29,362)	\$ (39,355)	\$ (43,066) ¹
Additional Cash Outflow	-	(318)	(430)
Revised Closing Balance	<u>\$ (29,362)</u>	<u>\$ (39,673)</u>	<u>\$ (43,496)</u>
Including Interest			
Interest Payable Calculation: (in following month)	$(29,362 \times 13\%) \div 12 = \$ 318$	$(39,673 \times 13\%) \div 12 = \$ 430$	$(\$43,496 \times 13\%) \div 12 = \$ 471$

¹ \$42,748 closing cash balance from Exhibit 1 plus \$318 interest expense paid in June ($\$[42,748] + \$[318] = \$[43,066]$).

BLUEWATER FOOTBALL ASSOCIATION

Ian Dunn wrote this case under the supervision of Elizabeth M.A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2013, Richard Ivey School of Business Foundation

Version: 2024-04-19

It was July 31, 2012, and Marge Stewart, finance director of the Bluewater Football Association for Lambton County, Ontario, was looking forward to the summer football season's final weeks. After the playoffs, she would have a chance to look ahead to the club's next season.

Stewart had been receiving numerous requests from the association's players and their parents to support a varsity team for players aged 17 and 18. Stewart wanted to identify the cash requirements to operate a varsity team and determine whether it was financially feasible to add a fourth team to the Bluewater Football Association. She had to report her findings to the other five members of the executive next week so the organization could make a decision.

BLUEWATER FOOTBALL ASSOCIATION

The Bluewater Football Association (BFA) originated in 2006 as a not-for-profit organization in Lambton County. Lambton County's population was nearly 130,000, and it included 11 municipalities and covered a 100-kilometre radius¹ in Southwestern Ontario; however, the county's high school football program had seen a decline in participation, and only four to five schools had fielded football teams in recent years. The largest city in Lambton County was Sarnia,² and BFA fielded one travel football team, the Sarnia Sturgeon, for Lambton County youth aged 13 and 14.

The BFA operated for a seven-month period, February to August, every year. The club's mission was to provide a safe and productive environment that enabled youth to learn and apply the principles of teamwork, discipline, dedication and sportsmanship.³ The organization began to flourish by its third year when the team reached the provincial championship, finishing second in Ontario. In 2010, the BFA added two more Sturgeon teams; the club now had a peewee team for ages 11 to 12, a bantam team for ages 13 to 14, and a junior varsity team for ages 15 to 16. The Sturgeon teams competed in the Ontario Football Conference (OFC) against other travel teams from the province's cities including London, Toronto and Sudbury.

¹ www.city.sarnia.on.ca/visit.asp?sectionid=409, February 27, 2013.

² Sarnia, Ontario, is located approximately a three-hour drive west of the city of Toronto.

³ www.sturgeonfootball.com/Home.html, February 27, 2013.

The BFA relied on community support and operated entirely on a volunteer basis. Home games were played at the Norm Perry Memorial Field in Sarnia. The City of Sarnia had recently announced major renovation plans for the field, including a new score clock, updated grand stands, and artificial turf, all to be installed by April 2013.

VARSITY TEAM PROPOSAL

Demand

The Sarnia Sturgeon football program had increased the popularity of football in the Sarnia area, and as a result, many players who were graduating from the program still wanted to play competitive football. Chatham, Ontario, approximately a one-hour drive from Sarnia, was the nearest city offering a varsity football team, so many former Sturgeon players began travelling to Chatham three to four times a week to play on that city's varsity team. These players, along with many others, strongly supported the BFA adding a varsity team to the Sturgeon organization. Stewart recognized the demand for the program, but several costs would be incurred by adding another team, and the existing revenues generated by the association would not likely cover all of these additional costs. Stewart set out to determine how much financing would be needed and how the BFA should go about raising these funds if it decided to add a varsity team.

Registration Fees

The BFA charged each player \$425 to join the Sarnia Sturgeon football team. After researching other varsity teams and surveying player interest in the Sarnia area, Stewart estimated that 35 players would register for the new varsity team.⁴ Registration took place every February with all monies collected at the time of registration. BFA's registration cost per player was among the lowest in the province, resulting in a strong need for fundraising by the players and their families. The BFA had sold chocolate bars and cash calendars⁵ as past successful fundraisers. The new varsity team would be expected to raise a total of \$2,500 from fundraising, and these funds would be collected in May prior to the regular football season commencing in May.

Game Day Revenues

The regular football season consisted of eight games,⁶ and half of these games would be played at the team's home field. During home games, the BFA charged admission of \$5 per person and operated its own concession stand. Stewart projected \$500 in admission revenue for the varsity team at each of the home games. Although the schedule was not yet finalized, Sarnia's home games would likely be split evenly between June and July.

BFA volunteers operated the concession stand during home games. The concession stand sold a variety of food, including hamburgers, hotdogs, pop and chips. Concession revenues averaged \$500 per game, and food costs typically averaged 45 per cent of sales. Food costs were paid in cash during the month in which they were incurred.

⁴ A youth football team could operate with as few as 25 players, but the BFA believed an ideal team should consist of around 40 players.

⁵ A cash calendar was a raffle in which ticket holders' names were drawn each day of the month, and cash prizes were awarded to the winning ticket holders.

⁶ One game in late May, four games in June and three games in July.

Equipment Costs

The BFA would need additional equipment for the new varsity players since the association provided all protective equipment, game jerseys and equipment bags to its players (see Exhibit 1). Since sizing was difficult to estimate, the BFA typically purchased five more sets of equipment than the number of registered players per team. All equipment was purchased on credit in March and paid for one month later. The equipment was expected to last multiple seasons; therefore, it would be depreciated using the straight-line method, with no salvage value, over a five-season useful life.

Practice Facilities

Following registration, the Sarnia Sturgeon commenced indoor practices and workouts. The team used high-school facilities on weeknights. Once the weather was warm enough, outdoor practices were held at a privately owned practice field. Adding a varsity team would increase the maintenance costs at the practice field due to the additional usage. These maintenance costs included grass seed, field repair and grass cutting. Projected annual costs for the new varsity team's practice field maintenance totalled \$1,500. This cost would be spread evenly from April to August when the practice field was in use.

Other Costs

The OFC charged each team a league enrollment fee of \$500 per team and an insurance fee for liability of \$900 per team. BFA paid both costs in March.

Home games required the rental of the Norm Perry Memorial Field. The City of Sarnia charged the BFA \$200 per game for use of the field and the announcement system. The BFA paid this cost in the same month of the rental. The BFA also paid referees to officiate the home games. Referees cost \$200 per game and were paid the day of the game(s).

When the Sarnia Sturgeon team played games out of town, the team was transported by coach bus. Busing costs varied, depending on the distance to each game. In 2012, the average bus trip cost was \$2,300 per game. The BFA paid these busing costs one month following each game.

Sturgeon players and coaches were provided bottled water at games and practices. Additionally, the BFA purchased pizza for the players to eat on the bus ride home following every away game. Total food and water costs for a varsity team were projected to be \$1,600. Fifty per cent of these costs would be incurred and paid for in June and July (split evenly between these two months). The remainder of the food and water costs would be split equally among the other months in the operating period.

The BFA provided all players with matching Sarnia Sturgeon shirts for game-day. The coaching staff was also provided with similar golf shirts and hats. This apparel for a new varsity team was projected to cost \$1,000. The BFA would order and pay for the apparel in March.

LINE OF CREDIT

The varsity team would begin the operating period with no cash. The BFA had been approved for a line of credit with a \$15,000 limit. Interest would be charged at an annual rate of 6.5 per cent based on the outstanding balance at the end of each month, and payment would be due 10 days after the end of the month.

Since the organization's inception, the line of credit had been used minimally, but Stewart wondered whether the line of credit could provide the initial necessary funding for a varsity team. She planned to use and repay the line of credit as needed on a month-to-month basis. She also knew that some members of the executive were against using debt financing to start up a fourth team. Stewart wondered whether the BFA could seek corporate sponsor donations to finance the team.

Other Options

Stewart thought she would also evaluate other options to increase funding. One option was to raise registration fees to \$550 per player; however, Stewart believed that player registration might decline to 30 players at this higher fee. With fewer players, the team's food and water cost would be reduced to \$1,400. Stewart projected fundraising revenues might also decline to \$2,100 with fewer players registered.

Another suggestion was to have varsity players purchase their own protective equipment, which would save the BFA much of the equipment costs for the varsity team: the BFA would supply players with game jerseys, pants, belts, socks and equipment bags only. Stewart believed this option would not have a noticeable effect on registration numbers since players could keep the equipment and resell it in the future. Stewart wanted to know the amount of funding needed under each of these options, as well as a combination of the two options.

CONCLUSION

Stewart realized that a varsity team could benefit the organization and also help satisfy the area's demand for a team in the local community; however, her experience of adding a second and third team to the BFA had taught her that a significant amount of funds would be required. She wanted to prepare a monthly cash budget specifically for a new varsity team for the 2013 operating period to identify the funding requirements. If a new varsity team were added, she would have to recommend a registration fee and an equipment policy. Stewart sat down at her computer to project a cash budget and to analyze the results.

Exhibit 1**PROJECTED EQUIPMENT COSTS PER PLAYER**

Helmet	\$200
Shoulder pads	125
Belt	2
Pants	50
Thigh/knee pads	40
Girdle	25
Game jersey	43
Socks	5
Equipment bag	<u>20</u>
Total	<u>\$510</u>

Source: Company files.

CRAFT FARMACY: EXPANSION TO WATERLOO

Isaac Rigby and Ian Dunn wrote this case solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveycases.com. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2023, Ivey Business School Foundation

Version: 2023-11-24

It was November 3, 2022, and the vibrant buzz of another full dinner service was starting to fade as Andrew Wolwowicz settled into his usual seat at the end of the restaurant bar. Wolwowicz, executive chef and owner of Craft Farmacy, a successful farm-to-table restaurant in London, Ontario, had a big decision to make: should he open a second location in Waterloo, Ontario in early 2023?

Craft Farmacy had seen steady growth since its inception in 2017. Wolwowicz believed that the business model could be replicated in Waterloo, but he wanted to make sure the new location could generate enough revenue to cover its expenses and deliver a return on investment. Over the past year, Wolwowicz had visited similar farm-to-table restaurants in the Kitchener-Waterloo area and gathered the necessary data to assess the sales potential, expected costs, and required investments to expand to Waterloo.

CRAFT FARMACY

Craft Farmacy featured an upscale, rustic bistro style dining experience. Customers were drawn in by the fresh oyster bar, the rotating beer taps that featured regional craft breweries, and the variety of sharing plates showcasing local and fresh ingredients. Wolwowicz attributed the restaurant's success to its commitment to high-quality ingredients, a creative menu, and exceptional customer service.

WATERLOO EXPANSION

Wolwowicz wanted to assess the financial feasibility of the Waterloo location using the data he gathered on expected costs and revenue. He planned to create income statements, statements of financial position, and monthly cash budgets for the first three years of operations, beginning January 1, 2023. These projected financial statements would help him assess the risk of the new location.

Building

Wolwowicz had recently visited Waterloo and identified a promising location for the new restaurant. The 325 square metre (3,500 square foot) space was ideal for a dining area and bar, a kitchen, and a private

event room. It was quoted at CA\$14,000¹ per month starting on January 1, 2023. Payment for rent would be due at the start of each month, and no deposit was required for the lease agreement. Wolowicz knew from his experience of having opened several restaurants in the past that it would take four months from the start of the lease before the restaurant could officially open to the public.

To get the restaurant ready, there was a lot of work to be done and significant investment required. First, leasehold improvements—installing a new kitchen, upgrading the plumbing and electrical, and designing and installing the dining area and the bar—were estimated to cost \$250,000. Additionally, Wolowicz anticipated spending \$100,000 on kitchen equipment (i.e., stove hoods, ovens, fridges, pans, etc.) and \$15,000 on furniture and glassware. These costs would be paid in the first month. Wolowicz had his accountant prepare a depreciation schedule for these assets (see Exhibit 1). Starting in the second year, Wolowicz wanted to allocate \$1,000 per month to repairs and maintenance of the building and equipment.

Speaking with other regional restaurant owners, Wolowicz gathered details on the local services he would need to use starting in the first month. Local garbage collection service would cost \$1,000 per month. Internet and phone charges were quoted at \$150 per month and utilities would cost approximately \$1,200 per month. These expenses were expected to remain constant during the first three years, with the exception of utilities. The annual cost of utilities was expected to increase by \$1,000 each year.

Salaries and Opening Requirements

Wolowicz would continue to oversee the creative and strategic direction of the two locations. However, being based in London, Wolowicz knew that hiring several salaried employees to run the daily operations of the Waterloo restaurant was crucial. Specifically, the restaurant would need a general manager, an assistant manager, a chef, and a sous chef who would be paid annual salaries of \$75,000, \$55,000, \$65,000, and \$45,000, respectively. Through his industry connections, Wolowicz had some qualified candidates in mind. They would begin work one month before opening day. Salaries would be paid in monthly installments at the end of each month.

Wolowicz did not plan to draw an owner salary from the second location; however, he thought it would be reasonable to pay himself a 3.5 per cent bonus on all sales above the \$1,500,000 level. The bonus, which could be written off as an expense, would help compensate Wolowicz for the time he inevitably would spend launching and ensuring the success of the new location. Any bonus payments would be distributed in the third month after year end, once the yearly financials were completed.

In the final month before opening, an initial amount of \$30,000 in food and \$25,000 in alcohol had to be purchased to meet operational levels. To legally serve alcohol, a liquor licence was required; there was an initial fee of \$1,000² plus \$150 per year to maintain the licence, payable in April. Furthermore, one week's worth of labour costing \$15,000 was needed to train the front house and kitchen staff. Wolowicz would also hire a night porter cleaning service for \$4,500 per month. Finally, \$10,000 would be spent on a soft opening³ event to finalize the menu, work out any operational issues, and garner excitement through word of mouth for opening day.

¹ All currency amounts are in CA\$ unless otherwise specified.

² All intangible assets and licences were to be amortized over five years.

³ A “soft opening” was an unofficial opening dinner service restricted to a set guest list.

Sales and Seasonality

Once the new location was open, Wolowicz expected monthly sales to average \$175,000 for the remainder of 2023. As the new location established a customer base, Wolowicz assumed that average monthly sales would grow by 10 per cent by 2024, plus an additional 7.5 per cent by 2025. Word of mouth following a positive dining experience could drive growth, but Wolowicz believed that spending \$30,000 in each of the first three years on marketing would help break into this new market.⁴

About 95 per cent of Craft Farmacy's sales were made using credit cards. Regardless of the issuer, the cash was always deposited into Craft Farmacy's bank account by the next day. The remaining five per cent of bills were paid in cash or cheque. Most of these bills were paid in cash; occasionally, a corporate event in the private dining room would be paid by cheque. Wolowicz only expected this payment option from about 3 per cent of customers, but it delayed the cash collection by about a month. From the overall sales mix, credit card merchant fees averaged 2.3 per cent of sales, payable in the same month. Wolowicz expected a similar breakdown in Waterloo.

There were two other factors that Wolowicz wanted to account for in his sales projections. First, Wolowicz knew that the inherent seasonality of the restaurant industry would cause monthly sales to fluctuate. Second, restaurant launches tended to generate a lot of attention in the early months, which would impact the sales distribution in the first year. Speaking with local restaurant owners and examining past sales trends at the London location allowed Wolowicz to prepare a seasonality index for his projections (see Exhibit 2).

Payroll, Supplier, and Miscellaneous Costs

Wolowicz realized that when a restaurant began operations, it would incur some larger costs that would vary with sales volume. To maintain a consistent dining experience, Wolowicz estimated these costs to be a similar amount at each location. One of Craft Farmacy's competitive advantages was the exceptional customer service. As such, front house and kitchen staff payroll costs would be equivalent to 25 per cent of sales.

Craft Farmacy in London had three revenue streams: food sales (75 per cent), alcohol sales (20 per cent), and special event sales in the private dining room (5 per cent). Wolowicz determined from his research that the new restaurant would have a similar sales breakdown. Based on this information, Wolowicz estimated the weighted average cost of food and alcohol to be 32 per cent of sales.

Additionally, Canada Pension Plan and Employment Insurance contributions amounted to 17 per cent of payroll cost. Wages and government contributions were paid in the same month that the work was completed. However, Craft Farmacy's policy was to pay its food and alcohol suppliers with the corporate credit card. Wolowicz always paid off the credit card the following month, after all invoices had been processed.

Utilities, repairs and maintenance, phone and Internet, and garbage collection charges would also be paid on the corporate credit card, in addition to supplier charges. Otherwise, Craft Farmacy operated mainly on a cash basis, with expenses paid the same month in which they were incurred.

⁴ The marketing budget would be spent evenly throughout each year, beginning in January 2023.

Wolwowicz expected miscellaneous paper goods and the cash short to be 2.5 per cent of sales each, for a total of 5 per cent of sales.

To meet these working capital needs, and to cover costs, Wolwowicz preferred to keep a \$150,000 cash float at all times. However, he expected the cash to be used up during the business's early stages, to sustain operations—at least until the new location started generating sales.

Legal and Accounting

During his research, Wolwowicz discovered that reforming the business structure, acquiring the lease, and creating new supplier and employee contracts would require some legal guidance. Craft Farmacy would incur \$5,000 in legal fees for this work in January 2023. To protect the new restaurant against liability, an extended insurance policy costing \$12,000 per year would be needed. This policy would be paid in full every January.

Craft Farmacy already used the services of an accountant and bookkeeper to manage the restaurant's financials. The annual fees for these services would increase by \$14,600 with a second location. Wolwowicz would continue to pay these professional fees monthly, with the additional payments starting on the first day of the new lease. Income taxes were calculated at 12.5 per cent and paid in April of the following year.

Financing

Finally, Wolwowicz realized that Craft Farmacy would need more funding for the expansion—beyond the \$150,000 that the restaurant itself was able to provide.⁵ Craft Farmacy had recently paid off its existing loan from the London location and maintained a strong relationship with the bank. Wolwowicz was confident that the bank would extend a loan to cover any additional financing needed. Based on his projections, a conservative estimate for the annual interest rate of the outstanding loan balance would be 9 per cent. As with the previous loan, Craft Farmacy would pay off as much as possible of the debt at year end, only if the cash float was re-established. Interest payments would be made monthly.

Conclusion

Wolwowicz was pleased with the quality and detail of the data he collected for his financial assessment of the new Waterloo location opportunity. To ensure that the projections were realistic, he decided to include seasonality assumptions. After completing the projections, he hoped to further assess the feasibility and risk of the expansion by looking at his margin of safety and return on investment.

With a glass of his favourite Italian Chianti in hand, Wolwowicz got to work. He could not help but feel proud of how far the restaurant had come since its opening in 2017. Its reputation for high quality locally sourced dishes and an innovative menu had attracted a loyal customer base. Wolwowicz hoped to do the same in Waterloo.

⁵ This investment represented 100 common shares in the new business.

EXHIBIT 1: DEPRECIATION SCHEDULE (in CA\$)

Year	Opening Book Value	Declining Balance Depreciation	Year End Book Value	Accumulated Depreciation
1	\$365,000	\$45,625	\$319,375	\$45,625
2	\$319,375	\$39,922	\$279,453	\$85,547
3	\$279,453	\$34,932	\$244,521	\$120,479
4	\$244,521	\$30,565	\$213,956	\$151,044
5	\$213,956	\$26,745	\$187,212	\$177,788

Source: Prepared by the case author with company documents.

EXHIBIT 2: SEASONALITY INDEX

Year	January	February	March	April	May	June
Year 1	0	0	0	0	1.2	1.1
Standard Year	0.6	1.1	0.9	0.9	1.1	1.1
Year	July	August	September	October	November	December
Year 1	1	1	0.8	0.7	1.05	1.15
Standard Year	1.2	1.1	0.8	0.7	1.2	1.3

Source: Prepared by the case author with company documents.

INTRODUCTION TO MANAGERIAL ACCOUNTING

Scott Griffith prepared this case under the supervision of Elizabeth M.A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 1994, Ivey Business School Foundation

Version: 2022-07-06

The purpose of managerial accounting is to provide managers with information to help make decisions in planning and controlling business operations. Managerial accounting differs from financial accounting which is designed to provide a wide array of decision makers with financial information about the operating results and the financial position of a business. Financial accounting statements, presented for the business as a whole, are used primarily by **outsiders** to measure a company's **past performance**. Managerial accounting techniques are used primarily by business **insiders** to assist management in planning and controlling the operations of the business; they are useful for **future decision-making**. Since managerial accounting statements are used internally, their content is not governed by generally accepted accounting principles — the reports should contain whatever information is most useful to solve a particular problem.

The managerial accounting theory to which you will be exposed focuses on two main issues: cost accounting and business planning/monitoring. **Cost accounting** focuses on determining the costs involved in performing different business operations. The system used to account for manufacturing activities is an example of a cost accounting system that has been adopted by the financial accounting community for reporting purposes. Recall that all costs were classified as either a period cost or a product cost. The cost of goods sold figure derived from such a system measures all manufacturing costs — it can be a useful indicator of how the manufacturing department is performing. Other cost accounting systems would measure the cost of other departments such as marketing, human resources and finance.

Planning and monitoring activities are crucial managerial skills that need the support of quantitative data. Cost behavior theory is an example of a managerial accounting tool that can be helpful in business planning. Knowledge of how costs behave with respect to changes in volume (i.e. the classification of costs as either fixed or variable) is a necessary first step in assessing project risk and return through breakeven analysis or return on investment calculations.

Managerial accounting concepts to which you have already been exposed — accounting for manufacturing activities and cost-volume-profit studies — involve the manipulation of financial information in order to assist managers in making decisions. Knowledge of these concepts provides the business analyst with a fundamental base from which to work.

This note will discuss two other applications of managerial accounting theory: segment reporting (i.e. the study of assigning costs to various departments, outlets, product lines and business segments for internal performance measures) and cost-price relationships (i.e. the study of pricing strategies in relation to costs, defined in numerous ways). These techniques require knowledge of cost-volume classification and allocation rates.

SEGMENT REPORTING

A key purpose of managerial accounting is the development of financial reports for businesses that are segmented by departments, product lines or outlets. Business analysts and senior management need to know not only the overall bottom line of the company, but also the performance of its various departments, in order to evaluate the relative performance of these segments.

Departmental reports are used throughout a business by a wide array of decision makers:

- The marketing department of a large firm offering several different products may want to know the relative profitability of each product. With this information, weaker products can be identified and improved, and advertising budgets can be set to push key product lines.
- Senior management of a retail chain wants to know the profitability of each store, not just the overall bottom-line of the company. By having more detailed information on an outlet basis, store-specific advice can be offered to help improve each outlet's performance.
- Production executives of large manufacturing companies frequently rely on cost data that measure the performance of plants to help improve production efficiency.
- Individuals responsible for performance evaluation need to know the relative profitability and/or cost-effectiveness of various departments. With this information, they can evaluate whether the managers responsible for these departments are effectively performing their duties; this will assist the evaluators in conducting performance appraisals which form the basis of many promotion decisions¹.

While segment reporting techniques are most frequently used internally, they are also used by external parties such as investors and shareholders. Annual reports will often break down sales and costs on a segmented basis. For instance, Labatt's, a major Canadian beer producer with controlling interest in various other companies competing in other industries, presents the income for its brewing operations, its agricultural products, its packaged foods line, and its entertainment holdings. Unfortunately, developing these statements is not easy since some costs relate to the operation of the business as a whole, and not to any one segment. For example, which segment of Labatt's would take responsibility for the cost of executives' salaries and support staff who do not work directly for one of the four operating segments? Depending on the intended use of the statements, management would either allocate these indirect costs to the departments on some logical basis, or consider only the direct costs (thereby ignoring the indirect costs).

For short-term decisions, only **relevant** or **direct costs** should be considered. In deciding whether or not to delete a minor product line, management would only consider the direct costs of the product line. For longer-term decisions, it would be more prudent to **fully allocate** all costs to the various departments. Income statements, expressed on a segment basis, would require that **all** costs be allocated across the various departments.

A comparison of the two approaches will now be undertaken.

¹ *The measurement of segments to evaluate management performance is sometimes called responsibility accounting.*

Determining the Relevant/Direct Costs of the Segment

Direct cost of a product includes only the traceable costs incurred to produce and sell that unit. The direct costs of a business segment follow the same definition. To calculate the direct cost incurred by a department, consider only the costs that are **traceable** to the department.

Virtually all direct costs are escapable. For instance, if Big Brewery were to determine the direct costs of a certain brand of beer, hereafter referred to as Brand X, it would include the variable costs such as raw materials (like hops and yeast) used in the production of Brand X, direct labour used in the production and packaging of Brand X, the variable component of the utilities used in the production of Brand X, and sales commissions paid to sales staff selling Brand X. Simply put, if the company dropped Brand X, they would not have to pay any of the above costs.

When considering the direct cost of a unit of product, the words “variable” and “direct” are used interchangeably since virtually all traceable, direct costs of a unit of output are variable. Such is not the case when evaluating segment — some fixed costs may be directly traceable to a product line. For example, the salary of a product manager specifically responsible for the marketing of Brand X is traceable to that particular product line. This salary, while fixed, would not be incurred if the brand were not produced. The product manager’s salary, and all other direct fixed costs, should be included as a cost of the segment. The cost analyst is looking for **traceability**, not cost-volume relationships, when examining a larger cost objective such as a product line or segment.

In the case of revenue-generating segments, the cost analyst would go one step further. By subtracting all direct costs from the revenue earned by the brand, the **net contribution** of the segment can be obtained. This figure should be a positive number — if not, the company would be better off financially not operating that segment. The net positive contribution earned by the segment can then be used to offset indirect costs that apply to the business as a whole. For instance, in the case of Big Brewery, the salary of a brewmaster whose expertise is used in the production of many brands of beer would be considered an indirect cost. Elimination of the Brand X line would not eliminate the cost of this brewmaster. Other indirect costs might include the salaries of Big Brewery’s executives, the amortization of the production equipment and facilities, and the leasing costs of delivery trucks. It should be noted that the net contribution earned by Brand X and all the other brands must be greater than the indirect expenses incurred by Big Brewery as a whole in order for the business to earn a profit.

When evaluating segments on a direct costing basis, non-cash direct costs may or may not be included in the calculation depending on the intended use of the data. For instance, the amortization on a special piece of production machinery that could only be used to produce Brand X would indeed be a direct cost of Brand X; however, if Big Brewery were to calculate direct cost statements to ascertain which line, if any, is not contributing a positive cash flow, then the direct amortization cost would not be included.

Example: Segment Evaluation on a Direct Cost Basis for Acme Company

Acme Company produces three products. An Acme business analyst developed the following direct cost statements for the three product lines:

	Product A	Product B	Product C
Sales	\$ 1,000,000	\$ 500,000	\$ 100,000
Less: Variable Costs	510,000	470,000	65,000
Total Product Contribution	<u>\$490,000</u>	<u>\$30,000</u>	<u>\$ 35,000</u>
Less: Direct Fixed Costs ²	115,000	40,000	10,000
Net Contribution from Product	<u>\$ 375,000</u>	<u>\$ (10,000)</u>	<u>\$ 25,000</u>

All products earn a positive unit contribution (variable costs were less than sales for all products). However, while Product A and Product C help contribute towards fixed costs shared by the business as a whole, Product B does not. Management should consider ways to improve the profitability of Product B or should consider dropping the product altogether. Without Product B, the business would have an additional \$10,000 to cover indirect fixed costs (such as executive salaries, fixed factory costs, and administrative personnel).

Analyzing segments can provide insight that an overall “bottom line” would not. For instance, if all other fixed costs attributable to Acme Company as a whole did not exceed \$390,000 (the sum of the net contribution of all three product lines), the business would report an overall net profit. This overall net profit obscures the fact that an unprofitable product line exists.

Determining Full Cost Per Segment

Managers often wish to have full departmental income statements or cost sheets to help measure the relative performance of segments. Unfortunately, as has been discussed, some costs relate to the operation of the business as a whole, not to any one department. Thus, many costs have to be **allocated** to the various segments on some logical basis.

In selecting a manner to allocate costs, the business analyst seeks a **causal effect** between the expense and some proxy. For instance, for a retail department store:

- Occupancy costs would likely be borne by the store as a whole; hence, the rent or building amortization should be allocated on some logical basis to each department. Floor space square footage is a logical allocation proxy (departments with more floor space should bear a higher percentage of the rent). The store may even go so far as to assign specific values to specific store space so that the floor space in high traffic areas (such as the main floor near the mall entrance) would be assigned a higher value than space in lower traffic areas (such as the basement).
- Advertisements may promote the store as a whole; thus, advertising costs need to be allocated. The store may use sales dollars as a proxy, believing that those departments with higher sales benefited from the advertising more than those departments with lower sales.
- The costs of the non-revenue departments, such as the personnel and payroll offices, would also have to be allocated across the revenue-earning departments. Under the logical assumption that more employees cause more payroll work, the allocation proxy would likely be the traceable labour cost per department.

When a causal effect does not exist, an alternate method of allocating costs is necessary. Sometimes the business will allocate the remaining costs evenly across departments. Unfortunately, this is clearly unfair when some

² Includes fixed costs such as product managers, product-specific selling costs and product support costs.

departments are considerably larger than others. Other times, a traceable cost is selected as a proxy (usually direct labour, machine hours or raw materials) and an overhead allocation rate is determined that compares the unallocated indirect costs to the total proxy of the company. The analyst then multiplies the overhead allocation rate by the proxy used by the department to get an estimate for the rest of the unallocated costs.

Example: Little Retail

Assume that Little Retail had two departments. Sales and direct cost information were as follows:

	Department #1	Department #2	Total
Net Sales	\$ 250,000	\$ 150,000	\$400,000
Less: C.O.G.S	(160,000)	(80,000)	(240,000)
Direct Labour	(30,000)	(20,000)	(50,000)
Other Direct Costs	(20,000)	(18,000)	(38,000)
Net Contribution	<hr/> \$ 40,000	<hr/> \$ 32,000	<hr/> \$ 72,000

Fixed costs totaling \$70,000 were broken down as follows:

Store rent, equipment rental and utilities	\$ 30,000
Advertising and promotion	\$ 20,000
Other direct costs	\$ 20,000

These indirect costs were allocated to the two departments as follows:

Rent & Utilities

These expenses were allocated on the basis of floor space. Of the 20,000 m² of total floor space, Department #1 occupied 15,000 m² (or 75 per cent), and Department #2 used 5,000 m² (25 per cent). Thus, 75 per cent (or \$22,500) of the rent and utilities was allocated to Department #1 and 25 per cent (or \$7,500) to Department #2.

Advertising & Promotion

Advertising and promotion expenses were allocated on the basis of sales. Department #1 accounted for 62.5 per cent of total sales (\$250,000 ÷ \$400,000), versus 37.5 per cent for Department #2. Thus \$12,500 (.625 × \$20,000) of advertising would be assigned to Department #1, and \$7,500 (.375 × \$20,000) to Department #2.

Other Indirect Costs

Little Retail decided to use direct labour as a proxy to allocate the other indirect costs that lacked a causal relationship with a traceable activity base. The overhead allocation rate would be:

$$\begin{aligned}
 \text{Overhead Allocation Rate} &= \text{Other indirect costs} \div \text{Total direct labour} \\
 &= \$20,000 \div 50,000 \\
 &= 0.40
 \end{aligned}$$

Using the overhead allocation rate of 0.40, and direct labour costs of \$30,000 and \$20,000 for Departments #1 and #2 respectively, the other indirect costs were:

$$0.40 \times \$30,000 \text{ direct labour} = \$12,000 \text{ for Department } \#1$$

$$0.40 \times \$20,000 \text{ direct labour} = \$8,000 \text{ for Department } \#2$$

The departmental income statement showed:

	Department #1	Department #2	Total
Net Sales	\$ 250,000	\$ 150,000	\$ 400,000
Less: C.O.G.S	(160,000)	(80,000)	(240,000)
Direct Labour	(30,000)	(20,000)	(50,000)
Other Direct Costs	(20,000)	(18,000)	(38,000)
Net Contribution	\$ 40,000	\$ 32,000	\$ 72,000
Less: Rent	\$ (22,500)	\$ (7,500)	\$ (30,000)
Advertising	(12,500)	(7,500)	(20,000)
Other Indirect Costs	(12,000)	(8,000)	(20,000)
	\$ (47,000)	\$ (23,000)	\$ (70,000)
Net Departmental Income	\$ (7,000)	\$ 9,000	\$ 2,000

Little Retail's department statements show that Department #2 is more profitable than Department #1. At first glance, it may appear prudent to drop Department #1 since it is reporting a net loss; however, this is not necessarily true. If Department #1 were dropped, Little Retail would presumably still incur the \$30,000 rent and the bulk of the advertising and indirect fixed costs. The \$70,000 of indirect overhead costs would be absorbed by only one department. Hence, an unprofitable business segment is only a "red flag" signifying that further investigation is needed by the company.

Interpretation Problems of Fully Allocated Segment Costs

The business analyst should take considerable care when interpreting fully allocated statements. Sometimes, reality can be distorted through allocation rates. For instance, a grocery store may consider adding a soda pop vending machine in a vacant space near the store exit in order to satisfy thirsty customers. It calculates that after deducting the cost of the soda, the machine would gross \$1,600 in monthly contribution. If it costs only \$1,500 a month to rent the vending machine, then it would seem logical to install the machine. However, using cost allocation techniques, a cost analyst may determine that the vending machine would occupy 0.1 per cent of the grocery store's floor space and should be classified as a segment. Thus, 0.1 per cent of the monthly costs of all indirect fixed costs incurred by the grocery store — such as wages, store rental, advertising, etc. — would be allocated to the vending machine. If the total indirect monthly expenses for the store were, for instance, \$180,000, then \$180 (0.1 per cent) would be allocated to the vending machine, thereby resulting in a net loss of \$80/month (\$1,600 – \$1,500 – \$180). In reality, the vending machine would provide an additional \$100 in contribution that the store would not otherwise earn. With or without the vending machine, the store will incur \$180,000 per month in fixed costs; hence, the allocation of these costs to the vending machine only confuses the matter. Management may not have installed the machine because of the misinterpretation of the net loss figure and the misuse of allocations.

Allocated costs can lead to many other problems. Poor proxy selections lead to poor allocations which lead to misleading fully allocated statements. Management then can make numerous poor decisions using the contaminated allocated statements. Furthermore, management often assumes that its current cost structure is acceptable when working with fully allocated costs since the cost appears to be “official”; in fact, cost control and cost reduction may be necessary in order for the organization to remain competitive. Dysfunctional interpretation of cost allocations is one of the leading causes of poor business decisions. As a rule, when making short-term decisions, allocations should be avoided completely.

COST METHODS

The price charged for goods or services must exceed the cost of the goods or services in order for a business to achieve an operating profit; a business will not charge \$5 for a product if it costs \$7. Complications arise, however, because various definitions of cost exist. A product cost could be valued by using direct cost, absorption cost, or full cost methods. These procedures will now be examined.

Direct Cost Per Unit

The **direct cost per unit** is calculated by totaling only the **direct, traceable** costs required to produce and sell each unit of output. Only costs that would not otherwise be incurred are included in the direct cost per unit; all fixed overhead costs incurred by the business are excluded. Examples of direct costs include raw materials, direct labour and direct selling expenses.

Due to their similarity, the terms “direct cost” and “variable cost” are often used interchangeably; however, variable cost and direct cost are slightly different. For instance, the cost of indirect materials such as production supplies or grease and oil for the production machinery are considered **overhead** or **indirect** costs due to the difficulty in tracing these costs directly to a specific batch of output; however, since there is a significant correlation between supplies used in production and the number of units produced, the cost analyst would likely classify the cost as variable. This example notwithstanding, the difference between direct cost and variable cost is frequently so small that the interchangeable use of the terms would make little, if any, difference to the analysis.

Direct cost per unit is useful information for managers as it represents the **floor price** for any product or service. By charging customers only the direct cost per unit, a business would exactly cover its direct (or variable) costs and no contribution towards overhead costs would be earned.

Pricing at direct cost is a long-term recipe for business failure since none of the fixed overhead costs would ever be covered. Nevertheless, direct cost information is particularly useful when evaluating **short-term** decisions. For instance, direct cost would be the minimum price that could be charged on a special order, provided that fixed costs would not have to increase in order to accommodate the order. A business, particularly a multi-product firm that can use positive contribution earned by other products to offset the negligible contribution earned on a low-priced product, can drop its price as low as direct cost in order to combat aggressive, lower-priced competitors.

In the short term, a business will be most profitable if it tries to maximize total contribution. Overhead costs are fixed in the short term — any additional sales that can be earned above direct cost will improve total contribution. Nevertheless, businesses must also ensure that they do not hurt their long-term pricing strategy by enticing additional customers with a very low price only slightly above direct cost. For instance, consider

the pricing strategy of an airline. Most costs associated with a specific flight do not vary with the number of passengers; jet fuel and the crew are fixed costs that have to be paid whether the flight is running at 10, 50 or 100 per cent capacity. Thus, the more revenue generated from flight fares, the more profitable the flight. The airline, therefore, tries to maximize revenue by filling the plane with passengers willing to pay full fare. However, because flights often do not sell out in advance, the airline will offer a lower, last-minute stand-by fare in an attempt to generate additional revenue to offset the fixed cost of running the flight. Any revenue received that is higher than the direct costs of the incremental passenger would improve the profitability of that flight. In fact, in the very short-term, the airline could charge as little as the price of the in-flight meals and in-flight perks (such as headphones or slippers) and still benefit. Even though this strategy would maximize the contribution for a flight, an airline will not offer stand-by rates as low as direct cost per passenger because it fears that an extremely low stand-by fare might **cannibalize**³ its full-fare sales, thereby destroying its entire long-run pricing scheme. Stand-by fares are lower than full-fare sales, but they do not approach direct cost per passenger.

Unless a business has a strategic reason to price below direct cost (thereby earning a negative unit contribution on each unit sold), such a practice should be avoided. Price war survival is one of the few exceptions where a business may have to temporarily price below direct cost. Every effort should be taken, however, to ensure that the selling price does not remain below direct cost for very long since every unit sold would lose money. Another exception to the direct cost floor price would occur if direct product costs have already been paid (i.e. they are “sunk” costs), and it becomes obvious that the business needs cash immediately. “Going Out of Business” sales will frequently sell merchandise below direct cost as merchants need to liquidate their inventory in order to collect money to pay creditors. Analysis of this type of situation requires the use of the differential accounting framework which will be discussed later.

Absorption Cost per Unit

Absorption cost per unit (or the full manufacturing cost per unit) is calculated by adding an indirect factory overhead cost per unit to direct product costs per unit. To calculate the factory overhead cost per unit, managers will use a factory overhead allocation rate similar to that used in the calculation of the ending balance of the Work-In-Progress account. For instance, if direct labour were used as the overhead proxy, and costs were \$100,000 for direct labour and \$140,000 for factory overhead, a factory overhead allocation rate of 1.4 could be calculated by dividing total factory overhead by total direct labour ($\$140,000 \div \$100,000$). Thus, for every dollar of direct labour, the business would incur \$1.40 in factory overhead cost. Assume one unit of product contained \$2 of raw materials and cost \$0.50 in direct labour to manufacture. The factory overhead allocated to each unit of product would be determined by multiplying the factory overhead allocation rate by the direct labour per unit resulting in allocated factory overhead of \$0.70 ($1.4 \times \$0.50 = \0.70). The absorption cost per unit would be the total of the raw materials per unit, the direct labour per unit and the factory overhead per unit: $\$2.00 + \$0.50 + \$0.70 = \3.20 .

Absorption costs are primarily used in financial reporting. It is also useful information to have when comparing the relative efficiency of two or more plants within the same company manufacturing the same product. Plants that produce at a lower absorption cost per unit would be working at either a more efficient volume or at a more efficient cost; management could then pursue the issue further.

³ Cannibalization occurs when sales from the launch of a new product are achieved at the expense of established products within the same company. That is, the new product "steals" sales from within the company rather than from the competition.

Full Cost Per Unit

Direct cost per unit only accounts for direct costs. Absorption cost per unit only includes manufacturing costs. Full cost per unit considers **all costs involved in the normal operations of the business**, be they direct or indirect, product or period costs. Full cost per unit provides the analyst with an idea of the total unit cost incurred by a business to provide a good or service to the public at a specific volume level.

Full cost per unit is the sum of all variable costs per unit plus all fixed costs per unit. Determining per unit variable expenses should be simple, since it is likely that management collects such information in cost behavior studies. Ascertaining the per unit cost of fixed expenses is somewhat more difficult since fixed cost per unit fluctuates with changes in volume. For instance, if fixed rent costs were \$10,000, the rent cost per unit would be \$20 at 500 units of output, \$10 at 1,000 units, \$2.50 at 4,000 units, etc. Management must realize that a full cost per unit measure is only precise at one volume level; it is merely an estimate at other levels within a narrow relevant range, and must be recalculated entirely if drastic volume changes are required in a sensitivity analysis.

Since full cost per unit is only an estimate, cost analysts will often group fixed costs. One popular method is to classify all fixed product costs as **factory overhead**, and all fixed period costs (including administrative salaries, selling expenses and financing charges) as **administrative overhead**. The cost analyst will then determine factory overhead per unit and administrative overhead per unit by using overhead allocation rates. It is important to note that overhead charges relate to the business as a whole — it is not possible to determine exactly how much overhead was incurred on one unit of output. Thus, the cost analyst needs to relate these overhead expenses to an appropriate proxy. The proxy should be a **cost driver** and must be measurable on a per unit basis (i.e. it must be traceable). Common proxies include direct labour hours, direct labour cost, machine hours and raw materials.

Once a proxy is chosen, an overhead allocation rate is determined. Remember:

$$\text{Overhead Allocation Rate} = \text{Total Overhead} \div \text{Total Proxy}$$

The amount of overhead per unit can then be calculated by multiplying the overhead allocation rate by the proxy per unit. When the allocated overhead per unit is added to the direct costs per unit, a full cost per unit is determined.

Example: Nopco

Nopco used raw materials as a proxy to determine overhead allocation rates. Total raw materials for the period amounted to \$300,000, total factory overhead (FOH) amounted to \$150,000 and total general and administrative overhead (G&A) amounted to \$207,000.

$$\begin{aligned}\therefore \text{Factory Overhead Allocation Rate} &= \$150,000 \div \$300,000 \\ &= 0.50\end{aligned}$$

$$\begin{aligned}\text{Administrative Overhead Allocation Rate} &= \$207,000 \div \$300,000 \\ &= 0.69\end{aligned}$$

Thus, for every dollar spent on raw materials, \$0.50 was spent on factory overhead, and \$0.69 was spent on general and administrative overhead.

The only direct costs incurred were raw materials and direct labour. Nopco's unit costs for raw materials and direct labour were \$5 and \$4.88, respectively. Full cost per unit could then be calculated:

Raw Materials	\$ 5.00
Direct Labour	4.88
Factory Overhead	2.50 (\$5 x 0.50 FOH allocation rate)
Administrative Overhead	3.45 (\$5 x 0.69 G&A allocation rate)
Full Cost per unit	<u><u>\$ 15.83</u></u>

Some firms might simplify further by classifying all fixed costs as “overhead”, rather than separating them into factory overhead and administrative overhead components, thereby necessitating only one overhead allocation rate. Regardless of the number of overhead allocations made, once full cost per unit is determined, a business has a good idea about what price must be charged to cover **all costs**, within a narrow range of output. Full cost per unit calculations can be used to help set the long-term standard price for the product or service.

Cost-Plus Pricing vs. Demand-Based Pricing

The use of direct cost information or full cost information is often the first step in setting a product's price. Firms would like to charge a price that results in profit. They may use direct cost and add a mark-up to cover overhead cost, or they may use full cost information to help set a **normal price**. Normal price is calculated by adding a profit margin consistent with industry norms to the full cost per unit. For example, if similar firms report a profit margin of five per cent on sales, five per cent would be added to the full cost per unit to obtain a normal price. Charging normal price is an example of a **cost-plus price**; cost is determined and added to a mark-up that will lead to a desired profit level.

Intelligent pricing decisions cannot be based entirely on cost data. Businesses must also consider what consumers are willing to pay, and what competitors are charging. A calculated normal price of \$16 per unit is not acceptable if the market is only willing to pay (or competitors are only charging) \$10 per unit. Intelligent pricing decisions can only be made within the context of these external **demand** conditions.

COMBINING COST-PRICE RELATIONSHIPS AND DEPARTMENTAL STATEMENTS

The two aforementioned tools are often used in conjunction with one another to evaluate full cost per unit of a multi-product business and to develop internal transfer prices.

Full cost per unit in a multi-product firm

As discussed earlier, full cost per unit calculations include factory overhead and administrative overhead charges. If the business has more than one product, overhead charges must first be allocated to the various products. Once completed, overhead allocation rates can be developed for each department and used to calculate the full cost for each product.

Example: Vabco

Vabco produces three products and wants to calculate the full cost for each product so that selling prices can be evaluated. As well, Vabco projects a total of \$186,000 in overhead and allocated it across the three products using various logical methods. To attach this overhead on a per unit basis, Vabco employs an overhead allocated rate using direct labour hours as a proxy. Current selling prices for products A, B and C are \$11.99, \$3.99 and \$1.29, respectively.

The direct cost and overhead allocation information for Vabco is summarized as follows:

	Product A	Product B	Product C	Total
Units of Output	10,000	60,000	100,000	
Direct Labour \$	\$ 40,000	\$ 90,000	\$ 48,000	\$ 178,000
Raw Materials	30,000	60,000	20,000	110,000
Total Direct Costs	\$ 70,000	\$ 158,000	\$ 68,000	\$ 288,000
Direct Cost/Unit	\$ 7.00	\$ 2.50	\$ 0.68	
Total Direct Labour Hours	5,000	12,000	4,000	
Allocated Overhead	\$ 50,000	\$ 84,000	\$ 52,000	\$ 186,000
Overhead Allocation Rate ⁴	\$ 10.00	\$ 7.00	\$ 13.00	
Direct Labour Hours/Unit of Output	0.5	0.2	0.04	

By multiplying the direct labour hours per unit of output by the overhead allocation rate, Vabco can calculate the allocated overhead per unit. This number is added to direct cost per unit to get full cost per unit:

	Product A	Product B	Product C
Direct Cost/Unit	\$ 7.00	\$ 2.50	\$ 0.68
Overhead Allocated per Unit (overhead allocation rate x labour hours/unit)	\$ 5.00	\$ 1.40	\$ 0.52
Full Cost per Unit	\$ 12.00	\$ 3.90	\$ 1.20

All prices are close to the full cost per unit, although Product A has a slightly higher full cost than its price. While it is likely that Vabco is currently making an overall profit, management may want to review the cost structure of Product A to see if improvements can be made.

Transfer Prices

A transfer price is the amount charged by one segment of an organization for a product or service that it supplies to another segment of the same organization. Transfer prices can be used to assist managers in evaluating the cost-effectiveness and decision-making skills of segment managers. One management philosophy states that in larger businesses with several operating segments, the company as a whole will benefit the most when each segment is managed as an independent business.

⁴ The amount of overhead to be applied for every hour of direct labour, calculated as: Allocated Overhead per Product Line ÷ Total Direct Labour Hours per Product Line.

There are many possibilities in deciding on transfer prices from one department to the next. Transfer prices can be set on cost, can be based on market conditions (such as the price to purchase a similar product from outside the company), or can be negotiated between the two departments.

Approximately half of the companies in the world transfer items at cost. Thus, it is necessary to measure cost per unit on a department basis. However, as we have shown, there are several definitions of cost. Some firms use only direct cost, some use full cost, and others use full cost plus a profit mark-up. Yet another possibility is to measure the cost of **value added** (i.e. the cost of additional raw materials and direct labour).

Example: Demcor (Value-Added Transfer Price Example)

Demcor manufactured pewter candlestick holders. During the production process, raw pewter was molded by the forming department, then transferred to the finishing department where it was finished, polished and packaged.

Over the course of a month, 23,000 candlestick holders were formed by the forming department and transferred to the finishing department. By the end of the month, the forming department had incurred total costs of \$11,500 in direct labour, and \$92,000 in raw materials. The direct costs per unit incurred by the forming department were:

Raw materials per unit	= \$92,000 ÷ 23,000 units = \$4.00/unit
Direct labour per unit	= \$11,500 ÷ 23,000 units = \$0.50/unit
Total direct cost per unit (forming)	= \$4.50

The \$4.50 actual direct cost of the forming department could then be compared to a budgeted standard cost or a market price (if available) to evaluate the department's cost effectiveness. Managers of the finishing department might also compare the \$4.50 direct cost to the cost charged by other suppliers to determine whether it would be cheaper to purchase the formed pewter elsewhere.

If the Finishing Department completed only 21,600 units and incurred an additional total of \$4,320 in raw materials and \$27,000 in direct labour, the direct cost per unit of the value added by the Finishing department would be \$1.45.⁵

Total direct cost of the product could be calculated by adding the total of the direct costs per unit of each department. Therefore, Demcor had a direct cost per unit of \$5.95 per unit (\$4.50 + \$1.45).

Full Cost Transfer Prices

Transfer prices may also be set using full cost. Overhead costs would be allocated across the departments and an overhead allocation rate would have to be calculated in order to allocate overhead costs on a per unit basis. The full cost transfer price would be the sum of both the direct costs and the allocated overhead costs.

⁵ Raw Materials = \$4,320 ÷ 21,600 units or \$0.20/unit. Direct Labour = \$27,000 ÷ 21,600 units or \$1.25/unit.

Returning to the Demcor example, assume factory overhead totaling \$57,810 and administrative overhead totaling \$49,680 was allocated to the departments in the following way:

	Forming	Finishing
Allocation factory overhead	\$ 20,010	\$ 37,800
Allocated administrative overhead	24,840	24,840

Departmental overhead rates were calculated on the basis of direct labour cost. Direct labour for the forming and finishing departments totaled \$11,500 and \$27,000, respectively. Therefore, the overhead allocation rates were:

	Forming	Finishing
Factory overhead allocation rate (Overhead ÷ Direct Labour)	<u>\$ 20,010</u> \$ 11,500 = 1.74	<u>\$ 37,800</u> \$ 27,000 = 1.40
Administrative overhead allocation rate	<u>\$ 24,840</u> \$ 11,500 = 2.16	<u>\$ 24,840</u> \$ 27,000 = 0.92

Thus, the full cost incurred by each department to produce one candlestick holder was:

	Forming	Finishing
Raw Materials	\$4.00	\$0.20
Direct Labour	0.50	1.25
Factory Overhead	$(1.74 \times \$0.50) = 0.87$	$(1.40 \times \$1.25) = 1.75$
Administrative Overhead	$(2.16 \times \$0.50) = 1.08$	$(0.92 \times \$1.25) = 1.15$
Total	\$6.45	\$4.35
(Add transfer price from forming dept.)		\$6.45
Full cost		= \$10.80

Possible Difficulties with Transfer Prices

The biggest concern with transfer prices is that they may cause dysfunctional behavior by encouraging competition, rather than co-operation, within an organization. For instance, assume that the managers of Demcor's divisions were judged on profitability, and transfer prices were based on cost plus a profit margin. The manager of the forming department could complain that the profit margin that he is allowed to charge to the finishing department is too low. He complains that he cannot meet his targets because the system is unfairly weighed in favor of the finishing department. The finishing department manager may complain that the price that he is charged in order to obtain an unfinished candlestick holder from the forming department is too high, thereby reducing his department's profitability through no fault of his own. Both managers start lobbying in their own best interest to get transfer prices changed, thereby creating significant inter-departmental animosity.

Methods to combat this problem in order to promote goal-congruent behavior from segment managers in decentralized organizations are beyond the scope of this note and are discussed in advanced managerial accounting courses.

SUMMARY

Of the many uses for managerial accounting, two of the most important are the evaluation of business segments and costing methods. These evaluations require that managers have some knowledge of how costs behave in relation to changes in volume, and how overhead rates can be applied to calculate full cost information.

Managers should be aware of the variety of costing techniques available for evaluating product price or business segments, and should select the one that best suits their needs. Short-term decisions such as the immediate elimination of a product line, or the setting of a short-term floor price, require **direct costing** techniques. **Absorption costing** techniques are necessary for financial statement preparation and become valuable when determining the total manufacturing costs of various product lines. **Full costing** allows management to weigh the relative performances between departments and provides a basis for setting long-term prices.

Answers to the questions “How much does that cost?” and “Is the segment making money?” will depend largely on the definition of cost that is used. Informed business managers should know the various definitions and techniques that can be adopted to answer these questions, so that the proper analysis is used in the appropriate scenario.

GLOSSARY OF TERMS

Variable cost — a cost that changes in direct proportion to changes in the volume of an activity level (such as units of output).

Fixed cost — a cost that **does not** change in direct proportion with changes in the volume of an activity level.

Direct cost per unit — the sum of all traceable costs per unit. Very similar to variable cost per unit.

Absorption cost per unit — the sum of the direct product costs per unit plus allocated factory overhead cost per unit.

Full cost per unit — the sum of all costs, product/period, fixed/variable, expressed on a per unit basis. Full cost per unit = direct cost per unit + allocated factory overhead per unit + allocated administrative (or period) overhead per unit.

Product cost — a cost related to the manufacturing of inventory. Until the goods are sold, these costs represent an asset (inventory). Product costs include direct materials, direct labour and factory overhead.

Direct product costs — a traceable expenditure related to the manufacturing of a product. Generally, only direct labour and raw materials are considered direct product costs. Direct period costs (such as direct selling expense) are not included.

Period cost — an expense incurred in the operation of business rather than in the manufacture of product. All selling, administrative and financing costs are considered period costs.

Indirect cost — a cost (such as fixed overhead) that applies to the business operation **as a whole** which cannot be traced to a single unit of output or an individual segment. When expressing costs on a per unit basis, all fixed costs are considered indirect. When expressing costs on a segment basis, indirect costs are sometimes called **shared costs**.

Proxy — an activity base (such as direct labour, machine hours, or raw materials) that is used in the development of overhead allocation rates. The activity base must be measurable in the unit of output (segment), it must be spread evenly across the production process (or incurred evenly across all segments), and must be a causal factor in the incurrence of overhead costs (i.e. a cost that “drives” overhead costs).

Overhead allocation rates — a method of assigning indirect overhead costs to individual units of product or segments. The rate expresses the expected relationship between overhead and some activity base (proxy) that can be traced directly to the product or segment. The rate is calculated by dividing overhead by the chosen proxy. Overhead is then assigned to products or segments in proportion to this activity base.

Normal price — full cost per unit plus a profit margin consistent with industry norms.

Cost-plus price — a price derived by adding a mark-up to cost. Normal price is an example of a cost-plus price.

Demand-based price — a price that is selected after consideration of external factors such as the consumers’ willingness to purchase the product, competitive prices and industry conditions. Virtually all products should be priced according to demand.

Business segment — a part of the business (as opposed to the business as a **whole**). Examples of segments include: departments, outlets or product lines.

Relevant or direct segment costs — all costs, fixed or variable, that can be traced directly to an individual department. These costs would be escapable if the segment is dropped and are not shared with any other department.

Fully allocated segment costs — the result of assigning all costs incurred by the business to the various segments on some logical basis. Makes use of overhead allocation rates.

Dysfunctional interpretation of allocations — the misuse of allocation rates. This is a leading cause of poor decision making. For instance, there is a tendency to assume that a company’s cost structure is fine once allocations are used when, in fact, cost reduction may be necessary. As well, selection of a poor proxy can lead to deceptive allocations which, in turn, can lead to bad decisions.

Transfer price — the price charged by one department of an organization for a product or service that it supplies to another department in the same organization.

Value-added — the incremental benefit (usually measured in dollars) provided by a department in the production-selling chain.

SOURCES

Larson, Kermit D., Zin, Michael and Nelson, Morton. *Fundamental Accounting Principles*, Richard D. Irwin Inc., 1990.

Meigs, R.F., Meigs W.B., Lam W.P. *Financial Accounting*, McGraw-Hill Ryerson Limited, 1991.

Horngren, Charles T., Sundem, Gary L., Teall, Howard D. *Management Accounting*, Prentice-Hall Canada Inc., 1994.

Horngren, Charles T., Harrison, Walter T., Lemon, W. M., *Accounting —Canadian Edition*, Prentice-Hall Canada, 1991.

TREASURE TROPHY COMPANY

Elizabeth M.A. Grasby revised this case (originally Ingersoll Trophy Company, written by Omar Bolli under the supervision of J.D. ffollott) solely to provide material for class discussion. The author does not intend to illustrate either effective or ineffective handling of a managerial situation. The author may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2014, Ivey Business School Foundation

Version: 2023-05-31

Bob Morden, Treasure Trophy Company's new general manager, was about to set the selling prices for an order from the Royal Golf Club. The club had requested quotes before deciding on their purchase. Morden wondered what his own company's (i.e., the manufacturer's) costs were for filling the order so that he could provide a competitive quote on the order.

Treasure Trophy Company (Treasure) manufactured trophies for all kinds of sports, businesses and celebratory events. All trophies were made to order, sometimes for retail stores and sometimes directly for the organizers of the events. Several trophy manufacturers competed for this business, and since their capabilities were about the same, prices were set with reference to a fairly narrow competitive range. Treasure used a job order system of cost accumulation. The company did not use a standard cost system since its products were all customized.

The manufacturing process was divided into three departments: forming, finishing and assembly. The raw materials were machined to make up finished parts in the forming department. In the finishing department, these parts were sanded, polished, lacquered or subjected to whatever other finishing operations the job required. Any engraving was done in the finishing department. The assembly operation involved joining parts together to form the trophy, which most commonly meant gluing. Decals might also be glued onto trophies in the finishing department, particularly in the case of less expensive trophies that had little or no engraving. The company's budgeted costs for the year 2014 are shown in Exhibit 1.

A single supervisor oversaw all three departments. His responsibilities included scheduling orders, ensuring that schedules were met, and verifying that trophies were produced to specifications.

The costs shown for shipping did not include any allocation of rent or light and heat. The entire factory building was rented. It had a floor area of 15,000 square feet. The forming department contained 4,000 square feet; the finishing and assembly departments each occupied 3,000 square feet, and the remainder of the building was used for offices, material storage, and shipping and receiving.

The forming department had two machines, each rated at 15 horsepower, and the finishing department had two 10-horsepower machines. All work in the assembly department was done by hand. The machines in the forming department had originally cost \$360,000, and the ones in the finishing department had cost

\$240,000. All machinery was depreciated over 10 years using the straight-line method with no estimated residual value. Insurance expense was calculated based on the historical cost of the machines.

The best estimate for repairs expenses was based on the proportionate horsepower of the machines. No supplies were required for the forming department since all the material used was considered a direct material cost. Supplies expenses were roughly equal for the finishing and assembly departments.

A job cost sheet was prepared by the supervisor for every order processed by the company. Exhibit 2 contains an incomplete job cost sheet for Job Order No. 35, which required 80 golfing trophies.

The budgeted direct labour cost of \$210,000 was made up of \$56,000 for the forming department, \$84,000 for the finishing department, and \$70,000 for the assembly department. Exhibit 3 contains a cost assignment and allocation worksheet, which had recently been designed by the supervisor.

Morden sat down to set a price for the Royal Golf Club order. To begin with, he wondered what Treasure's costs were for filling the order. As well, he was concerned about what factors should be taken into account in the pricing process and what price should be quoted on the order.

EXHIBIT 1: BUDGETED COSTS FOR 2014

Direct labour	\$210,000
Direct material	140,000
Supervision	51,500
General manager's salary	105,000
Supplies	42,000
Shipping ¹	30,000
Power	13,500
Rent	54,000
Light and heat	18,000
Depreciation on machinery	60,000
Insurance on machinery	6,000
Repairs	6,500
Selling expenses	70,000
Administrative expenses	33,500

¹ Includes costs for shipping finished goods to customers only.

EXHIBIT 2: JOB COST SHEET



Treasure Trophy Company

Customer:	Royal Golf Club Box 11258 Carstairs, Alberta	Date:	April 6, 2014			
		Job Order No.:	35			
Order No.	3515	No. of Units:	80			
<hr/>						
Department	Material Cost	Hours	Labour Rate	Labour Cost	Overhead Applied	Total
Forming	\$301.00	10.0	\$14.00	\$140.00		
Finishing	—	15.0	21.00	315.00		
Assembly	—	10.0	17.50	175.00		
Total	\$301.00	35.0	—	\$630.00		

EXHIBIT 3: ANNUAL COST ASSIGNMENT AND ALLOCATION WORKSHEET

	Total	Forming	Finishing	Assembly
Direct Costs				
Direct labour	\$210,000	_____	_____	_____
Direct material	140,000	_____	_____	_____
Total direct costs	350,000	_____	_____	_____
Factory Overhead Costs				
Supervision	51,500	_____	_____	_____
Supplies	42,000	_____	_____	_____
Power	13,500	_____	_____	_____
Rent	36,000	_____	_____	_____
Light and heat	12,000	_____	_____	_____
Depreciation, machinery	60,000	_____	_____	_____
Insurance, machinery	6,000	_____	_____	_____
Repairs	6,500	_____	_____	_____
Total factory overhead costs	227,500	_____	_____	_____
Administrative Costs				
General manager's salary	105,000	_____	_____	_____
Shipping	30,000	_____	_____	_____
Rent	18,000	_____	_____	_____
Light and heat	6,000	_____	_____	_____
Selling expenses	70,000	_____	_____	_____
Administrative expenses	33,500	_____	_____	_____
Total administrative expenses	262,500	_____	_____	_____
Overhead Application Rates				
Factory overhead application rate (FOH expenses ÷ Direct labour)	_____	_____	_____	_____
Total overhead application rate (Total expenses ÷ Direct labour)	_____	_____	_____	_____

HOSPITALITY SERVICES — EATERY CHALLENGES

Richard Bloomfield wrote this case under the supervision of Elizabeth M.A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) publishcases@ivey.ca; www.iveypublishing.ca.

Copyright © 2016, Ivey Business School Foundation

Version: 2023-04-12

It was May 15, 2015, and Kevin McCabe, the associate director of Hospitality Services (HS) at Western University (Western), London, Ontario, Canada, had some tough decisions to make regarding food sales at The Nucleus¹ eatery in the Natural Sciences Centre and at the eatery in the nearby Medical Sciences Centre. Together, these two destinations were the second-largest generator of food sales on Western's campus, outperformed only by Centre Spot, located in the University Community Centre (UCC).

Demand at The Nucleus had outstripped its capacity, causing long wait times and severe bottlenecks in service, especially at its full-service Tim Hortons outlet. Seating capacity was also well short of demand, and no additional space was available for expansion in the Natural Sciences Centre. McCabe was also under pressure to close the Medical Sciences Centre eatery due to its lack of profitability. However, if this eatery closed, McCabe expected that an increase in traffic would put further strain on the nearby Natural Sciences Centre eatery The Nucleus.

FOOD SERVICES IN CANADA

The food services industry in Canada, including full-service restaurants, institutions, caterers, and drinking places, generated \$71.1 billion² of revenue in 2014.³ Overall, the 3.9 per cent growth in the food services industry had outpaced the Canadian gross domestic product⁴ growth of 2.0 per cent.⁵ Ontario, however, had experienced a 4.6 per cent growth in 2014.⁶ The industry was competitive, resulting in operating profit margins ranging between 2.6 per cent and 3.6 per cent, depending on the level of service provided.⁷ For example, full-service restaurants often earned lower margins due to higher labour costs.

¹ For the purposes of this case, Einstein's Library, located immediately next to The Nucleus eatery and containing a "We Proudly Brew Starbucks" counter is considered to be part of the same operation.

² All currency in Canadian dollars unless otherwise specified.

³ fsStrategy Inc., "2014 Canadian Institutional Foodservices Market Report," February 2014, accessed November 27, 2015, www.restaurantscanada.org/Portals/0/Non-Member/2014/Research_Canadian-IFS-Market-Report-SAMPLE.PDF.

⁴ Gross domestic product (GDP) refers to the total value of goods produced and services provided in a country during one year.

⁵ Trading Economics, "Canada GDP Annual Growth Rate, 1962–2015," accessed November 27, 2015, www.tradingeconomics.com/canada/gdp-growth-annual and <http://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG>.

⁶ Statistics Canada, "Monthly Receipts for Food Services and Drinking Places, by Province and Territory," September 2014 to September 2015," accessed November 27, 2015, www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/econ92-eng.htm.

⁷ Statistics Canada, "Food Service and Drinking Places (Ontario)," 2008–2011 (preliminary), February 25, 2014, accessed November 27, 2015, www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/serv42g-eng.htm.

INSTITUTIONAL FOOD SERVICES

Institutional food services often operated differently from their commercial counterparts. University food services exemplified this difference due to their self-contained geographic locations, and less focus on profitability; rather, financial success was often defined as the operation breaking even (no profit or loss) annually. In addition, most on-campus food services considered student satisfaction of the most importance and this satisfaction was viewed as a critical component of an esteemed academic institution. Institutional food services between different universities regularly shared information to better understand evolving consumer demands. Publications such as *Foodservice and Hospitality* and *Campus Dining Today* were key resources for sharing these institutions' success stories.

HOSPITALITY SERVICES AT WESTERN UNIVERSITY

HS was in charge of all food services offered at Western. HS managed five divisions: cash operations, residence operations, conference operations, catering, and vending services. HS reported to Western's management, and each division was treated as a separate profit centre. HS employed more than 600 staff across 20 separate campus operations.⁸ Although HS was a division of the university, it operated as an independent business, with its own set of corporate goals (see Exhibit 1). Each year, HS paid an occupancy fee to Western for the space occupied by the restaurants and general dining areas.

Cash operations represented HS's second largest division with fiscal 2014 gross sales of \$11.2 million. This division was responsible for opening new restaurants on campus and the current performance of existing operations. This division strove to provide Western's campus with both the most popular restaurants and the highest level of convenience. HS regularly conducted market research surveys across campus to better understand the needs of the student, staff, and faculty markets.

Kevin McCabe

Food services had always been a passion for McCabe, a Western alumnus. Prior to becoming the assistant manager for Snack Bar Operations at Western (1992 to 1999), McCabe had been a district manager for McDonald's (1987 to 1991). Since 1999, McCabe had been HS's associate director, assuming the roles of financial controller, franchise developer, and operations and concept developer. In 2005, McCabe was elected the president of the Canadian College and University Food Service Association, a testament to his extensive food services experience. In 2012, Great Hall Catering was merged into McCabe's existing portfolio.

Over the past 11 years, HS had earned positive financial results despite rapidly changing consumer tastes over the same period. McCabe reported to HS's director Frank Miller. The two men had been working together for more than a decade, during which time they developed a very strong relationship.

During McCabe's time as associate director, Western's HS had consistently ranked second or third in the *Globe and Mail*⁹ survey for top university food service departments in Canada. Western HS's goal was to achieve, through constant menu innovations, the *Globe and Mail*'s national first place spot as voted by students.

⁸ Western University, "About Hospitality Services," accessed June 12, 2015, www.hospitalityservices.uwo.ca/aboutus.cfm.

⁹ The *Globe and Mail* was the number-one nationally syndicated newspaper in Canada based on weekly readership of almost one million. Susan Krashinsky, "Globe Readership Climbs, in Print and Online," *Globe and Mail*, August 23, 2012, accessed November 27, 2015, www.theglobeandmail.com/report-on-business/globe-readership-climbs-in-print-and-online/article575297/.

Consumers

HS categorized its customers into two main groups: students and employees (faculty and staff). Overall, the buying behaviour of these groups was constantly changing. For example, greater consumer awareness of the importance of a well-balanced lifestyle, including healthful and often ethically sourced fresh foods, had demanded that menu offerings evolve at Western.

Students

By 2015, more than 31,000 students attended Western, of which 90 per cent were full-time students.¹⁰ During the school year, students had busy and varied schedules, often balancing extensive extra-curricular activities with demanding academic expectations; consequently, students often required and expected fast service during their 10-minute breaks between classes. As well, typically, a lunchtime rush occurred between 11 a.m. and 2 p.m. on weekdays with sporadic demand throughout the rest of the day.

Students had increasingly demanded healthier and more nutritious food options; however, they still expected familiar brand names. They also valued friendly service and were price-conscious because many were living on student loans. The momentum of recent food education trends had influenced students, demonstrated by their willingness to spend more money if they knew the food was healthful and of higher quality.¹¹ In general, the student population was a much more discerning group than five years earlier. Furthermore, student demands had driven a rapid and steady increase in international cuisine.

Employees

Almost 4,000 full-time faculty and staff were employed at Western.¹² Many faculty and staff brought their own lunches from home and used the university-supplied shared fridges or common kitchens. Faculty and staff also frequently purchased food on campus, and their criteria for food services were similar to those of the students. Typically, a freshly prepared meal with the highest quality ingredients was the most important purchasing factor for this group. Generally, employees selected restaurants that were located closer to their offices, and had lunch breaks that coincided with the students' peak demand times, although faculty and staff usually had more time to eat their lunch.

THE NUCLEUS AND MEDICAL SCIENCES EATERIES

Centrally located on campus, the Natural Sciences Centre building was next to the Medical Sciences Centre building and both were adjacent to one of the busiest bus stops at Western (see Exhibit 2). Being a short distance from the Social Sciences Centre, these eateries not only served science students but also frequently attracted many social science students¹³ who chose not to buy their food at the Centre Spot in the UCC, the largest eatery on campus. The UCC was adjacent to the Social Sciences Centre building. Due to its central location on campus, the UCC was often extremely busy, especially during peak hours. In addition, multiple university-sponsored events and promotions frequently occupied significant space in the UCC during the school year, steering more foot traffic to the building. The Medical Sciences Centre eatery was located in the middle of the Medical Sciences

¹⁰ Western University, "Facts & Figures 2013-14," accessed November 27, 2015, www.uwo.ca/about/whoweare/facts.html.

¹¹ Quality food was increasingly defined as not only fresh but, when possible, also ethically and locally sourced.

¹² Western University, "Facts & Figures 2013-14," op. cit.

¹³ Social Science was the largest faculty on campus with 6,674 undergraduate students enrolled in 2015.

Centre building, and students often had a hard time finding it, so they opted for The Nucleus, located near the Natural Sciences Centre building's front entrance (see Exhibits 3 and 4). During peak hours, lineups at The Nucleus were very long and often no seats were available in the dining area.

Alongside other miscellaneous university food offerings (including drinks, soups, bagels, and other small food items sold directly by HS), The Nucleus eatery operated four different franchises: Mucho Burrito, Pizza Pizza, Teriyaki Experience, and Tim Hortons. A "We Proudly Brew Starbucks"¹⁴ counter was also available in Einstein's Library but McCabe did not treat this operation as a separate franchise. Although Einstein's Library provided some additional seating close to The Nucleus eatery, the combined 243-person seating capacity was not sufficient for demand, nor did it help shorten the lineups for hot food in The Nucleus. The Medical Sciences Centre eatery was smaller and, beyond the university's miscellaneous food services, housed only two franchises: Tim Hortons¹⁵ and Teriyaki Experience.

HS could not rent more space in the Natural Sciences Centre for seating, but McCabe wondered what else could be done to fix this problem. The Nucleus and the Medical Sciences Centre eatery represented 18.7 per cent of HS's gross sales;¹⁶ however, despite growth and consistent profitability year over year at The Nucleus, the Medical Sciences Centre eatery had struggled to remain profitable in recent years (see Exhibits 5 and 6). With pressure from Western's administration to close the least profitable operations, McCabe wondered how he could best manage the extra demand at The Nucleus if the Medical Sciences Centre eatery were to close. Or should the Medical Sciences Centre eatery be closed?

Equally under consideration, McCabe also wondered whether the current franchise offerings still fit the desires of Western's rapidly changing customers. He compiled information on each franchise to better compare their individual successes (see Exhibit 7).

HS incurred numerous indirect costs annually. McCabe believed that it made the most sense to allocate these indirect costs equally across all restaurants; however, he used a different allocation rationale for equipment and repairs, telephone expenses and occupancy charges. In general, as the franchise aged, more money had to be spent to maintain it; therefore, McCabe allocated these costs based on the age of the restaurant (see Exhibits 8 and 9). Because the telephone was not directly related to an individual franchise, the entire expense was allocated to miscellaneous university food sales. Finally, occupancy charges were allocated based on sales volume using the rationale that a busier franchise likely occupied more seating space.¹⁷

MOVING FORWARD

Previous expansions in the UCC food services offerings had proven that the largest deterrent to sales were long lineups. If students saw a long lineup, they simply chose not to make a purchase. This response became abundantly clear when HS opened a Starbucks franchise between The Spoke¹⁸ and a Tim Hortons franchise in the UCC. Despite coffee sales driving all three of these restaurant's revenues, HS experienced no cannibalization of sales. In fact, Tim Hortons' sales actually increased 7 per cent the year after Starbucks' opening.

¹⁴ "We Proudly Brew Starbucks" indicated the right to sell Starbucks coffee at a single location, not a franchise store.

¹⁵ The Tim Hortons in the Medical Sciences eatery did not offer a full menu, only beverages and pastries.

¹⁶ In fiscal year 2014, The Nucleus earned \$320,952 of profit on \$1,750,549 in sales, and the Medical Sciences eatery lost \$7,417 on \$274,473 of sales.

¹⁷ The cost of occupancy related to space rented from the University, and the amount increased by 3 per cent annually regardless of sales volume.

¹⁸ The Spoke, a cafe and social space owned by the student government, served certified fair trade coffee and a small menu of lunch items.

Later, a new express Tim Hortons “pop-up” model was presented to McCabe. In this scenario, a booth allowed customers to choose and fill their own coffee before checking out. The booth could be installed for no additional capital costs; however, Tim Hortons would charge a higher royalty fee of 8 per cent for this operation model based on its convenience. Although this alternative was attractive, McCabe knew it would occupy currently used seating space from The Nucleus’s already cramped dining area.

CONCLUSION

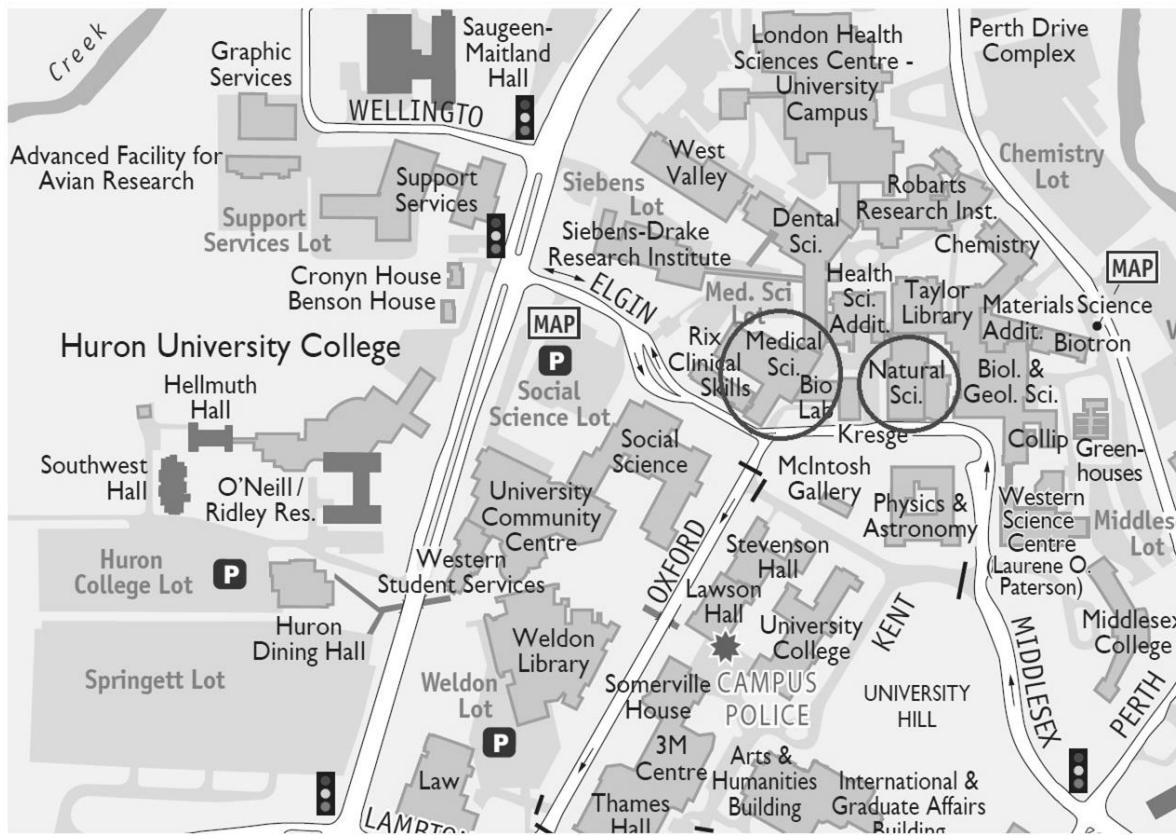
Regardless of his final decision, McCabe wanted to examine each franchise’s profitability at both The Nucleus and the Medical Sciences Centre eateries. Once he completed his assessment, McCabe believed he would have a better idea of how to tackle the current capacity and profitability issues.

EXHIBIT 1: WESTERN UNIVERSITY'S HOSPITALITY SERVICES DIVISIONAL GOALS, 2014–2015

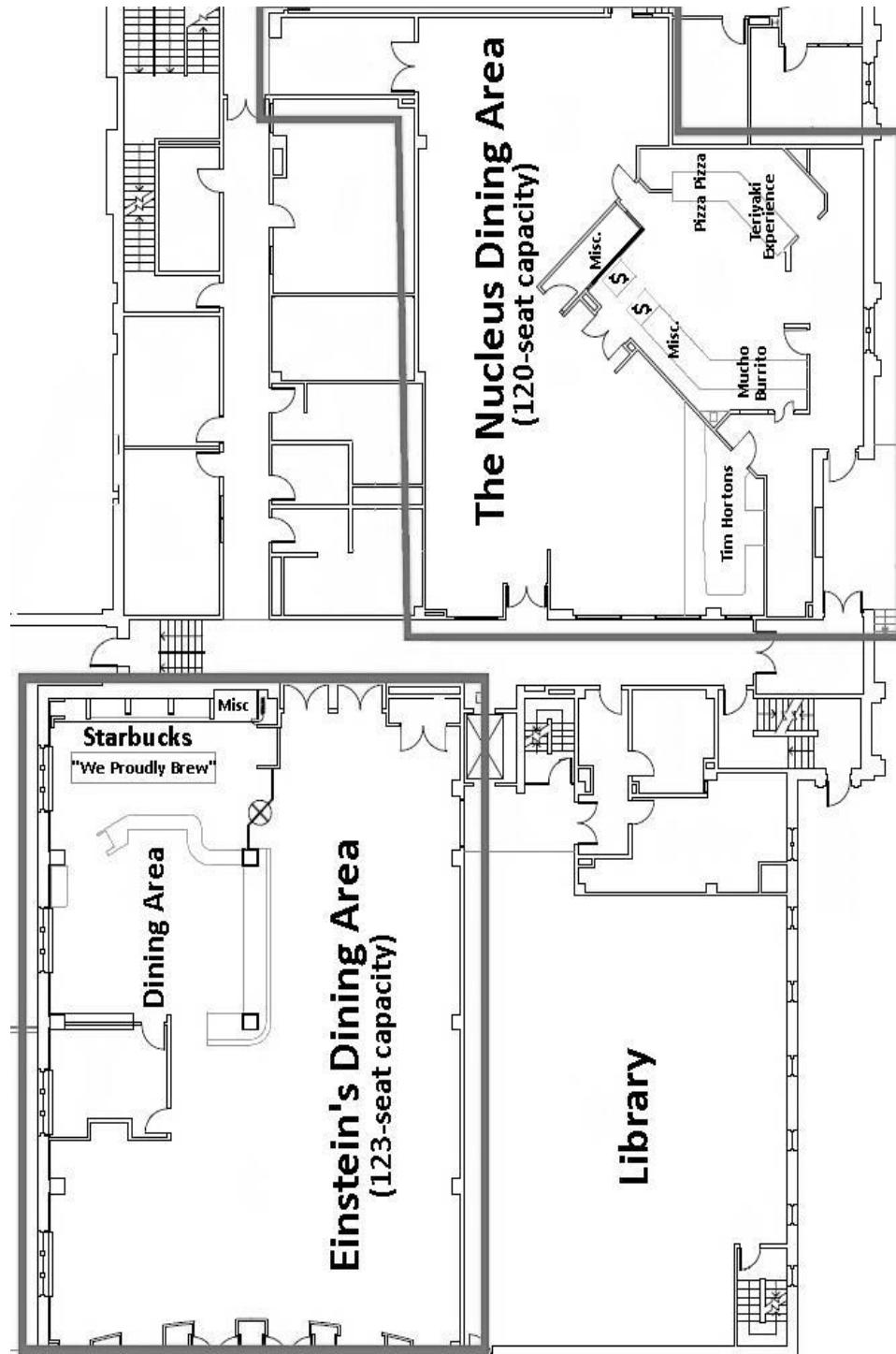
1. To build Hospitality Services sales through great food offerings, new menu and service development, nutritional programming, and by meeting diverse dietary needs, while continuously providing exceptional, fast, friendly, and efficient customer service.
2. To achieve financial success in all divisions — with open dialogue and cost effective solutions.
3. To champion sustainability initiatives such as local purchasing, use of bio-degradable products, expansion of the composting program, provision of organics and fair trade coffee, and effectively marketing these initiatives to our clientele.
4. To receive a Fair Trade Campus designation through the utilization of local, fair trade organic coffee suppliers in all non-franchised coffee locations.
5. To encourage and support the further education and personal development of all Hospitality Services staff, offering the potential and opportunity for continued growth.

Source: Excerpt from Western Hospitality Services, accessed June 15, 2015, www.hospitalityservices.uwo.ca/staff/divisional_goals.cfm.

EXHIBIT 2: LOCATION OF NATURAL SCIENCES CENTRE AND MEDICAL SCIENCES CENTRE ON WESTERN UNIVERSITY'S CAMPUS

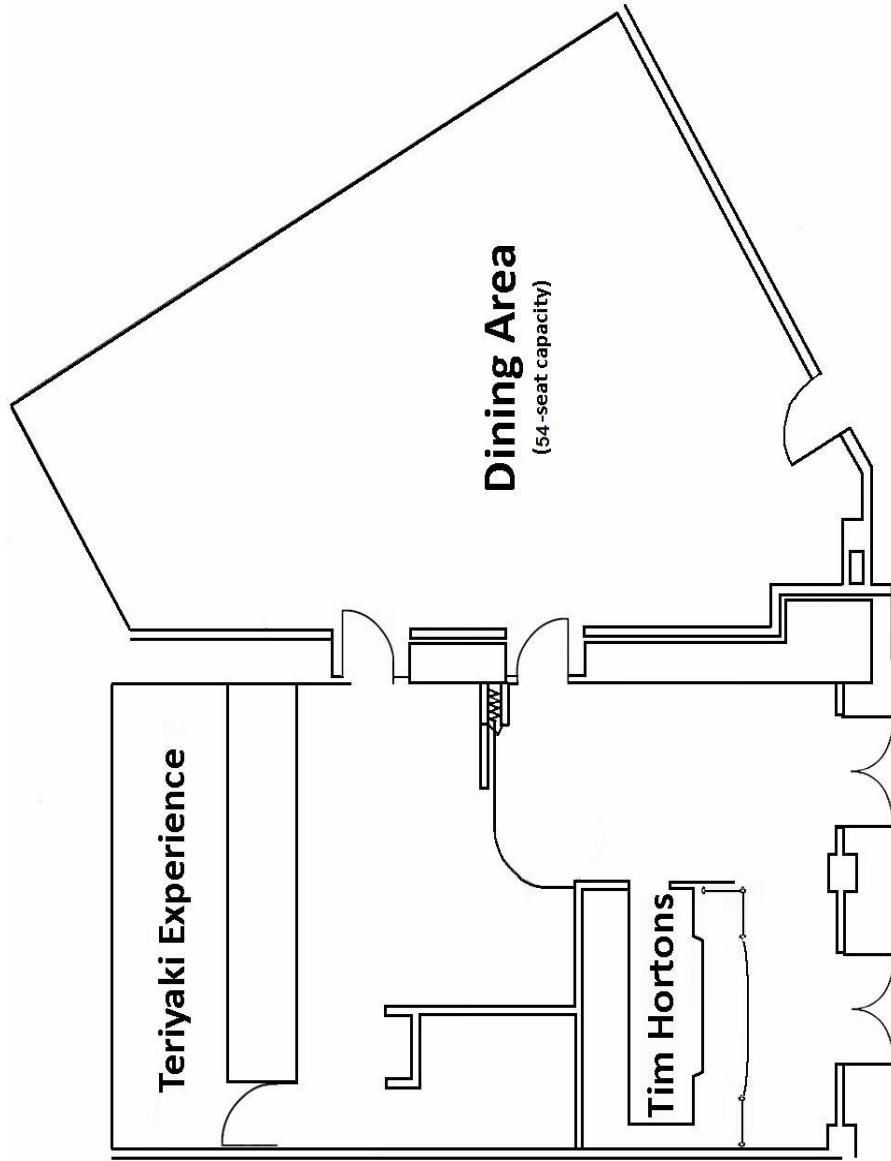


Source: Western University Geography Department.

EXHIBIT 3: LAYOUT OF THE NUCLEUS WITHIN WESTERN UNIVERSITY'S NATURAL SCIENCES CENTRE

Source: Western Hospitality Services.

EXHIBIT 4: LAYOUT OF WESTERN UNIVERSITY'S MEDICAL SCIENCES CENTRE EATERY



Source: Western Hospitality Services.

**EXHIBIT 5: THE NUCLEUS (NATURAL SCIENCES CENTRE)
Statement of Earnings (for the year ending April 30, 2015)**

REVENUE		
Net sales	\$1,815,535	100.0%
EXPENSES		
Food and beverages	(632,200)	34.8%
Salaries and benefits	(586,446)	32.3%
Franchise royalties	(76,261)	4.2%
Paper ¹⁹	(71,405)	3.9%
Cleaning	(13,678)	0.8%
Linen and uniforms	(4,722)	0.3%
Utensils	(2,266)	0.1%
Equipment and repairs	(19,030)	1.0%
Advertising	(948)	0.1%
Telephone	(1,422)	0.1%
Miscellaneous	(3,870)	0.2%
Occupancy	(60,684)	3.3%
Bank charges	(11,050)	0.6%
Total expenses	<u>(1,483,982)</u>	<u>81.7%</u>
Profit	<u>\$331,553</u>	<u>18.3%</u>

Source: Western Hospitality Services.

**EXHIBIT 6: THE MEDICAL SCIENCES CENTRE EATERY
Statement of Earnings (for the year ending April 30, 2015)**

REVENUE		
Net sales	\$275,945	100.0%
EXPENSES		
Food and beverages	(83,690)	30.3%
Salaries and benefits	(114,222)	41.4%
Franchise royalties	(15,808)	5.7%
Paper ¹⁹	(14,438)	5.2%
Cleaning	(1,698)	0.6%
Linen and uniforms	(654)	0.2%
Utensils	(621)	0.2%
Equipment and repairs	(9,205)	3.3%
Advertising	(243)	0.1%
Telephone	(333)	0.1%
Miscellaneous	(2,820)	1.0%
Occupancy	(24,188)	8.8%
Bank charges	(2,817)	1.0%
Total expenses	<u>(270,737)</u>	<u>98.1%</u>
Profit	<u>\$5,208</u>	<u>1.9%</u>

Source: Western Hospitality Services.

¹⁹ The item "Paper" refers to the cost of napkins, coffee cups, paper plates, and take-out containers. Tim Hortons and Miscellaneous sales consumed 80 per cent of this cost which would be split evenly, while the rest was allocated, based on sales volume, among the remaining franchises.

EXHIBIT 7: THE NUCLEUS AND MEDICAL SCIENCES CENTRE EATERIES²⁰

MUCHO BURRITO		PER CENT OF SALES		
		Costing Information	The Nucleus	Medical Sciences
• Canadian fresh Mexican grill that avoids the use of artificial flavours and preservatives		Food costs	41.2	N/A
• Prepared as ordered in front of the customer		Salaries and benefits	43.0	N/A
• Represents 12.6 per cent of sales at The Nucleus		Franchise royalty	7.0	N/A

PIZZA PIZZA		PER CENT OF SALES		
		Costing Information	The Nucleus	Medical Sciences
• Canadian quick-service restaurant offering, almost exclusively, pizza slices		Food costs	33.8	N/A
• Prepared in advance and kept ready under heating lamps		Salaries and benefits	30.4	N/A
• Represents 7.2 per cent of sales at The Nucleus		Franchise royalty	6.0	N/A

TERIYAKI EXPERIENCE		PER CENT OF SALES		
		Costing Information	The Nucleus	Medical Sciences
• North American restaurant offering Asian-inspired alternatives to typical fast-food options		Food costs	39.2	38.5
• Food is grilled fresh as ordered		Salaries and benefits	31.0	33.5
• Represents 7.3 per cent of sales at The Nucleus, and 13.8 per cent of sales at the Medical Sciences Centre eatery		Franchise royalty	5.5	5.5

TIM HORTONS		PER CENT OF SALES		
		Costing Information	The Nucleus	Medical Sciences
• Canada's largest quick-service restaurant specializing in coffee donuts, muffins, various pastries, sandwiches, and soups		Food costs	29.0	25.0
• Does not offer fair trade coffee		Salaries and benefits	35.6	40.1
• Represents 35.5 per cent of sales at The Nucleus and 71.0 per cent of sales at the Medical Sciences Centre eatery		Franchise royalty	7.0	7.0

²⁰ Unless otherwise noted, costs cannot be directly traced to each individual restaurant.

EXHIBIT 7 (CONTINUED)

"WE PROUDLY BREW STARBUCKS" COUNTER		PER CENT OF SALES		
		Costing Information	The Nucleus	Medical Sciences
• North American quick-service restaurant that sells specialty coffee beverages, and a variety of pre-made treats		Food costs	16.8	N/A
• Does not offer full meal options or fair trade coffee		Salaries and benefits	26.6	N/A
• Represents 15.3 per cent of sales at The Nucleus		Franchise royalty	N/A	N/A

MISCELLANEOUS		PER CENT OF SALES		
		Costing Information	The Nucleus	Medical Sciences
• Includes food and beverages sold by Hospitality Services and not by franchises: soups, bagels, drinks		Food costs	51.9	47.8
• Represents 22.1 per cent of The Nucleus, and 15.2 per cent of Medical Sciences sales		Salaries and benefits	25.9	54.6
		Franchise royalty	N/A	N/A

Note: N/A = not applicable

Source: Western Hospitality Services.

EXHIBIT 8: YEARS OF OPERATION FOR FRANCHISES IN THE NUCLEUS EATERY

FRANCHISE	YEARS IN OPERATION
Mucho Burrito	5
Pizza Pizza	12
Teriyaki Experience	12
Tim Hortons	20
Starbucks	5
Miscellaneous	20
Total	74

Source: Western Hospitality Services.

EXHIBIT 9: YEARS OF OPERATION FOR FRANCHISES IN MEDICAL SCIENCES CENTRE EATERY

FRANCHISE	YEARS IN OPERATION
Teriyaki Experience	5
Tim Hortons	20
Miscellaneous	20
Total	45

Source: Western Hospitality Services.

THE DIFFERENTIAL CASH FLOW MODEL

Lynda White wrote this case under the supervision of John F. Graham solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 1990, Richard Ivey School of Business Foundation

Version: 2016-04-19

One of a manager's tasks is to make decisions regarding the operations of the firm. When choices or alternative means of operation are available, the manager's responsibility is to choose the course of action with the greatest potential benefit to the firm. In order to facilitate this choice, a decision-making model may be used. A model is a framework for managers to help organize various pieces of information so that alternative courses of action may be compared, and subsequently the "best" one can be chosen. One such model is the differential accounting framework.

Differential accounting is a decision-making framework for making short-run **operating** decisions. The basic analyses used to make these decisions are:

1. Ascertain the future operating alternatives available to the firm.
2. Determine the cash that the firm will receive (or lose) under each alternative.
3. Examine the various qualitative advantages and disadvantages of each alternative.

In order to make alternatives comparable, they must be described within the same operating environment. For example, a manager cannot compare different pricing alternatives for the firm's product if one price occurs in an environment of extreme competition and the other occurs in a monopoly market. All information outside of the differential model is, therefore, assumed to be constant.

DIFFERENTIAL INFORMATION

Quantitative versus Qualitative

After alternatives or choices available to the manager have been outlined, they must be compared on both a quantitative and qualitative basis. Quantitative factors can be described in monetary terms, such as new investment in machinery or future labor costs. Qualitative information cannot be described in dollars and cents and, therefore, must be evaluated separately. The future impact of the loss of goodwill between management and union when production is subcontracted to a non-unionized firm may be significant, but it cannot be isolated and described in financial terms. Because we have tangible monetary evidence to measure

during the quantitative analysis, this step will be the focus of the remainder of the note. In addition, income taxes will be ignored and are dealt with in more advanced accounting courses.

Relevant Costs

In order to apply the differential accounting framework, we must isolate the quantitative information **relevant** to the alternatives at hand. Since a business entity is described extensively using accounting data, a significant amount of quantitative information is usually available to the operating manager. The only items that are relevant for use within the differential model, however, have three distinguishing characteristics:

1. **Different** between alternatives
2. **Cash** inflow or outflow
3. **Future** consideration

1. Different Between Alternatives

To be concise when analyzing alternative courses of action, it is easiest to compare only those cash flows that differ from one alternative to another. For example, a manager wishes to evaluate an alternative production process arrangement that will result in labor savings. Using the differential model, the two decisions available (and there are always at **least** two) could be assessed as follows:

The alternatives:	<u>Rearrange</u>	<u>Do not Rearrange</u>
The quantitative information		
Production costs		
Material	\$ 20,000	\$ 20,000
Labor	13,000	15,000
Total production costs	\$ 33,000	\$ 35,000
Differential cash flow		\$ 2,000

The different cash flows associated with each of the two alternatives indicate a \$2,000 benefit (savings) to the firm's cash position by rearranging the process. A manager could determine this same information, however, by **excluding** the material costs entirely from the analysis. This is because material costs do not differ from one alternative to the next and are, therefore, irrelevant to the choice between the alternatives. Although the inclusion of the material data does not affect the net differential cash flow information, a clearer analysis can be performed without it.

2. Cash Flow

The financial benefit of cash to a firm must be emphasized. Cash is the life of any business entity and in order to enhance the future financial position of a firm, future cash inflows must be maximized. By working to maximize the cash position of the firm, overall financial position will also be maximized, holding all other factors constant.

Some accounting information using valuation methods and allocation techniques does **not** describe a firm's cash flow. Depreciation, for example, is an accounting decision implemented in order to allocate the cost of an asset over more than one accounting period. The only asset information relevant to the cash position of the firm, however, would be the purchase or sale of the asset since those represent a flow of dollars. Any manipulation of non-cash financial information (e.g. depreciation) will have no effect whatsoever on the cash balance of the firm. Depreciation, or any other non-cash item, should **never** be part of the differential decision-making model.

3. Future Orientation

Purchases and costs incurred in the past are irrelevant to the future cash position of a firm. Any costs that have transpired in the past are “sunk” costs and cannot be altered by future decision making. However, past financial information may be used to **estimate** future cash flow. The firm's cash flow, relevant to the differential model, will depend on the effects of the alternatives at hand, but historic information may be useful as a predictor of future events.

Summary

Whenever alternatives are being considered, the question to ask is, “What are the **future cash flows** that are **different** between these alternatives?” Management problems tend to be unique; therefore, each differential accounting analysis will be custom-tailored to the situation. By arranging our analysis to answer the above-stated question, we can use differential accounting to help make the best decisions for the firm.

COST BEHAVIOUR

Organizing data into fixed costs, variable costs and unit contribution can save time and reduce the likelihood of errors during a differential analysis. For example, if a new advertising campaign is predicted to increase product sales, relative to an existing advertising strategy, we can calculate the increased contribution to the firm directly using variable cost and sales information rather than working through all revenue and cost data separately.

Students of the differential model must be careful, however, not to interpret the relevance of costs based on their behaviour as indicated by historic financial information. One mistake often made is to assume that all variable costs are relevant to a differential analysis and all fixed items are irrelevant. An example illustrating the use of both fixed and variable costs in a differential analysis is as follows:

ABC Co. manufactures widgets and is currently producing 400,000 units per year. Cost and price data for widget production are as follows:

Production:	<u>400,000 widgets/year</u>	
Manufacturing cost/unit:		
Direct labor	\$.875	
Raw materials	1.750	
Factory overhead ¹	<u>0.600</u>	
Total cost/unit		\$ 3.225
Price/unit		\$ 6.50

¹ Includes \$0.10 per unit depreciation, taken on a units-of-output basis, and fixed manufacturing costs of \$200,000 per year.

The firm would like to increase volume sales and market share by lowering its sales price for each widget to \$4.75. Management predicts sales volume using the lower price will reach 800,000 per year. The increased volume would allow ABC Co. to purchase its raw materials using volume discounts; however, additional supervisory and sales personnel, at a cost of \$42,000 per year and \$38,000 per year, respectively, would also be needed. All new price and cost information under the alternative scenario are listed below:

Production:	<u>800,000 widgets/year</u>	
Manufacturing cost/unit:		
Direct labor	\$.875	
Raw materials	1.600	
Factory overhead ²	<u>0.350</u>	
Total cost/unit		\$ 2.825
Price/unit		\$ 4.75
Additional sales personnel		\$ 38,000

To simplify the analysis, we may begin by determining the unit contribution under each alternative: the \$6.50 pricing option and the \$4.75 pricing option.

	<u>\$ 6.50</u>	<u>\$ 4.75</u>
Price	\$ 6.50	\$ 4.75
Variable cost:		
Direct labor	\$ 0.875	\$ 0.875
Raw materials	1.750	1.600
Depreciation	<u>0.100</u>	<u>2.725</u>
Unit contribution	\$ 3.775	\$ 2.175

Notice that these unit contribution data **cannot** be used in the differential analysis because they contain non-cash information regarding depreciation even though this cost appears to be variable. The relevant contribution information is, therefore, as follows:

	<u>\$ 6.50</u>	<u>\$ 4.75</u>
Unit contribution	\$ 3.775	\$ 2.175
Add back depreciation	<u>.100</u>	<u>0.100</u>
Cash unit contribution	<u>\$ 3.875</u>	<u>\$ 2.275</u>
× volume sales	<u>× 400,000</u>	<u>× 800,000</u>
Total contribution	\$ 1,550,000	\$ 1,820,000

Under initial inspection, it would appear that the lower pricing strategy provides maximum cash inflow to the firm; however, to apply the differential model correctly, we must include all relevant costs—both fixed and variable.

² Includes \$0.10 per unit depreciation, taken on a units-of-output basis, and fixed manufacturing costs of \$200,000 per year.

Differential Analysis

The alternatives:	<u>\$ 6.50 Price/Unit</u>	<u>\$ 4.75 Price/Unit</u>
Total cash contribution	\$ 1,550,000	\$ 1,820,000
Less additional fixed costs:		
Supervisor's salary	0	(42,000)
Sales personnel	<u>0</u>	<u>(38,000)</u>
Net cash flow	\$ 1,550,000	\$ 1,740,000
		<u>\$ 190,000</u>

Even with the additional fixed costs of \$80,000, it is still apparent that the lower pricing strategy provides the greatest net cash inflow to the firm. The above example illustrates two key points to remember when using cost behaviour concepts in a differential framework. First, both fixed and variable costs may be relevant to the analysis, and second, the analysis is best performed using total rather than unit information. Also, it is safest to avoid full cost per unit data. Full cost per unit data contain elements of both fixed and variable costs (e.g., ABC Co.'s factory overhead per unit). The full cost of a unit is true only at a single (usually the standard or normal) volume level. Moreover, full cost data, if used in a differential model, probably will contain non-differential information that can further complicate any analysis and increase the risk of error.

ONE-TIME AND RECURRING CASH FLOWS: EXTENDING THE BASIC MODEL

Many operating decisions involve one-time, initial expenditures that the firm hopes to recoup over a period of several years. The acquisition of new machinery, for example, is normally undertaken in anticipation of sales increases and/or cost savings for a relatively long time into the future. The firm hopes that these benefits will eventually exceed the initial outlay of cash for the machine. Therefore, to evaluate alternatives within a longer time frame, an extension of the basic differential framework is required.

The evaluation of differential decisions requires some method for comparing the size of the recurring cash flows to the one-time cash flow associated with each alternative. Recurring cash flows can be either in the form of net cash inflows or outflows. One-time cash outflows are called investments and one-time cash inflows from disposing of investments are called disinvestments (disinvestments will be discussed later in the note; investments will be the focus in the meantime). As long as the recurring cash flows are expected to be stable over time, it is possible to make a simple and reasonably reliable assessment of whether the recurring benefits are sufficiently large to justify the initial investment by slightly extending the basic differential framework outlined above.³

³Theoretically, analysis of multiple period situations requires explicit consideration of the time value of money using a capital budgeting framework and the concept of net present value (an advanced topic in management accounting which will not be discussed in this note).

THE NATURE OF INVESTMENT

An investment is a one-time cash outflow, usually incurred at the beginning of a project to acquire assets which will exist and yield benefits for several years. The most common types of asset investments are property, plant, and equipment, which will last for many years. Intangible assets, such as patents, also represent an investment made at the beginning of a project to obtain benefits over an extended period of time. Finally, the amount of funds which the firm has “tied up” in working capital (particularly for accounts receivable and inventories, less any accounts payable) should be viewed as an investment since there is a one-time outlay of funds required to obtain a given level of assets which the firm uses to conduct its operations.

The idea of treating working capital as an investment seems unusual at first, since these current assets and liabilities will be converted into cash within a fairly short period of time. However, the firm’s operating cycle repeats continually. As inventory is sold and the resulting accounts receivable are collected, the firm is also paying off its old accounts payable and embarking on new purchases that begin the cycle again. Thus a wholesaler, for example, might anticipate “permanent” increases of \$60,000 in inventory, \$80,000 in accounts receivable, and \$40,000 in accounts payable if a decision is made to expand into a new region. The resulting \$100,000 ($\$60,000 + \$80,000 - \$40,000$) “use” or tying up of cash is regarded as an investment by the firm. If the cash had not been used for these purposes, it could have been productively invested elsewhere.

INVESTMENTS ARE MADE TO OBTAIN FUTURE BENEFITS

In any profit-oriented setting, an investment will be made only if it appears likely that the investor will receive future returns exceeding the amount that has been invested. If there were no prospect of making money as a result of the investment, the investor would place the funds in a bank account and earn interest revenue. Thus, a prospective investment must not only offer a positive return, but the expected return must be larger than the investor’s best other option, such as earning bank interest. Furthermore, the return from the investment must exceed the return available from the bank by an amount commensurate with the relative risk of the investment. (Placing money in an established Canadian bank is considered to be virtually risk-free).

Two simple ratios have been developed for relating the size of the investor’s returns to the magnitude of the initial investment. These ratios can be used to evaluate the attractiveness of a particular investment proposal.

Return on Investment

The term Return on Investment is a ratio used to describe the size of an investor’s financial return (expressed in terms of cash inflows) relative to the size of the initial investment. Return on Investment (or ROI) is normally expressed as a percentage⁴ and is calculated as follows:

$$\text{Return on investment (ROI)} = (\text{Annual return} \div \text{Initial investment}) \times 100$$

A return on investment of 5 per cent in 1989 would not be regarded as acceptable, given bank interest rates hovering around 9½ per cent. Conversely, a 30 per cent return on investment might be quite attractive, depending upon the riskiness of the investment.

⁴The marketplace expresses virtually all yields, interest, dividend and other investment returns on a percentage basis so that comparisons can be readily made. Another variation of the ROI calculation uses one half of the initial investment. This tries to estimate an average annual investment over the life of the project for comparison against the annual projected return, rather than assuming all investment is made at the outset of the project and remains in place for the life of the project.

Payback Period

Another simple technique for relating annual returns to initial investment is the Payback Period ratio. Payback Period is actually just the reciprocal of the above Return on Investment method, expressed in years instead of as a percentage:

$$\text{Payback period} = \text{Initial investment} \div \text{Annual return}$$

The Payback period ratio answers the question: "How many years will it take to recoup the initial investment, given the projected yearly return?" One critical constraint should be noted when using ROI or Payback ratios to analyze a multiple period decision: **these ratios both assume a recurring annual cash inflow, or return, which is constant over time.**

Disinvestments

A disinvestment occurs when the decision being undertaken by the firm results in a net one-time inflow rather than an outflow. A common example is a decision on whether to drop a product line. The issue facing the decision-maker is essentially the same as in a standard investment decision: namely, which alternative has the most attractive combination of recurring and one-time flows?

Consider, for example, a firm that is considering dropping a low margin secondary product. The product is currently generating an annual contribution of \$3,000. There would be no change in the firm's fixed costs or the sales of other product lines if the product were discontinued. However, the firm would realize approximately \$35,000 on the sale of machinery and would be able to reduce working capital (inventory and receivables net of accounts payable) by \$25,000.

In this situation, the recurring differential future cash flow of **dropping** the line is a loss (i.e., outflow) of \$3,000 in contribution, while the one-time differential future flows amount to a total inflow of \$60,000 (\$35,000 + \$25,000). A more intuitive way to look at such a decision is that an investment of \$60,000 is necessary to keep the product line and hence obtain the recurring annual benefits of \$3,000 in extra contribution. By approaching the decision in this manner, an ROI or Payback Period ratio can be computed to aid the decision-maker:

$$\begin{aligned} \text{ROI} &= (\$3,000 \div \$60,000) \text{ per year} \times 100 \\ &= 5 \text{ per cent} \end{aligned}$$

$$\begin{aligned} \text{Payback period} &= (\$60,000 \div \$3,000) \text{ per year} \\ &= 20 \text{ years} \end{aligned}$$

These ratios indicate that **keeping** the product line is not a particularly attractive opportunity (given prevailing Canadian interest rates in the early 1990s). In other words, discontinuing the product line would be a good decision because the \$60,000 could be invested elsewhere to earn a better return.

Depreciation Charges on New Investments

Although new investments may produce additional depreciation charges which are both future and differential to the firm, the fact that depreciation does not represent a cash outlay precludes it from being considered in any differential accounting analysis. The cash outlay takes place when the initial investment is made, and the entire cost is accounted for in the analysis through an ROI or Payback Period ratio.

Financing Charges on New Investments

No allowance is normally made in a differential accounting analysis for additional interest expense that may be incurred on loans to finance the necessary investment items, even though interest may, in fact, be a differential, future cash flow in certain situations. The interest charge associated with a decision is ignored because it is a **financing** charge related to the firm's decision to use various combinations of debt or equity to finance its expansion, rather than an operating flow related to the investment decision itself. Instead, the investment decision is evaluated against a "hurdle rate". A hurdle rate is a minimum target rate of return which includes an allowance to cover interest costs as well as an additional allowance to compensate for the riskiness of the decision. Each firm determines its own hurdle rate and then evaluates proposed projects against it.⁵

A valid alternative approach would be to show interest charges to finance investment as a future differential cash outflow under the alternative requiring the investment. Then the ROI calculated would be a return relative to risk and investor compensation only. Another way to express this is to treat the target "hurdle rate" as 0 per cent since all financing charges have already been considered in the differential recurring cash flow. The difficulty with this is that equity or non-interest bearing financing still has implicit "costs" associated with it although no formal obligation is described (i.e., a loan charging 15 per cent interest). Shareholders still expect that any funds they leave in the firm will be productively invested and earn a competitive return. That return is paid in the form of dividends and capital gains on their ownership. If a competitive return **cannot** be earned, shareholders will relocate their capital elsewhere. Therefore, any project financed through equity must still earn an attractive rate of return. A 0 per cent hurdle rate is, therefore, misleading since the firm could place its funds in a low risk bank investment and still earn greater than 0 per cent. Any alternative undertaken must earn at least the risk-free bank return plus a premium for the increased risk being taken.

Proposed investments should be judged not on whether a positive return is generated, but whether the return is far enough in excess of the risk-free rate of return to reimburse the investor for the risks being taken. For this reason, the first approach of ignoring any financing costs and instead accounting for these charges in determining the hurdle rate required for a desirable investment is the preferable method of analysis.

⁵The determination of an appropriate hurdle rate for investment decisions is beyond the scope of this material; however, a reasonable **minimum** approximation can usually be obtained by examining prevailing bank interest rates in the marketplace. A subjective amount can then be added to compensate for the added risk perceived by the investor.

COOL MOOSE CREAMERY

Ian Dunn wrote this case under the supervision of Elizabeth M.A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2010, Richard Ivey School of Business Foundation

Version: 2018-04-26

In March 2010, Greig Perantinos, owner of Cool Moose Creamery (Cool Moose), was considering expanding his product line by purchasing a soft-serve ice cream machine for one of his stores. The business in Alliston, Ontario, had been in operation for a year and sold scooped ice cream, frozen yogurt, milkshakes and floats. Perantinos believed the addition of soft-serve ice cream would increase sales and improve the company's market share in Alliston. Perantinos wanted to continue growing the business, and he wondered whether this was the best way to do so.

ALLISTON, ONTARIO

Alliston was a small community of approximately 13,000 people, within the town of New Tecumseth, Ontario, home to 28,800 people.¹ As part of Simcoe County, Alliston was approximately 60 kilometres north of the Greater Toronto Area. See Exhibit 1 for a map of Cool Moose locations. Alliston was home to the largest employer in Simcoe County, Honda of Canada, an automotive manufacturing operation that had two plants located in the area.

One of the county's tourist attractions was the South Simcoe Railway's historic steam train. The restored railway coaches from the 1920s lured people from across Canada to see Canada's oldest operating steam train. Alliston was also well known as the birthplace of Sir Fredrick Banting, the co-discoverer of insulin. The community's Annual Potato Festival, begun in 1974 and held in June each year, attracted thousands of people annually to the area.

Although a small community, Alliston had a vibrant downtown area, and local residents and tourists regularly frequented the restaurants and shops. Victoria Street was the centre of this downtown district, and Cool Moose was located at the Victoria and Church Street intersection.

¹ Town of New Tecumseth Community Profile.

COMPETITION

Prior to the opening of Cool Moose in the summer of 2009, the only other business in Alliston that offered ice cream was Dairy Queen, also located at an intersection on Victoria Street. Dairy Queen's ice cream offering was limited to its famous vanilla soft-serve flavour. This location also sold several treats, such as the Blizzard,² as well as cakes, hot dogs and hamburgers. Throughout the summer months, long lineups were commonplace at the Alliston Dairy Queen. This store generated over \$500,000 in annual sales.³

Dairy Queen, a wholly owned subsidiary of Berkshire Hathaway Inc., was a large multinational corporation with over 5,900 restaurants in 22 different countries.⁴ The first Dairy Queen location opened in Joliet, Illinois, U.S.A., in 1940, the result of a father and son experimenting with a soft frozen dairy product. Their recipe and process developed into what is now referred to as soft-serve ice cream, immensely popular since its inception.

In 2010, the Dairy Queen brand was well known throughout North America for its signature soft-serve ice cream and for its focus on customer satisfaction. The company's current slogan was "We Treat You Right." Dairy Queen's pricing model was considered slightly high for the industry (e.g., \$3.35 for a large vanilla ice cream cone). In spite of this pricing, Dairy Queen became the destination for little league teams celebrating a victory, business professionals taking their lunch break and families taking time out to enjoy fast food and a variety of soft-serve ice cream products.

COMPANY BACKGROUND

Perantinos was searching for summer employment after his first year at The University of Western Ontario, London, Ontario. He decided an entrepreneurial venture would be a rewarding experience and would help prepare him for his education at the Richard Ivey School of Business, as well as his future career. Since there was no scooped ice cream parlour in Tottenham,⁵ Perantinos founded the first Cool Moose Creamery in Tottenham in the summer of 2008. The ice cream parlour opened in May of each year for a four-month period, operating throughout the summer until Labour Day. Cool Moose currently offered 16 varieties of hard, scooped ice cream, as well as frozen yogurt (which could be mixed with fresh fruit), milkshakes, floats and other frozen treats.

Perantinos experienced moderate success in his first year and was able to develop strong brand recognition, and a loyal customer base in the community of Tottenham. Cool Moose was known for its excellent service to customers — Perantinos and his staff were friendly, outgoing, fun and enthusiastic, and they attempted to provide service beyond customers' expectations. Perantinos established three core values for the business: helping the community, making customers smile and inspiring employees. He believed these business practices allowed him to carry his success into the summer of 2009. In the second year of operations, Perantinos opened a new location for Cool Moose in nearby Alliston, Ontario. Summer 2009 sales increased at the Tottenham store, and the successful launch of the parlour in Alliston helped Perantinos achieve sales growth of 233 per cent over fiscal 2008. The Alliston Cool Moose store currently had four full-time employees who strived to know each customer personally.

² Dairy Queen's Blizzard was a combination of vanilla soft-serve ice cream mixed with the customer's choice of candy toppings and served in a cup.

³ www.profilecanada.com/companydetail.cfm?company=2343676_Dairy_Queen_Alliston_ON, October 5, 2010.

⁴ www.dairyqueen.com/ca-en/history, October 5, 2010.

⁵ Tottenham, Ontario, was approximately 15 minutes south of Alliston.

In early 2010, Perantinos received the Student Entrepreneur Champion award for Ontario from a not-for-profit organization called Advancing Canadian Entrepreneurship. See Exhibit 2 for a newspaper article highlighting Cool Moose's success and this award. The summer of 2010 was critical to Perantinos future, since he would be entering his final year of studies at the Richard Ivey School of Business and had to decide whether he would operate Cool Moose as a full-time occupation upon graduating. He had found another town without a scooped ice cream parlour and was making arrangements to open a third Cool Moose in Cookstown. Although the business kept him extremely busy, he was unsure whether it could provide him with a full-time income. After two successful years, Perantinos began to research how to further grow Cool Moose.

THE SOFT-SERVE OPPORTUNITY

Perantinos thought that expanding his product line would increase same-store sales and grow the business. One way to do this was to invest in a soft-serve ice cream machine at one of the Cool Moose locations. Soft-serve ice cream was very common in fast-food restaurants such as McDonald's and Dairy Queen. The machines produced a frozen dairy product that was smoother than scooped ice cream and dispensed the product in a swirl pattern. Most machines had a single head that produced only one flavour, vanilla. However, Perantinos had considered a triple-head machine that would produce vanilla, chocolate and a vanilla-chocolate swirl flavour. See Exhibit 3 for a picture of each soft-serve machine. Perantinos had found a used single-head machine available for purchase at a cost of \$2,000. If he wanted a triple-head machine, he would need to buy it new at a cost of \$12,000.⁶ Perantinos' research had found that some store owners had success with used machines, while others had been greatly disappointed and lost money due to repairs costing thousands of dollars. He estimated the useful life of a used machine to be three years while a new machine should last seven years. Cool Moose used the straight-line method of depreciation for all its fixed assets. Given the large investment, Perantinos wanted to assess the feasibility of adding soft-serve ice cream to the Alliston store and to calculate the anticipated return on investment.

Purchasing one of these machines would attract new customers, who preferred soft-serve over scooped ice cream. Specifically, several of these new customers could be current Dairy Queen customers who would switch to Cool Moose because of its lower prices, variety of ice cream or its pleasant experience. If soft-serve ice cream was offered, Perantinos would charge \$2.50 per serving. Each serving was approximately 90 grams of ice cream and the customer could choose to have the ice cream on a cone or in a cup for the same price. Sales were estimated to be 2,800 servings of the vanilla flavour per operating period. If Cool Moose purchased the triple-head machine, 1,200 more servings would be sold annually.

The soft-serve mix used in the machines was sold by the bag, and Perantinos estimated one serving of ice cream would cost \$0.25. Each cone cost \$0.07 and, if the customer chose a cup, the cup and spoon combined were also \$0.07. One napkin was provided with each serving. The napkins were purchased in packages of 500 for \$5. Cool Moose kept 10 days of inventory⁷ in the store at all times.

Since some existing customers would choose soft-serve instead of scooped ice cream, Perantinos was unsure of the impact cannibalization would have on his profitability. Although he did not want current scooped ice cream sales to decline, soft-serve ice cream did offer much better gross profit margins. Perantinos thought that approximately 980 servings of scooped ice cream would be cannibalized if he sold soft-serve ice cream using the single-head machine, and 1,400 servings of scooped ice cream would be cannibalized if he sold

⁶ Delivery of each soft-serve machine would cost an additional \$150. Installation by a certified electrician was required at an additional charge of \$650.

⁷ Inventory included ice cream products, as well as the cones, cups, spoons and napkins.

soft-serve ice cream using the triple-head machine. Scooped ice cream had an average selling price of \$2.50 per serving, and the ice cream cost averaged 31 per cent of sales.

Soft-serve ice cream machines created numerous health and safety issues. The cleaning of these machines was critical to their ability to function properly and the longevity of their useful life; more importantly, if not cleaned properly, the machines were susceptible to bacteria and food-borne illnesses. If Cool Moose added a soft-serve machine, all employees would need to be trained in how to use and clean the machine. Perantinos would provide one-time training for two hours on a single-head machine or three hours on a triple-head machine to each of the store's employees. Historically, employee turnover was low. A thorough cleaning of the machine would be needed every night and would require an employee to work later. A single-head machine would take an additional hour to clean and a triple-head machine would take 1.5 hours to clean. All Cool Moose employees were paid \$10.90 an hour including employment insurance (EI) and Canada Pension Plan (CPP) contributions.

The soft-serve ice cream mix came as a bagged liquid product that required refrigeration. In anticipation of his decision, Perantinos purchased a small refrigerator last month at a cost of \$150. Operating the soft-serve machine would also increase Cool Moose's utilities costs by \$150 for a single-head machine and \$350 for a triple-head machine over the four-month-operating period.

Perantinos knew that the investment in a new soft-serve machine was a large one. After meeting with his bank's account manager, Perantinos was told that the bank would extend Cool Moose a loan of up to \$12,000 to purchase the desired machine at an annual interest rate of seven per cent.⁸ The loan would require repayment in equal monthly installments over the next five years. All principal and interest payments would be due on the first day of each month.

CONCLUSION

Perantinos was quite pleased with Cool Moose's performance to date and with the awards and recognition. His ice cream store was a "hotspot" in downtown Alliston and was more than capable of holding its ground with the local Dairy Queen competition. Was the demand for Dairy Queen's soft-serve ice cream proof that Perantinos could improve his profitability by offering this product? Were the benefits of adding soft-serve ice cream great enough to overcome the investment, time and effort needed to add these machines? Perantinos sat down with his notes to contemplate the opportunity and evaluate its fit with the company's strategy. After completing this analysis, he would make his decision.

⁸ Interest would be calculated on the outstanding balance at the end of each month.

Exhibit 1**MAP OF COOL MOOSE CREAMERY LOCATIONS**

Source: Company files.

Exhibit 2**LONDON FREE PRESS ARTICLE****Ivey student scoops award for entrepreneurship**

By DANIELA DISTEFANO, SPECIAL TO QMI AGENCY

Last Updated: February 22, 2010 6:39am



Greig Perantinos, a student at Western's Richard Ivey School of Business, has been named Student Entrepreneur Ontario for starting two ice-cream stores called Cool Moose Creamery. His brother, Matthew Perantinos, and Breanna Sweers work for him at his Tottenham store.

Greig Perantinos' love of ice cream is gaining him some cool accolades across the province.

Perantinos, owner of Cool Moose Creamery and a student at UWO's Richard Ivey School of Business, has been named 2010 Student Entrepreneur Ontario champion by a not-for-profit group called Advancing Canadian Entrepreneurship.

"It's great to be recognized for doing something that I love," the 20-year-old business student says. Perantinos, nominated by a fellow Ivey student, is one of four champions chosen among 30 Ontario contestants.

Perantinos had been looking for a summer job in 2008 without any luck, so he decided to start his own business.

"I like hard ice cream and there were only soft-serve shops in my town," he says. So he found a space for rent, bought a few freezers and opened the first Cool Moose Creamery in Tottenham, an hour's drive north of Toronto.

Now with six employees, the shop serves ice cream and frozen yogurt from May through September. A second store opened last summer in nearby Alliston.

Perantinos says he receives a lot of support from the community and his family, especially his younger brother, Matthew. In return, his stores have played host to several fundraising events that collectively have raised more than \$7,000 for Big Brothers Big Sisters of South Simcoe, Alliston and District Humane Society, Tottenham Food Bank and Tottenham Lions Club.

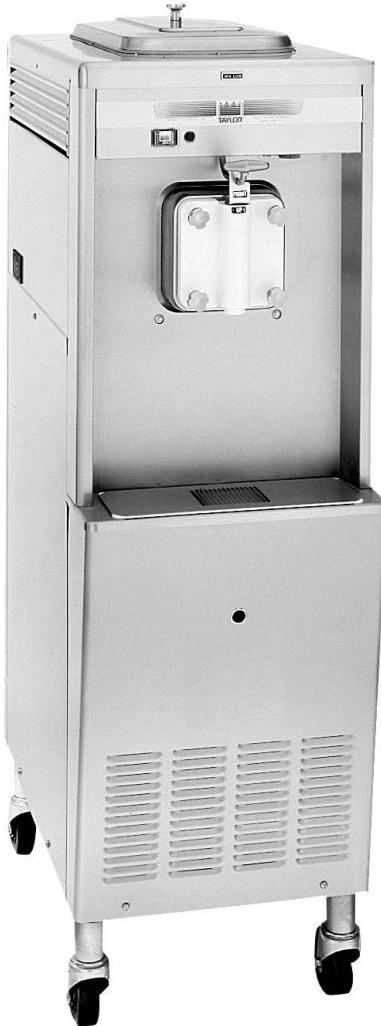
Perantinos plans to grow his business, opening two more stores this summer.

"I love what I do, it's such great fun and it really complements my academic studies," he says. "I hope to continue running Cool Moose when I graduate."

Perantinos will represent Ontario in a regional competition March 8 in Toronto that has \$1,000 up for grabs for two finalists. A national champion will be selected in Calgary on May 12, with a \$10,000 cash prize on the line and a shot at becoming Global Student Entrepreneur.

ACE is a not-for-profit organization that provides post-secondary students with an opportunity to gain entrepreneurial and leadership skills outside of the classroom.

Source: www.lfpress.com/news/london/2010/02/22/12978206.html, May 2010.

Exhibit 3**SOFT-SERVE ICE CREAM MACHINES****Single Head****Triple Head**

Source: www.taylor-company.com/product/equipment.htm, June 9, 2010.

EASTERN TALON TRANSPORT

Andrew Sarta prepared this case under the supervision of Elizabeth M.A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) publishcases@ivey.ca; www.iveypublishing.ca.

Copyright © 2005, Ivey Business School Foundation

Version: 2023-04-12

It was January 12, 2004, and Paul Robert, assistant vice-president of Strategic Development for Eastern Talon Transport (ETT), was investigating the feasibility of moving the dispatchers within the long-haul operations department from Laval, Quebec, to ETT's head office building in Mississauga, Ontario. His recommendations were to be presented to the vice-president and controller by the end of the week.

THE TRUCKING INDUSTRY¹

Trucking in Canada generated revenues of \$51.1 billion in 2003. The industry included thousands of companies, many of which were small and family-owned. Sixty per cent of industry revenues were generated by truck fleets that moved freight for other companies (for-hire trucking). The trucking industry was one of Canada's largest employers with more than 320,000 employees. The remaining 40 per cent of the industry comprised private trucking (a company that owned and operated its own fleet), independent owner-operators; and couriers. More than 260,000 Canadians listed truck driver as their primary occupation. The majority of the revenues for the trucking industry resulted from the transportation of goods in five major commodity groups: manufactured products, food products, metal and steel products, automobile and transport products, and plastic/chemical products.

Canadian international trade depended on the trucking industry. Canada's largest trading partner was the United States with \$530 billion in goods moving between the two countries annually. Trucking accounted for 63 per cent of total trade transported. Approximately 13 million trucks crossed the Canada-United States border each year. More trade passed from Windsor, Ontario, to Detroit, Michigan, than through any other border crossing in the world, and most of the U.S.-bound goods were transported by truck.

Recent Industry Issues

Trade activity between Canada and the United States declined in 2003, creating a two per cent decline in cross-border heavy truck activity. A number of events caused the decline, including an increase in border

¹Canadian Trucking Alliance, www.cantruck.com, accessed March 13, 2005.

security, a rising Canadian dollar and the emergence of “mad cow disease.”² As a result, the trucking industry experienced a one per cent decline in total revenues. Furthermore, the increased costs of insurance and diesel fuel were reducing profitability for most carriers.

EASTERN TALON TRANSPORT

ETT was a privately held corporation that specialized in metal and steel transportation, but also delivered automotive parts. The company operated nationally, but most customers were located in Ontario, Quebec and Michigan. It was generally inconvenient for trucking companies to base operations in major cities because of the traffic density. Suburban locations immediately outside of major cities allowed companies easy access to highways and close proximity to customers. Because its customers were mainly in Ontario and Quebec, ETT had offices in Mississauga, Ontario, and Laval, Quebec. The head office of ETT was in Mississauga because of its central location in Ontario. ETT employed a total of 12,000 people.

The sales process at ETT involved obtaining commercial contracts, organizing pick-up and delivery times, and providing post-sales customer service. Contracts were the responsibility of sales representatives, who passed on customers to dispatchers for organization of the delivery and post-sale customer service. The dispatcher was also responsible for contacting the accounting department that would then bill the customer. ETT centralized all of its accounting and billing functions out of the Mississauga head office; however, the sales and delivery logistics remained in close proximity to customers in both Ontario and Quebec. ETT segmented its business into short-haul (intra-provincial) and long-haul (inter-provincial and international) departments, which operated in Mississauga and Laval respectively. The Mississauga office building was wholly owned by the company, while ETT leased two floors in a 10-storey Laval office building for an annual cost of \$500,000 per floor.

Laval

Laval was the largest suburb of Montreal, Canada’s second largest city with a metropolitan population of approximately 3.5 million. The population of Laval was over 340,000³ in 2001, of which approximately 73 per cent and six per cent of the suburb’s inhabitants identified French and English as their mother tongues,⁴ respectively.

Montreal’s language demographics were similar, with approximately 53 per cent of Montreal residents understanding both English and French.⁵ Many of Laval’s businesses relied on the large population of Montreal.

Many large Canadian businesses operated out of Montreal; in fact, the city housed more than 100 head offices. Montreal had rebounded from the impact of Quebec nationalism during the 1960s and 1970s, at which time many companies had moved offices to Toronto in fear of Quebec independence. Montreal’s revival included many 21st century industries, and, by the end of 2003, the city was home to head offices of major companies in the aerospace industry, the biotechnology industry and the telecommunications industry.⁶

²Mad cow disease or bovine spongiform encephalopathy (BSE) was discovered in some cattle in Alberta on May 20, 2003, and led to a decline in Canadian beef exports.

³Statistics Canada.

⁴The first language learned and still understood.

⁵“Socio-economic Profile of the City of Montreal,” www.ville.montreal.qc.ca, accessed December 27, 2004.

⁶“Montreal — Business,” www.cityguide.travel-guides.com/cities/mon/Business.asp, accessed July 12, 2004.

The cost of living was higher in Montreal than in the rest of Quebec with an average dwelling costing approximately \$140,000. In Laval, housing was slightly cheaper, averaging \$120,000. An average full-time worker in Laval earned an income of approximately \$40,000 in 2001. Laval also boasted a lower unemployment rate (5.7 per cent) than the province of Quebec.

Mississauga

Mississauga, with a population of more than 600,000, was the largest suburb in Toronto, Canada's largest city, which had a metropolitan population of more than 4.6 million in 2001. Mississauga had an extremely diverse culture, with more than 100 languages being spoken across the suburb. Multiculturalism in the Greater Toronto Area developed primarily after World War II when the city attracted 42 per cent of all Canadian immigrants.⁷ One per cent of Mississauga residents identified French as their mother tongue, while nearly 54 per cent identified English as their mother tongue.⁸ Approximately 44 per cent of the population had been educated in a language other than English or French, with the remainder educated in both English and French. Toronto was nearly identical to Mississauga in this respect.

The average full-time worker in Mississauga earned slightly less than \$50,000. The unemployment rate in Mississauga was 5.3 per cent in 2001, and the average cost of a home was approximately \$250,000.⁹

The Long-haul Operations Department

Long-haul operations consisted of ETT's main shipments in metal and steel across provinces or international borders. ETT's long-haul department consisted of 138 staff members and 15 managers who occupied two floors in the Laval office building. Of the staff members, there were 45 dispatchers (see Exhibit 1) who dealt with the logistics of delivery and customer service. The remaining staff members worked as sales representatives who secured clients for ETT.

THE PROPOSED MOVE

In early December 2003, when Paul Robert met with the vice-president and controller of ETT, the issue of cost-cutting arose. ETT had always been an industry leader, but was under considerable pressure to deal with its declining and weak profitability. Despite wanting to maintain a strong presence in the Quebec market, Robert became concerned with the high cost of renting space. ETT had considered purchasing a building in Laval; however, the only viable location would cost ETT more than \$5 million, which was far too high. Thus, moving personnel from the rented space in Laval to the company's owned space in Mississauga was considered an alternative to cut costs within the long-haul operations department.

Current Situation

Of the two leased floors in Laval, the sales representatives occupied one entire floor while the dispatchers occupied half of the other floor. The remaining half of this floor had been occupied by the accounting

⁷"City of Toronto — Cultural Diversity," www.city.toronto.on.ca/quality_of_life/diversity.htm, accessed July 12, 2004.

⁸Statistics Canada.

⁹Ibid.

department, which was moved to Mississauga in December 2002. Since there was room for 125 additional staff in the Mississauga head office, moving the dispatchers seemed a logical alternative.

Dispatchers

The dispatchers dealt with the accounting department on a daily basis, and Robert envisioned a move that would place them on the same floor. Dispatchers organized deliveries and regularly communicated with the billing personnel in accounting to determine pricing. Placing the dispatchers in close proximity to the billing personnel in the accounting department would reduce current communication time by 40 per cent. Since there was less discussion between the sales representatives and dispatchers, no productivity would be lost as a result of the move. Exhibit 2 displays the average time per task for the dispatchers.

If the move were to occur, rental costs would also be a major savings. ETT committed to lease the Laval building until 2008, but Robert believed he could sublet the empty space as early as June 1, 2004, if one floor could be cleared out by March 31, 2004. Moving costs from Laval to Mississauga were projected to be \$2,500 per employee.

Robert knew there were many issues to consider when looking at a move of this nature. ETT's administration was entirely unionized; therefore, union regulations could not be ignored. For example, union regulations required a minimum of 120 days' notice before any personnel changes could be completed. Robert also knew that many employees would not want to move to Mississauga. The efficiency and financial gains would have to be weighed against these fallout issues relating to the move.

Working Environment

Each unionized employee received \$45,000 in salary each year and benefits of approximately \$8,000, working eight hours a day¹⁰ and five days a week. The union's reaction was a major concern for Robert since he did not wish to initiate any labor tension. He knew efficiency gains associated with the move would reduce the size of the long-haul department; however, strict union regulations did not permit the outright dismissal of employees. Employees had to receive fair warning before they could be laid off and were entitled to a severance package depending on their seniority. The union also took exception to most decisions made by management that affected the employees' status quo. ETT's union was very strong and could be difficult to deal with if a large number of employees were directly affected. If a rift developed between union and management, future collective bargaining agreements could also be in jeopardy, leading to potential strikes or lockouts.

Employees with more than 10 years seniority were considered senior employees, while those with less than 10 years' seniority were considered junior employees. Senior employees with ETT were entitled to a severance package of \$100,000 per person. If an employee had fewer than 10 years of service, it was mandated that ETT contribute \$5,000 per laid-off employee to employment insurance as benefits. To increase the incentive to move, ETT had decided to offer a one-time bonus in the amount of one year's salary, excluding benefits, to those employees accepting moves.

The company union, as with most unions, favored seniority. Employees with seniority would not be willing to move and had the right to displace junior staff in another department. All senior dispatchers were expected to exercise this right, since all belonged to dual-income families in the Laval area. Consequently, only 60

¹⁰Unionized staff members were entitled to a 30-minute break for lunch and two 15-minute breaks each day.

per cent of dispatchers, with fewer than 10 years' experience, would likely move if given the opportunity. Two weeks' worth of training would be required for any senior dispatchers who would displace sales representatives, and four weeks worth of training would be required for any new employees required in Mississauga. Training costs per employee were anticipated at \$750 a week. Those individuals who did not move to Mississauga or did not replace junior sales representatives would be laid off.

Five managers currently supervised the 45 dispatchers and were not part of the union. They earned an average \$65,000 annually with the same benefits as the dispatchers. If the move went ahead, not all five managers would be needed in long-haul operations since existing managers in Mississauga could assume some responsibility for the dispatchers. Robert believed that three managers would be sufficient to supervise the team of dispatchers (regardless of the number). As a general guideline, ETT offered severance packages of \$150,000 per manager dismissed and a one-time bonus of \$55,000, which included moving costs and benefits, to any manager moving to Mississauga.

THE WEEKS AHEAD

The move to Mississauga was an important decision. Robert had to weigh the potential cost savings of the move against the impact on the staff members before making a final decision. A move always opened an opportunity for productivity gains, but Robert was unsure of the number of long-haul operations personnel to be staffed in Mississauga in the event of a move.

Robert's presentation to the vice-president would have to include financial justification for either moving or not moving. If a move were recommended, the vice-president would expect a plan for dealing with the union's concerns.

Exhibit 1**THE LONG-HAUL OPERATIONS DEPARTMENT**

SALES REPRESENTATIVES			
Years of Service	Number of People	Average Age	Average Years of Service
Fewer than 5	8	31.8	3.5
Between 5 and 10	16	41.1	6.7
Between 10 and 15	18	43.9	13.4
Between 15 and 20	5	48.7	17.3
Between 20 and 25	6	47.6	23.0
Between 25 and 30	19	47.9	27.6
Between 30 and 35	17	53.1	31.9
35+	4	57.3	37.0
Total	93	46.8	19.6

DISPATCHERS			
Years of Service	Number of People	Average Age	Average Years of Service
Fewer than 5	7	43.4	3.4
Between 5 and 10	8	44.4	6.6
Between 10 and 15	3	42.9	12.8
Between 15 and 20	2	44.7	17.6
Between 20 and 25	3	47.1	22.2
Between 25 and 30	8	47.0	27.0
Between 30 and 35	11	52.6	31.8
35+	3	57.6	36.0
Total	45	47.7	19.8

DISPATCH MANAGERS			
Years of Service	Number of People	Average Age	Average Years of Service
Fewer than 5	—	—	—
Between 5 and 10	1	31.4	9.6
Between 10 and 15	2	39.9	12.5
Between 15 and 20	—	—	—
Between 20 and 25	1	44.3	21.8
Between 25 and 30	1	51.6	25.9
Between 30 and 35	—	—	—
35+	—	—	—
Total	5	41.4	16.5

Exhibit 2**DISPATCHERS' DAILY TASK BREAKDOWN***

TASK	HOURS
Delivery logistics (in conjunction with billing personnel)	3.75
Customer service	2.50
Miscellaneous administration	0.25
Total	6.50

* Task breakdown reflects a typical day after the accounting department's move to Mississauga, assuming 6.5 productive hours.

SPIKE'S INDOOR BEACH VOLLEYBALL AND ROCK CLIMBING INC.

Lindsay Brock wrote this case under the supervision of Elizabeth M.A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveycases.com.

Copyright © 2009, Richard Ivey School of Business Foundation

Version: 2015-11-13

SPIKE'S INDOOR BEACH VOLLEYBALL AND ROCK CLIMBING

In July 2008, after 11 successful years as the president of Spike's Indoor Beach Volleyball and Rock Climbing Inc. (Spike's), located in London, Ontario, Canada, Earl Misener was considering expanding his facility. The current facility had three indoor beach volleyball courts, a rock wall, pool table, bar, lounge area and outdoor patio, but Misener thought a rooftop patio and outdoor beach volleyball court would be a "really cool" addition for the slower summer season.

VOLLEYBALL IN CANADA

Volleyball first appeared in Canada in 1900, and the Ontario Volleyball Association (OVA) was founded in 1929. The OVA, a non-profit organization, was dedicated to providing leadership and growth in volleyball for all Ontarians. It was involved in both court and beach volleyball at all levels, from recreational to elite. OVA programs were funded and supported by the Ontario Ministry of Health Promotion, as well as by membership fees, user fees, corporate partners and fundraising activities.¹ In 2007, the OVA had a record number of teams (352) participate in the Provincial Beach Championships, held at Ashbridges Bay in Toronto, Ontario.

Beach volleyball debuted as an official Olympic sport at the Atlanta Olympic Games in 1996. The sport gained significant attention and increased in popularity when the 1999 Extreme Volleyball Professionals (EVP) Championship was televised on FOX Sports Net.

¹ www.ontariovolleyball.org, June 17, 2008.

HISTORY

Earl Misener

Misener, a Brock University graduate, worked as a chartered accountant before becoming the owner and president of Spike's. In his role at Smith, Nixon & Co., LLP (Smith), a Bay Street accounting firm in Toronto, Ontario, Misener gained experience consulting with small businesses, and he soon considered ideas for his own business. Misener was offered a partnership in Smith in 1996, but instead he opted for the entrepreneurship route. In his leisure time, Misener had been an avid beach volleyball player at North Beach Volleyball (located in Toronto). Despite its poor service, he noted that the club was very busy and popular with members. Misener decided that a similar facility with improved services could be successful in another geographic location. Since he had attended high school in London, Ontario (approximately 200 kilometres southwest of Toronto), and after some preliminary research into potential property sites and local demographics, Misener decided to locate his indoor beach volleyball facility in London.

London, Ontario

London, Ontario, the 10th largest city in Canada, had a population of 330,000 in 1996. London was situated in Southwestern Ontario between Windsor, Ontario, and Toronto, Ontario. The city had a strong focus on education, health care, tourism and manufacturing. The University of Western Ontario and Fanshawe College increased the city's population by approximately 30,000 students per year. Downtown London was known for its student nightlife, upscale restaurants, The Grand Theatre and the John Labatt Centre, an 11,000-seat arena that was designated as a venue for sports and entertainment events.

London had 16 secondary schools, each with at least one gym, where the City of London's Recreation and Leisure department held organized court volleyball leagues on weekday evenings. London's two post-secondary institutions also ran organized court volleyball leagues at their respective facilities. Level of play ranged from recreational to super-competitive to varsity. There were no indoor beach volleyball facilities in 1996.

Company Background

For months, Misener searched for an appropriate facility, finally settling on a building rental with 42-foot ceilings located at 120 Weston Road (see Exhibit 1). Spike's opened in March 1997 with three indoor beach volleyball courts. Misener found the first few months difficult, having registered only eight teams (half of which were friends or relatives) in volleyball leagues. Misener estimated that there were more than 240 court volleyball teams playing in London at the time, and many were hesitant to switch to beach volleyball. Neighbours were petitioning against the opening of the facility because the building was also improperly zoned for a recreational facility. Despite its zoning issues, by June 2008, the number of teams had grown to approximately 130 each season, with three seasons each year.

A rock climbing wall was added in 2003, and the menu had expanded from potato chips and pop to quesadillas and alcoholic beverages (see Exhibit 2 for a menu excerpt). Spike's had also recently upgraded the lighting, the heating system and the computer servers and had added a big-screen television to the lounge area.

COMPETITION

There was no direct indoor beach volleyball competition in London. Misener's initial difficulties in finding an appropriate facility pointed to no suitable locations for competitor operations, and it was too expensive to build a brand new facility. Indoor court volleyball and "one-off" outdoor beach courts provided some indirect competition, but Misener did not consider these a significant threat to his business.

East Park Golf Gardens and Fleetway Bowling Centre both operated rock wall facilities in addition to their other attractions such as mini-putt golf, batting cages and bowling alleys. East Park was located in northeast London and Fleetway in northwest London. East Park's wall was open during the facility's regular hours of operation, and climbing fees were \$5 per climb or \$14 per hour. East Park also offered certification courses and rented out equipment. Fleetway had more limited hours of operation for its rock wall, charged \$6 per 12 minutes of climbing and did not offer rock wall climbing courses or clinics.

SPIKE'S OPERATIONS

Volleyball

Spike's largest revenue source was beach volleyball league fees, which represented 35 per cent of gross revenues (see Exhibit 3 for financial statements). League fees were set at \$650 per team per season, and there were 14 different league options: men's, women's, co-ed, calibres A, B and C (with A being the most competitive), of either four or six players. Not every combination was offered. Leagues were full in the fall and winter seasons but not in the summer season. Misener employed a full-time volleyball manager to help him with scheduling, statistics, referees, tournament organization and general and administrative duties.

In addition to league fees, Spike's earned revenues from volleyball clinics, birthday parties, corporate functions, hourly court rentals, memberships and drop-in fees. See Exhibit 4 for a breakdown of weekly court use and Exhibit 5 for an activity price list.

Tournaments were held on intermittent weekends throughout the year at the indoor facility. In the summer months, Spike's also organized tournaments located at the beach in Port Stanley, Ontario (a 30-minute drive from London, Ontario). The outdoor beach courts in Port Stanley were located directly in front of the only beachfront bar and restaurant, GT's on the Beach (GT's). Tournament participants paid for a buffet lunch at GT's, which was included in their registration fee of \$180 per team of four players. Prizes were awarded to the top two teams in each category.

Rock Climbing

Spike's was one of the first locations in London to operate a successful rock climbing wall. Prior to the rock wall addition, a friend of Misener's had been operating Adventure Connection, a rock climbing facility also based in London, and the two cross-promoted each other's businesses. When Adventure Connection closed, Misener recognized the opportunity to add a wall to his facility without upsetting his friend. Misener built the wall as quickly as possible when he heard that a new competitor planned to open a rock wall facility by July 1, 2003. He contracted Rock Heads, a well-known and reputable rock wall building company from Toronto, Ontario, to build and install the wall at cost by May 24, 2003. (Misener knew the owner personally.)

Rock Climbing generated revenues from drop-in fees, beginner and advanced clinics, day passes, memberships and equipment rentals. See Exhibit 6 for the rock climbing price list. Misener had also hired a

full-time rock wall manager who was responsible for daily operations, scheduling and marketing activities, and increasing revenues.

Staff

Spike's employed approximately 20 part-time staff as servers, cooks and counterpersons.² Misener gave his employees a lot of autonomy and did not require daily inventory counts. He said, "If I don't trust you, you won't work for me." Only once in his 11-year history had he not been able to accommodate an employee's request for time off.

Other Information

Misener regularly made charitable donations on behalf of Spike's. He partnered with Youth Opportunities Unlimited and Big Sisters of London to operate two highly publicized beach volleyball tournaments that were intended to raise funds for the organizations involved. These tournaments helped generate word-of-mouth promotion, Spike's main source of advertising; they also made a contribution to the London community and enhanced Spike's image among local consumers.

In general, Spike's, like many other businesses, was experiencing an increase in all its operating costs due to high gas and energy prices. Misener did not believe he could simply increase league fees to help offset these increases.

POTENTIAL EXPANSION

Misener believed the highest outdoor patio in London, atop Spike's current facility, would encourage more people not only to play in the summer league but to stay after their matches for food and drinks. The addition of another beach court outdoors, next to the patio, would also create some excitement among members and increase the capacity of the summer league. An additional court allowed for four additional games (eight additional teams playing) each night, weather permitting. With Spike's central location, Misener also thought the rooftop restaurant and bar would attract local residents who did not currently patronize the recreational portion of the facility.

The rooftop patio would have a 200-person capacity, which would increase liquor sales to a total of \$6,000 per day,³ and increase food sales by \$1,000 per day. In the patio's four-month operating season, Misener estimated that there would be 95 good-weather days when the patio would be open. Gross margins would average 50 per cent for liquor and 35 per cent for food. Five days' worth of food and liquor inventory would be maintained, and all supplier accounts would be paid within 10 days. No additional funds would be tied up in accounts receivable as a result of the expansion.

There were several costs associated with operating the rooftop patio and additional volleyball court. Two servers (paid \$8.50 each per hour) and one bartender (paid \$10 per hour) would be required for an eight-hour shift each day of operations. No new cooks would be required because of the current excess capacity in the kitchen. Increased maintenance and utilities costs would be \$500 and \$200, respectively, per month of operation. Insurance would cost 10 per cent more than fiscal 2007 insurance costs. The facility would require

² Counter persons greeted players, accepted payment of fees, aided the wait staff and dealt with player complaints.

³ Liquor sales had historically averaged \$3,000 per day.

nets and volleyballs (\$1,000), a retaining wall and fencing (\$7,500), zoning and building permits (\$5,000), a stairway leading to the roof (\$10,000), patio furniture and railings (\$10,000) and washroom facilities (\$10,000). Depreciation of the physical assets would be \$9,300 annually. Misener planned to finance the investment needed for the expansion with a bank loan, which would require interest payments of 6 per cent per annum. He hoped to repay the loan monthly over two years.

Misener had dealt with zoning problems before, and he did not know whether he would receive the proper zoning permits to open the rooftop patio. The building was originally zoned “high-density residential,” meaning the owner could at any time terminate Spike’s lease (with reasonable notice) and build high-rise apartments in its place. In addition, neighbours, who had opposed the facility in the first place, were likely to be concerned about the noise and dangers (i.e. items thrown from the rooftop) associated with having an outdoor rooftop bar.

CONCLUSION

Although Misener was happy with the current facility and his well-balanced lifestyle, he believed in consistently upgrading the facility and its services. Was a licensed rooftop patio and outdoor beach volleyball court a wise investment? What would happen if sales were only one-half of projections? Would the expansion actually increase summer attendance and attract non-Spike’s customers? Misener sat down to analyse the expansion from every angle.

EXHIBIT 1: LOCATION OF SPIKE'S



 Location of Spike's Indoor Beach Volleyball and Rock Climbing Inc.
Area in box approximates downtown.

Source: Google Maps

EXHIBIT 2: MENU EXCERPT

SPIKE'S APPS

S-Single order (2 can share)
L-Large order (4-5 can share)

London's Best Nachos
We pile on the toppings twice! A layer of crisp nacho chips, cheese, green peppers, red onions and tomatoes. Chicken and beef are optional. Served with salsa and sour cream.
For extra salsa & sour cream add \$0.69
Veggie...\$10.99
With Chicken...\$15.29
With Ground Beef...\$14.79

Deluxe Pizza Nachos
Large - \$14.99
The new wave of Nacho! Topped with pizza sauce, green peppers, red onions, mushrooms, pepperoni, bacon and mozzarella cheese.

Meat Lovers Pizza Nachos
Large - \$15.99
Who's a carnivore? Pepperoni, bacon, spicy ground beef and mozzarella cheese.

Deep Fried Dill Pickles
S - \$7.99 L - \$12.99
Sliced, breaded, deep fried. What more can you ask for? Oh yeah... we serve them with ranch dressing for dipping.

Pretty Hot Chile Poppers
S - \$7.99 L - \$12.99
Fiery pepper halves popped full of cream cheese, dipped in a spicy breading and deep fried to contain the heat. Served with sour cream to dull the senses.

Mushroom Caps
S - \$7.99 L - \$12.99
Delectable deep fried to perfection and served with ranch dressing.

Ultimate Quesadillas
S - \$8.99 L - \$12.49
Grilled chicken, green peppers, tomatoes, red onions and mushrooms nestled in melted cheddar and mozzarella cheese. Served with salsa and sour cream on the side.
Without Chicken
S - \$6.99 L - \$9.99

Tex Mex Quesadillas
S - \$8.99 L - \$12.49
Taco beef, green peppers, tomatoes, red onions nestled in melted cheddar and mozzarella cheese. Served with salsa and sour cream on the side.

Hot Jamie's Hot Quesadillas
S - \$8.99 L - \$12.49
Taco chicken, hot sauce and lots o' cheese. Save the veggies for the vegetarians. This one's got zip. Served with salsa and sour cream on the side.

Cheesy Garlic Bread
S - \$6.99 L - \$11.99
Toasted slices of French bread seasoned with garlic butter and topped with mozzarella cheese.
Lots for sharing!

Mozza Sticks \$5.79
A long time favorite. Mozzarella sticks coated in a seasoned Italian breading. Served with pizza sauce for dipping.

Three Cheese Salsa Dip
S - \$7.99 L - \$12.99
A SPIKE'S classic! Light cream cheese, salsa, mozzarella and cheddar cheese warmed til bubbly and served with crisp tortilla chips for scooping.
1/2 order...\$7.99

SPIKE'S Combo \$17.99
Eat like the pro's! Chicken fingers or buffalo wings, and add 10 wings, fries and rings. Served with ketchup, ranch dressing and BBQ sauce.

www.spikes.on.ca

Exhibit 3: FINANCIAL STATEMENTS

Spike's Indoor Beach Volleyball Courts Inc.
STATEMENT OF OPERATIONS AND DEFICIT
Year ended July 31, 2007

	2007	2006
Revenue:		
League fees	\$ 195,401	\$ 176,156
Climbing fees	55,096	53,897
Retail sales	185,746	183,019
Beach court fees	69,326	63,550
Tournament fees	47,946	50,322
Membership fees	10,627	6,698
Advertising	<u>6,933</u>	<u>2,140</u>
	<u>571,075</u>	<u>535,782</u>
Direct Expenses:		
Prizes and gift certificates	14,276	24,425
Purchases	107,816	102,269
Rent and utilities	94,194	91,202
Salaries and benefits	<u>137,981</u>	<u>120,604</u>
	<u>354,267</u>	<u>338,500</u>
Operating Margin	216,808	197,282
General And Administrative Expenses:		
Accounting and legal	200	700
Advertising	3,899	4,852
Depreciation	21,732	22,925
Donations	1,710	1,442
Insurance	12,225	11,175
Interest and bank charges	11,050	5,258
Licences	1,910	2,245
Loss on disposal of fixed asset	0	0
Maintenance supplies	7,137	6,202
Management salaries	49,648	27,867
Management bonus	20,000	0
Meals and entertainment	2,412	1,585
Office supplies	4,144	7,664
Repairs and maintenance	8,357	12,317
Telephone	6,073	5,855
Travel	<u>7,038</u>	<u>6,542</u>
	<u>157,535</u>	<u>116,629</u>
Net income (loss) for the year before income taxes	59,273	80,653
Provision for income taxes	<u>12,345</u>	<u>6,650</u>
Net income(loss) for the year	<u>\$ 46,928</u>	<u>\$ 74,003</u>

EXHIBIT 3 (CONTINUED)

Spike's Indoor Beach Volleyball Courts Inc.
BALANCE SHEET
As at July 31, 2007

	2007	2006
ASSETS		
Current Assets:		
Bank and short-term investments	\$ 38,594	\$ 3,309
Inventory	8,865	8,625
Prepaid expenses	8,272	6,606
Due from Spike's Indoor Rock Climbing Inc.-commonly controlled	<u>35,432</u>	<u>36,477</u>
	91,163	55,017
Capital Assets (Note 1)	<u>49,119</u>	<u>61,300</u>
	<u><u>140,282</u></u>	<u><u>116,317</u></u>
LIABILITIES & SHAREHOLDERS' EQUITY		
Current Liabilities:		
Current portion of long term liabilities (Note 3)	\$ 17,700	\$ 13,200
Management bonus payable	20,000	0
Income taxes payable	8,437	1,971
Accounts payable and accrued liabilities	<u>4,354</u>	<u>11,345</u>
	50,491	26,516
DUE TO SHAREHOLDER (Note 2)	0	39,363
LONG-TERM LIABILITIES (Note 3)	<u>6,725</u>	<u>14,300</u>
	<u><u>57,216</u></u>	<u><u>80,179</u></u>
RETAINED EARNINGS	82,966	36,038
CAPITAL STOCK (Note 4)	<u>100</u>	<u>100</u>
	<u><u>83,066</u></u>	<u><u>36,138</u></u>
	<u><u>\$ 140,282</u></u>	<u><u>\$ 116,317</u></u>

EXHIBIT 3 (CONTINUED)

Spike's Indoor Beach Volleyball Courts Inc.
NOTES TO FINANCIAL STATEMENTS
Year ended July 31, 2007

Note 1: Capital Assets

	2007		2006	
	Cost	Accumulated Depreciation	Net	Net
Court construction	\$ 24,846	\$ 21,748	\$ 3,098	\$ 3,872
Equipment	70,939	44,256	26,683	22,608
Leasehold improvements	110,077	106,095	3,982	11,899
Truck	27,498	17,693	9,805	14,635
Tractor	<u>18,007</u>	<u>12,456</u>	<u>5,551</u>	<u>8,286</u>
	<u><u>\$ 251,367</u></u>	<u><u>\$ 202,248</u></u>	<u><u>\$ 49,119</u></u>	<u><u>\$ 61,300</u></u>

Capital assets are depreciated on the diminishing balance method at the following rates per annum:

Construction costs	20%
Equipment	20%
Truck	33%
Tractor	33%

Leasehold improvements are depreciated on a straight-line basis over the term of the lease plus one renewal period.

Note 2: Due to Shareholder

The balance due to the shareholder arose from cash advances to the Company. The loan is non-interest bearing and is due on demand, with no scheduled terms of repayment. The shareholder has indicated that he does not intend to demand repayment for next year.

	2007	2006
	<u><u>\$ (2,542)</u></u>	<u><u>\$ 39,363</u></u>

Note 3: Long-Term Liabilities

Business Loan — prime minus 2 per cent bank loan. Monthly principal payments of \$1,100 plus interest are made on the loan. The loan is open for additional payments but if taken to term will be paid in full on September 15, 2008.

	2007	2006
	<u><u>\$ 14,300</u></u>	<u><u>\$ 27,500</u></u>

EXHIBIT 3 (CONTINUED)

Spike's Indoor Beach Volleyball Courts Inc.
NOTES TO FINANCIAL STATEMENTS
Year ended July 31, 2007

Note 3: Long-Term Liabilities (continued)

	2007	2006
Business Loan - Prime plus 2.25 per cent bank loan. Monthly principal payments of \$375 plus interest are made on the loan. The loan is open for additional payments but if taken to term will be paid in full on December 6, 2009.	\$ 0 24,425 <u>17,700</u> <u>6,725</u>	\$ 0 27,500 <u>13,200</u> <u>14,300</u>
Less: Current portion		

Note 4: Capital Stock

	2007	2006
Authorized: Unlimited number of common shares		
Issued: 100 common shares	<u>\$ 100</u>	<u>\$ 100</u>

Source: Company records.

EXHIBIT 4: BEACH VOLLEYBALL WEEKLY SCHEDULE

Time	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
3:00-3:30							
3:30-4:00							
4:00-4:30							
4:30-5:00							
5:00-5:30							
5:30-6:00							
6:00-6:30							
6:30-7:00							
7:00-7:30							
7:30-8:00							
8:00-8:30							
8:30-9:00							
9:00-9:30							
9:30-10:00							
10:00-10:30							
10:30-11:00							
11:00-11:30							
11:30-12:00							
12:00-12:30							

Source: Company records.

EXHIBIT 5: VOLLEYBALL PRICE LIST

ACTIVITY	COST
Leagues	\$650 per team
Clinics	\$7.50 each or 10 pass for \$60
Drop-in	\$7.50 each or 10 pass for \$60
Court rental	\$90 per hour per court or \$160 for two hours per court
Memberships	\$400 includes league discounts, \$225 for no league discounts
Tournaments	\$180 per team of four, \$220 per team of six

Source: Company records.

EXHIBIT 6: ROCK CLIMBING PRICE LIST

ACTIVITY	COST
Day pass	\$10 each or 10 pass for \$90
Drop-in	\$10 from 5:30-6:30 p.m. every day or \$15 from 8:00-9:30 p.m. Tuesdays and Thursdays
Introductory course	\$35 for three hours of instruction
Private course	\$50 for three hours of instruction
Lead course	\$120 for three, 2.5 hour sessions
Harness rental	\$3
Shoe rental	\$5
Chalk rental	\$2
Equipment package	\$60 for 10 rentals
Memberships	\$160 for four months, \$260 for eight months, \$350 for 12 months ¹
Youth course	\$105 for 10 sessions

Source: Company records.

¹ Covers all day pass and drop-in fees, but does not include equipment.

STATEMENT OF CASH FLOWS

Mark A. Heisz and Rhonda L. English prepared this case under the supervision of Richard H. Mimick solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca

Copyright © 1995, Richard Ivey School of Business Foundation

Version: 2016-04-18

The purpose of financial reporting is to summarize the financial performance of an organization over a period of time and to identify the financial position of that organization at a point in time. A third financial statement, the statement of cash flows, complements the information in the statement of financial position and income statement. The objective of this statement is to provide information as to how the activities of the enterprise have been financed and how its financial resources have been used during the period covered by the statement.

The statement of financial position reflects the financial performance of a company at a specific point in time (usually fiscal year-end), but does not show how that financial position has changed since the end of the previous fiscal year. While the income statement does report the results of operations from the perspective of earned equity, it does not really explain the altered financial position as reported on the balance sheet.

An additional complementary statement is needed to fill in the gaps — the statement of cash flows. The statement of cash flows identifies the specific activities which provided or consumed cash during a period of time, which is something that the conventional balance sheet and income statement are not able to do.

The statement can be viewed as a link between two statements of financial position, illustrating the results of operations, financing decisions, and investing decisions on the financial position of a firm.

USEFULNESS OF THE STATEMENT OF CASH FLOWS

A company's ability to meet its obligations, expand its operations and to take advantage of opportunities as they arise, is largely governed by its available funds, usually defined as cash. As a result, the statement of cash flows shows how funds have been generated and used by a company over a specified period of time (usually one year).

The statement of cash flows answers specific questions concerning the activities of a business that are not readily apparent from the statement of financial position and income statement. For example, results of

policies on dividends, financing methods, and contribution of cash flow derived from operations to the company are presented in a way which makes it more understandable than the other financial statements. As well, increases and decreases in working capital items (current assets and current liabilities) which relate to liquidity, are clearly presented in the statement of cash flows.

The statement of cash flows is particularly useful in answering such questions as:

1. What were the major sources of cash for the business?
2. How much cash, if any, did the firm generate from operations?
3. How was the generated cash used?
4. How can a profitable business be running low on cash?

PREPARATION OF THE STATEMENT OF CASH FLOWS

The statement of cash flows is classified into three categories:

1. Operations — describes how normal (day-to-day) business operations have affected the flow of cash.
2. Financing Activities — summarizes the changes in the size and composition of the capital structure (both debt and equity) on the cash flow of the business.
3. Investing Activities — indicates the effects on cash of all the investment activities which involved the non-current asset accounts of the firm.

This classification system provides information regarding the ways in which groups of activities affected cash flow (e.g. cash flow from operations), as well as the extent to which specific activities generated or consumed cash (e.g. increase in level of inventories).

Operations

The operations section of the statement measures the cash flow associated with normal business activities. The income statement provides a summary (on an accrual basis) of the operating activities of the firm over a period of time; however, the net income figure is **not** equal to the cash flow from operations, for three reasons:

1. The income statement may contain some expenses which are strictly non-cash items (e.g. depreciation).
2. The income statement may contain some items which do not relate to normal business activities (e.g. the loss or gain on the sale of fixed assets).
3. The income statement reflects the revenues and expenses recorded during the period based on the level of performance. In many cases, the level of performance during the period as reflected in the income statement does **not** correspond to the amount of cash received or paid out during the period. To illustrate, consider an example:

FIDO company sells dog food to large retail outlets. Last year, FIDO sold \$100,000 worth of dog food. At the beginning of the year, FIDO's customers owed FIDO \$20,000. At the end of the year, they owed FIDO \$30,000.

How much cash was generated during the year by dog food sales?

Cash	Accounts Receivable	Sales
90,000 ②	20,000 O/B 100,000 ① Sales	① 100,000
Cash ② Collections	90,000	
	30,000 E/B	

The amount of cash received was \$90,000. FIDO actually **sold** \$100,000 (level of performance) worth of dog food, but since their customers now owe them \$10,000 more than they did at the beginning of the period, the actual **cash flow** was \$90,000.

The changes which took place in the current accounts of the business between the beginning and end of the period reflect differences between the accrual accounting system used to prepare the income statement and the actual **cash flow** associated with the operation of the business.

The operations section of this statement adjusts the reported net income to a cash basis to determine cash flow from operations. The adjustments include negating the effect of any non-cash items (i.e. depreciation), removing the impact of all transactions which are not normal operating items, and including the impact on cash of any changes in those current asset and liability accounts which deal with operating activities.

The changes in current asset and current liability accounts is determined by comparing statements of financial position at the beginning and end of the accounting period. Increases in asset accounts (such as Accounts Receivable in the FIDO company example) and decreases in liability accounts have a **negative** impact on the operating cash flow (they represent **uses** of cash), while decreases in asset accounts and increases in liability accounts have a **positive** impact on the operating cash flow (they represent **sources** of cash). All of the adjusting items in the operations section are then summed and added to the net income to determine the net cash flow from operations, which represents the firm's income from operations converted to a cash basis.

Financing Activities

The financing section tabulates the impact on cash flow during the period of all increases and decreases in the level of debt and equity financing for the firm. This would include:

1. Borrowings and repayments of both short-term and long-term debt.
2. Cash investments or withdrawals (either through dividends or by drawings) by the owners.

Investing Activities

The investing section outlines all cash movements relating to the acquisitions and disposals of non-current assets. The cash flows associated with these activities are also determined by comparing the statement of financial position figures at the beginning and end of the accounting period.

The net cash flow, appearing on the bottom line on the statement of cash flows, equals the difference between the cash balances on the statements of financial position at the beginning and end of the accounting period. Therefore, the statement has clearly outlined the impact that all activities have had on the firm's cash position during the identified period of time.

An example may help to illustrate the procedures used to develop a statement of cash flows:

EXAMPLE: SHARKY PUBLISHING LIMITED

Statements for Sharky Publishing Limited, a small publisher of budget-priced romance novels, are shown at the end of this note. The Statement of Cash Flows considers the movement of cash for the one-year period ending December 31, 2005. An Income Statement for that period is presented in Exhibit 1, and statements of financial position at the beginning and end of the period appear in Exhibits 2 and 3, respectively.

Statement of Cash Flows: Sharky Publishing

Operations Section

The first step in preparing the statement of cash flows is to determine the net cash flow from operations. This is obtained by making the following adjustments to the net income figure for the period:

1. Adding back all non-cash expenses (i.e. depreciation) since they do not represent cash expenditures
2. Negating the effect of all non-operating items (i.e. loss or gain on sale of long-term assets — see Appendix A)
3. Including the impact of changes in any current accounts associated with normal operations

The magnitude of the effect of changes in current accounts is determined by comparing the statement of financial position figures at the beginning and end of the period. For example, Accounts Payable increased from \$50,500 to \$62,000. The increase of \$11,500 represents goods or services received, but not yet paid. As a result, the \$11,500 increase had a **positive** impact on cash flow during the period (since the goods or services were not yet paid). Therefore, this \$11,500 is **added** to the net income figure in converting it to a cash basis. For Sharky Publishing, the Net Cash Flow from Operations is as follows:

Operations:		
Net Income		\$ 69,750
Adjustments to Cash Basis:		
Depreciation	\$ 72,500	
Accounts Receivable	(75,200)	
Inventory	(43,300)	
Prepays	(475)	
Accounts Payable	11,500	
Taxes Payable	2,650	
Accruals	(900)	<u>(33,225)</u>
Net Cash Flow from Operations		\$ 36,525

Financing Activities

Next, the effect of any change in the level of financing in the business is included. This financing is strictly non-trade sources of funds such as bank loans (short or long-term), mortgages, bonds, and any infusion or withdrawal of equity. In the case of Sharky Publishing, there are five such items: the bank loan, mortgage payable, bonds payable, preferred stock and dividends. Comparison of the two balance sheets indicates that the bank loan had increased by \$74,000 during the period (from \$90,000 at the end of 2004 to \$164,000 at December 31, 2005). The \$74,000 increase had a **positive** impact (source) on cash flow during the period. With the exception of dividends, the impact of the other financing accounts can be calculated in the same manner.

In many instances, the application of cash associated with dividend payments must be inferred from the available information:

Cash	Retained Earnings	
X	O/B	202,125
	Add: Net Income	69,750
	X	Less Dividends
	E/B	237,000

The amount of dividends declared during the period is computed as follows in order to balance the Retained Earnings account:

$$\begin{aligned} \$202,125 + \$69,750 - X &= \$237,000 \\ X &= \$34,875 \end{aligned}$$

The financing activities section is as follows:

Financing Activities:	
Bank Loan	\$ 74,000
Mortgage Payable	(15,000)
Bonds Payable	50,000
Preferred Stock	50,000
Dividend Declared	(34,875)
Net Sources of Cash from Financing	\$ 124,125

Investing Activities

Finally, the effects on cash of all changes in the level of investment for non-current assets must be considered. Again, we refer to the two statements of financial position to determine the magnitude of the changes. For example, the Plant and Equipment account increased from \$665,000 to \$725,000. This increase of \$60,000 represents the acquisition of plant and equipment assets during the period, and, therefore, represents a **use** of cash during the period¹. The change in the Accumulated Depreciation accounts should not be included since the increase is due to depreciation expenses during the period which has been accounted for in the Operations section as a non-cash expense in adjusting the net income to a cash basis.

¹For a more detailed discussion on the calculation of cash flows from fixed asset acquisitions and disposals, see Appendix A.

In many instances, the application of cash associated with purchases of long-lived assets must be inferred from the available information to negate the impact of accumulated depreciation:

Property, Plant & Equipment		Cash
452,475	O/B	X
Depreciation	72,500	
Losses	0	
0	Gains	
379,975		
X	Purchases	
439,975	E/B	

The value of the property plant and equipment acquired during the period is computed as follows to balance the Net Property, Plant & Equipment account:

$$\$452,475 - \$72,500 + X = \$439,975$$

$$X = \$60,000$$

Thus, the cash flow associated with investing activities is presented:

Investing Activities:

Land	\$ (100,000)
Plant and Equipment	(60,000)
Net Use of Cash from Investments	\$ (160,000)

Net Cash Flow

The Net Cash Flow for the period is the sum of the three components outlined above, and this cash flow figure must be reconciled with the change in the cash account as it appears on the statements of financial position to verify the correctness of the statement:

Net Cash Flow	\$ 650
Beginning Cash	1,350
Ending Cash	\$ 2,000

At this point, the statement is complete since all changes in the statement of financial position figures have been accounted for and the change in the level of cash has been reconciled (see Exhibit 4).

INTERPRETATION OF THE STATEMENT OF CASH FLOWS

When interpreting a particular company's statement of cash flows, consideration of the industry is essential. Firms in some industries require large amounts of working capital to finance operations until cash is received from the sale of finished products (for example, mining and oil industries). Companies in other industries with comparatively shorter operating cycles have the cash from sales more readily available to pay current debts and, therefore, need relatively less working capital.

Each company's own situation is also important in analyzing the statement of cash flows. For instance, a company whose products are in a growth phase will naturally be investing funds in current and fixed assets. A company dealing with products in a declining phase, however, may not be making major investments in assets but rather looking for new investment opportunities.

As previously mentioned, fund-flow related activities of a business can be categorized into three distinct areas: operating, financing, and investment activities. Changes occurring in all three areas of activity affect the financial position of a company and thus are of interest not only to management, but also to investors, creditors and other external users of financial statements. A closer look at the three sections of the statement of cash flows will reveal more specific information available from this statement.

Operations

In the operations section of the statement of cash flows, the first question usually asked is whether operations are generating cash. If a firm is experiencing positive cash flow from operations, an investigation of the major sources of funds is sometimes useful. Is the positive cash flow arising from stretching accounts payable, reducing inventory, or tightening credit? Are these methods acceptable or necessary in a particular situation? Ratio analysis serves to present such changes in the form of trends and absolute terms. The statement of cash flows then shows the dollar effects of the changes in the ratios.

Returning to the Sharky Publishing example (Exhibit 4), the business shows a positive cash flow from operations of \$36,525. The major sources of this cash flow were net income and an increase in accounts payable. Increases in the levels of accounts receivable and inventories were the major uses of cash. Before making judgment on the appropriateness of these activities, an investigation of the particular industry, economic climate and product stage would be required. Furthermore, financial ratios (to be discussed later) may help clarify the behavior of these accounts.

In the short term, a company can supplement negative cash flow from operations through external sources of funds (debt or equity). In the long term, however, cash must be generated from operations in order for a company to remain in business. All profit-oriented companies must make profits in order to continue to exist. Occasional negative operational cash flows may be inevitable in some circumstances. A tight economy may, for instance, necessitate extending credit terms to customers, or an expanded product line may require a significant increase in receivables and inventory levels. It is not uncommon for a growth company to experience periodic cash flow shortages while attempting to develop its operations. In these cases, however, the negative cash flow should be temporary. If there is no apparent justification for an unfavorable cash flow from operations, corrective action may be necessary.

Financing

The financing section of the statement of cash flows reveals how much debt or equity has been acquired or retired over the year. Sharky Publishing (Exhibit 4) experienced positive cash flow from financing as a result of increasing its bank loan by \$74,000, floating an additional \$50,000 in bonds, and selling \$50,000 of preferred stock. Dividend payments to shareholders were issued, thereby decreasing cash by \$34,875. This dividend payment would appear appropriate, given the positive net income earned by the company.

Good financial management dictates that firms should attempt to match the type of investment to the length of financing. If debt has been acquired, the financing time horizon (short-term or long-term) should be

matched to the uses of those funds. For example, short-term financing should not be consistently used to purchase long-term investments such as fixed assets. Instead, it should be used to supplement periodic cash requirements for operations (seasonal financing). Thus, an investigation of the type of financing which has occurred and the way in which the funds have been used can often indicate how well the firm has been managing its financing activities.

Investments

Throughout the life of a business, many activities occur involving the fixed assets of the company. Periodic purchases and sales of assets are common in most businesses for a variety of reasons. Some reasons are as follows: machinery and equipment wear out over time and need to be replaced; newer, more efficient equipment becomes available; or expansion of capacity is desired. When investments are made in fixed assets, an examination of the source of funds used (internal versus external) is beneficial. Fixed assets should be acquired utilizing funds from operations, long-term debt or equity, but not using short-term debt, as explained earlier.

The investments section of the statement of cash flows is also helpful in determining a firm's potential future success. For example, whether a company is investing enough in new plant and equipment to maintain or to increase capacity and to replace old facilities with more efficient ones can offer insight as to the direction a business is heading. If a firm is not investing in fixed assets to maintain or to increase a given operating level, that company may not be a good growth or even a stable prospect for the future.

SUMMARY

The statement of cash flows outlines the activities which have altered the firm's cash position during the period. The activities are grouped into three categories:

1. Operations
2. Financing activities
3. Investing activities

The statement provides information about the way in which changes in all balance sheet accounts of the business have affected cash flow. The preparation of the statement of cash flows involves comparing statement of financial position figures at the beginning and end of the period and the income statement for the period to determine which activities have caused the change in financial position.

The statement of cash flows, when properly utilized, can become an extremely useful and powerful tool for such things as locating causes of cash flow problems, determining company policies on investing funds generated from operations versus paying them out in dividends, or predicting future progress of a company. The amount of information available from the statement of cash flows is quite extensive and is often overlooked by uninformed users of financial statements.

Exhibit 1**Sharky Publishing Limited
INCOME STATEMENT
For the year ended December 31, 2005**

Net Sales	\$ 2,000,000
Cost of Goods Sold	<u>740,000</u>
Gross Profit	\$ 1,260,000
 Operating Expenses:	
Administrative Expenses	\$ 135,000
Selling Expenses	100,000
Promotion and Advertising	52,000
Royalties	140,000
Salaries	620,000
Depreciation	72,500
Other Expenses	<u>47,500</u>
Total Operating Expenses	<u>\$ 1,167,000</u>
Income Before Taxes	\$ 93,000
Income Taxes	<u>23,250</u>
Net Income	<u>\$ 69,750</u>

Exhibit 2

Sharky Publishing Limited
STATEMENT OF FINANCIAL POSITION
As at December 31, 2004

A S S E T S

Current Assets:		
Cash	\$ 1,350	
Accounts Receivable	142,500	
Inventory	68,700	
Prepaids	<u>3,900</u>	
Total Current Assets	\$ 216,450	
Property, Plant and Equipment:		
Plant and Equipment	\$ 665,000	
Less: Accumulated Depreciation	<u>212,525</u>	<u>452,475</u>
Total Assets	<u>\$ 668,925</u>	

L I A B I L I T I E S A N D S H A R E H O L D E R S ' E Q U I T Y

Current Liabilities:		
Bank Loan	\$ 90,000	
Accounts Payable	50,500	
Taxes Payable	20,600	
Accruals	<u>5,700</u>	
Total Current Liabilities	\$ 166,800	
Mortgage Payable	<u>200,000</u>	
Total Liabilities	\$ 366,800	
Shareholders' Equity:		
Common Stock	\$ 100,000	
Retained Earnings	<u>202,125</u>	
Total Shareholders' Equity	<u>\$ 302,125</u>	
Total Liabilities and Shareholders' Equity	<u>\$ 668,925</u>	

Exhibit 3

Sharky Publishing Limited
STATEMENT OF FINANCIAL POSITION
As at December 31, 2005

A S S E T S**Current Assets:**

Cash	\$ 2,000
Accounts Receivable	217,700
Inventory	112,000
Prepaids	4,375
Total Current Assets	\$ 336,075

Property, Plant and Equipment:

Land	100,000
Plant and Equipment	\$ 725,000
Less: Accumulated Depreciation	<u>285,025</u> <u>439,975</u>

Total Assets	<u><u>\$ 876,050</u></u>
--------------	--------------------------

L I A B I L I T I E S A N D S H A R E H O L D E R S ' E Q U I T Y**Current Liabilities:**

Bank Loan	\$ 164,000
Accounts Payable	62,000
Taxes Payable	23,250
Accruals	4,800
Total Current Liabilities	\$ 254,050

Mortgage Payable	185,000
Bonds Payable	50,000
Total Liabilities	\$ 489,050

Shareholders' Equity:

Preferred Stock	\$ 50,000
Common Stock	100,000
Retained Earnings	<u>237,000</u>
Total Shareholders' Equity	<u><u>387,000</u></u>

Total Liabilities and Shareholders' Equity	<u><u>\$ 876,050</u></u>
--	--------------------------

Exhibit 4

Sharky Publishing Limited
STATEMENT OF CASH FLOWS
For the year ended December 31, 2005

OPERATIONS

Net Income	\$ 69,750
Adjustments to Cash Basis:	
Depreciation	\$ 72,500
Accounts Receivable	(75,200)
Inventory	(43,300)
Prepays	(475)
Accounts Payable	11,500
Taxes Payable	2,650
Accruals	<u>(900)</u>
	<u>(33,225)</u>
Net Cash Flow from Operations	\$ 36,525

FINANCING ACTIVITIES

Bank Loan	\$ 74,000
Mortgage Payable	(15,000)
Bonds Payable	50,000
Preferred Stock	50,000
Dividend Payments	<u>(34,875)</u>
	<u>\$ 124,125</u>

INVESTING ACTIVITIES

Land	\$ (100,000)
Plant and Equipment	<u>(60,000)</u>
Net Cash Flow	\$ 650
Beginning Cash	1,350
Ending Cash	<u>\$ 2,000</u>

Appendix A

THE STATEMENT OF CASH FLOWS Purchases and Disposals of Fixed Assets

One aspect of preparing the statement of cash flows which often presents difficulty, arises when a firm purchases and/or disposes of fixed assets during the period. The statement of cash flows is usually prepared using two statements of financial position and an income statement for the period between the two statement of financial position dates. Consequently, the details of transactions involving fixed assets are not readily apparent. The task is, therefore, to reconstruct, from the information available, the impact of the various fixed asset transactions on the firm's cash flow.

DETERMINING CASH FLOW FROM FINANCIAL STATEMENTS

To illustrate the difficulties associated with the purchase and/or disposal of fixed assets and to demonstrate one very effective approach to determining the cash flow effect, consider the following data from the financial statements of Saturn Inc.:

1. From statements of financial position as at December 31

	2004	2005
Fixed Assets (original cost)	\$ 184,000	\$ 213,000
Accumulated Depreciation	64,000	76,000

2. From the Income Statement for the year ended December 31, 2005

Depreciation Expense	\$ 16,300
Net Loss on Sale of Fixed Assets	\$ 3,400

Given the above information, it is difficult to readily determine the cash flows associated with the fixed asset transactions during 2005. While it is clear that the cost of the fixed assets on hand at the end of 2005 is \$29,000 higher than the cost of the fixed assets on hand at the end of 2004, the actual cash flow is not necessarily equal to the change in asset cost. The change in asset cost merely represents the difference between the cost of assets purchased during the year and the original cost of assets sold during the year. Therefore, only if no fixed assets were sold, or if they were sold for their original cost, would the change in fixed asset cost equate to the cash flow associated with fixed asset transactions.

To illustrate how to determine the cash flow associated with the fixed asset transactions which occurred during 2005, it is necessary to reconstruct the available information into a T-account format:

Appendix A (continued)

Fixed Assets	
184,000	O/B
213,000	E/B

Accumulated Depreciation	
Fixed Assets	
O/B	64,000
Depreciation	(A) 16,300
E/B	76,000

Fixed Asset		Loss on Disposals	
Depreciation Expense		Of Fixed Assets	
16,300	(A)		3,400

To determine the cash flow impact of fixed asset transactions, the **net effect** of the fixed asset purchases and disposals must be examined. Only the **net effect** on cash flow of the various fixed asset transactions can be determined from the given information, since the information about individual purchases and disposals is not available. To determine the net effect of these transactions, it is wise to begin with the Accumulated Depreciation account. The above T-account description indicates that in order for the Accumulated Depreciation account to have an ending balance of \$76,000, a debit entry in the amount of \$4,300 is required. The \$4,300 reflects the accumulated depreciation associated with assets sold during the period (recall, on disposal of a fixed asset, the accumulated depreciation to date is removed). Also associated with the sale of fixed assets is the net loss on sale of fixed assets of \$3,400. The \$3,400 reflects the difference between the book value of the assets sold and the proceeds from disposal of the assets. The change in the fixed asset account indicates that the historical cost of fixed assets on hand has increased by \$29,000. The only part of the net entry to be completed is the impact on cash:

Cash		Fixed Assets		Accumulated Depreciation	
				Fixed Assets	
(B)	36,700	184,000	O/B	O/B	64,000
		29,000	(B)	(A)	16,300
		213,000	E/B	4,300	(B)
				E/B	76,000

Fixed Asset		Net Loss on Sale	
Depreciation Expense		Of Fixed Assets	
16,300	(A)	3,400	(B)

By considering the **net effect** of **all** purchases and disposals of fixed assets, we are able to determine the cash flow associated with this activity, which for Saturn Inc., amounted to a use of \$36,700.

Appendix A (continued)

ASSETS RECORDED AT NET BOOK VALUE

The task of determining the cash flow associated with fixed asset transactions is often further complicated by the fact that many companies do not separately disclose fixed asset cost and accumulated depreciation, but report only the net book value of fixed assets (historical cost less accumulated depreciation). While the task is conceptually more difficult, since all of the affected accounts cannot be reconstructed, the approach outlined above is still very useful.

The main point to remember in dealing with fixed assets reported at net is that a net fixed asset account simply reflects a consolidation of the fixed asset amount and the corresponding accumulated amortization account. Consequently, it is necessary to reconsider the impact of entries associated with fixed asset transactions on the net fixed asset account. For instance, the sale of a fixed asset decreases (credit) the fixed asset (at cost) account by the original cost of the asset and decreases (debit) the associated accumulated depreciation account by the amount of depreciation accumulated on the asset to the date of sale. However, the effect on a net fixed asset account would be to decrease (credit) the account by the book value of the asset sold (i.e. both entries are made to the same account).

Having gained some insight into the method of accounting for fixed asset transactions using a Net Fixed Asset account, reconsider the data presented above for Saturn Inc. using a Net Fixed Asset account:

1. From the statement of financial position as at December 31

	2004	2005
Fixed Assets (at net)	\$ 120,000	\$ 137,000

2. From the income statement for the year ended December 31, 2005

Depreciation Expense	\$ 16,300
Net Loss on Sale of Fixed Assets	3,400

Fixed Assets (net)	
120,000	O/B
Depreciation (A)	16,300
137,000	E/B

<table> <tr> <td style="width: 50%; border-bottom: 1px solid black;">Fixed Asset</td><td style="width: 50%; border-bottom: 1px solid black;">Net Loss on Sale</td></tr> <tr> <td style="border-bottom: 1px solid black;">Depreciation Expense</td><td style="border-bottom: 1px solid black;">Of Fixed Assets</td></tr> </table>	Fixed Asset	Net Loss on Sale	Depreciation Expense	Of Fixed Assets	<table> <tr> <td style="width: 50%; border-bottom: 1px solid black;">16,300</td><td style="width: 50%; border-bottom: 1px solid black;">3,400</td></tr> <tr> <td style="border-bottom: 1px solid black; text-align: right;">(A)</td><td style="border-bottom: 1px solid black; text-align: right;"></td></tr> </table>	16,300	3,400	(A)	
Fixed Asset	Net Loss on Sale								
Depreciation Expense	Of Fixed Assets								
16,300	3,400								
(A)									

Appendix A (continued)

In dealing with a net fixed asset account, the credit entry for depreciation of the fixed assets, formerly made to the accumulated depreciation account, becomes a credit to the net fixed asset account. In order to balance the account, a debit entry of \$33,300 is required. However, the \$33,300 does **not** necessarily reflect the cash flow associated with purchases and disposals of fixed assets. Only when no fixed assets are sold, or if they are sold for their book value, would the \$33,300 reflect cash flow. In the case of Saturn Inc., the company recognized a net loss on disposals of fixed assets of \$3,400. The loss represents the difference between book value of assets sold and the proceeds from sale. Since the proceeds from the sale were below the book value of assets sold, the total fund use is increased above the change in book value by \$3,400 to \$36,700:

Cash			Fixed Assets (Net)
(B) 36,700			120,000
			(A) 16,300
		33,300	(B)
		137,000	

Depreciation Expense			Net Loss on Sale Of Fixed Assets
16,300	(A)		3,400

In summary, in determining the cash flow associated with fixed asset transactions, it is necessary to perform the following tasks:

1. Reconstruct in T-account form the various accounts
2. Record the effect of depreciation expense on the accumulated depreciation (or net fixed asset) account
3. Determine cash flow by considering the **net impact** on all affected accounts of all purchases and disposals made during the period.

HEELING CUSTOM ATHLETIC SHOES: STATEMENT OF CASH FLOWS

Martin Eidenberg wrote this case under the supervision of Ian Dunn solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2024, Ivey Business School Foundation

Version: 2024-08-27

On September 5, 2023, Louise Bernard was reviewing her company's financial and operational performance for the previous fiscal year. She was particularly interested in analyzing Heeling Custom Athletic Shoes (Heeling)'s cash management. For any new business, managing cash flows was critical to building a sustainable venture and Heeling was certainly no different. The business manufactured custom-fit athletic shoes for elite and amateur athletes alike. Bernard wanted to determine what she had done well in managing the business's cash position over the past year and how cash flow management could be improved to achieve future growth for the company.

COMPANY BACKGROUND

Bernard started Heeling amidst the COVID-19 pandemic. She had recently graduated from Western University in London, Ontario, and had to decide what to do next. She was reluctant to join most of her peers in pursuing the typical job opportunities for recent graduates in Toronto. Instead, as a self-motivated and entrepreneurial individual, Bernard decided to start her own business.

Throughout her life, Bernard had always been extremely active. Early every morning she could be found lifting heavy things at the gym. She also enjoyed pursuing a variety of sports, from tennis to basketball to rowing. Bernard struggled to find shoes that would not cause pain after many hours of being active in these sports and found it a challenge to find the right pair of shoes for each activity. Considering that the search for a comfortable pair of shoes that performed well was a substantial challenge on its own, athletes like Bernard often had to sacrifice the "nice-to-haves" like colour and style. Bernard strongly believed in changing the idea that an athlete had to fit in a mass-produced shoe. Rather, shoes should be made to fit the athlete.

Eager to solve a problem so prevalent for athletes, Bernard was motivated to find a solution. Bernard noticed that elite athletes as well as wealthy individuals were willing to pay a significant premium for one-of-a-kind shoes that exactly matched their requirements. This realization led her to launch Heeling, a company that sold a variety of athletic shoes at premium prices. Each shoe was fit exactly to the customer's feet and tailored to their specific colour preferences. The customer's feet were measured to exacting specifications. This was followed by the selection of a sport-specific shoe and custom colour scheme.

INDUSTRY AND EXTERNAL FACTORS

In 2023, the Canadian economy was experiencing mixed signals. While interest rates and inflation were on the rise, low unemployment and strong consumer spending kept the overall economy growing.¹ However, the ongoing war in Ukraine, debt ceiling battles in the United States, and slowing economic growth in China, among other factors, created turbulence for economies around the world.² Bernard wanted to ensure that Heeling was prepared if economic conditions were to worsen, as this would likely result in financing becoming more scarce and more expensive.

The custom shoe market was growing quickly at a compound annual growth rate (CAGR) of 5.8 per cent.³ The trend towards customized footwear was driven by design and style preferences, advancements in technology making such products affordable and accessible, and consumers who were looking for increased performance and comfort.⁴

Companies such as Nike Inc. and Asics Corp. were leaders in the custom shoe market but catered primarily to customers looking to stylize their shoes rather than those looking to find the perfect fit.⁵ On the other hand, The Foot Lab and others made shoes to exact measurements for individuals with a variety of injuries or chronic conditions.⁶ Bernard found a gap in the market by providing her target customers with both personalized style and the perfect fit.

FINANCIAL AND CASH MANAGEMENT

Heeling's business had grown substantially in fiscal 2023 with sales exceeding CA\$500,000 for the first time (see Exhibits 1 and 2). This growth was mostly achieved by obtaining more customers through the company's website as a result of large online marketing expenditure. As a recent university graduate, Bernard understood that some athletes were not able to pay premium prices for their shoes all at once. As such, she offered the option to pay half of the cost upon purchase and the other half a month later, interest-free. Considering Heeling's target market, a small minority of customers took advantage of this option.

Bernard wanted to evaluate Heeling's sources and uses of cash during the year by building and analyzing a statement of cash flows. Bernard understood the importance of having sustainable cash flows to enable the company to continue its current growth trajectory. She also wanted to ensure the business was in a strong position to continue to pay off the CA\$20,000 bank loan the company obtained at the beginning of fiscal 2022.

CONCLUSION

As Bernard returned from a workout where she had achieved multiple new personal bests, she wanted to carry forward the momentum into her workday. With a protein shake in hand, she sat down to prepare and analyze her company's statement of cash flows.

¹ "Canada's Economy Is Beating Expectations, but for How Long?" RBC Thought Leadership, June 22, 2023. <https://thoughtleadership.rbc.com/canadas-economy-is-beating-expectations-but-for-how-long/>.

² Ibid.

³ Market.Us, "Custom Shoes Market Projected to Reach \$1.21 Billion by 2032 due to Rising Demand for Versatile Footwear," GlobeNewswire, April 10, 2023, <https://www.globenewswire.com/en/news-release/2023/04/10/2643487/0/en/Custom-Shoes-Market-Projected-to-Reach-1-21-Billion-by-2032-Due-to-Rising-Demand-for-Versatile-Footwear.html>.

⁴ Market.Us, "Custom Shoes."

⁵ "Nike by You," Nike.com. Accessed August 30, 2023, <https://www.nike.com/ca/nike-by-you>.

⁶ "Custom Footwear." The Foot Lab, October 20, 2022, <https://www.footlab.ca/custom-footwear/>.

EXHIBIT 1: HEELING CUSTOM ATHLETIC SHOES, STATEMENT OF EARNINGS

For the year ended August 31, 2023	CA\$
Sales*	527,492
Cost of Goods Sold	258,471
Gross Margin	269,021
Operating Expenses	
Depreciation	5,462
General & Administrative	5,196
Insurance	3,150
Marketing	63,299
Rent	29,640
Repairs & Maintenance	1,381
Salaries & Wages	139,072
Utilities	1,644
Total Operating Expenses	248,844
Operating Income	20,177
Other Items	
Gain on Sale of Trading Investments	380
Unrealized Gain on Trading Investments	72
Loss on Sale of Equipment	(2,970)
Net Income Before Interest & Taxes	17,659
Interest	1,669
Tax	2,239
Net Income	13,751

Note: *Heeling Custom Athletics Shoes' sales in fiscal 2022 had been CA\$286,508.
Source: Company files.

EXHIBIT 2: HEELING CUSTOM ATHLETIC SHOES, STATEMENTS OF FINANCIAL POSITION

As at August 31, 2023	CA\$	2023	2022
Current Assets			
Cash	7,495	-	
Trading Investments	10,000	2,500	
Accounts Receivable	7,226	5,419	
Inventory	63,733	45,888	
Prepaid Expenses	12,475	8,920	
Total Current Assets	100,929		62,727
Fixed Assets			
Production Equipment	30,497	22,398	
Less: Accumulated Depreciation	8,141	22,356	3,733
Computer & Office Equipment	5,268		5,268
Less: Accumulated Depreciation	2,108	3,160	1,054
Total Fixed Assets	25,516		22,879
Total Assets	126,445		85,606
Current Liabilities			
Bank Indebtedness*	-		5,889
Accounts Payable	38,948		21,421
Accrued Expenses	1,132		3,682
Current Portion—Bank Loan	2,000		2,000
Total Current Liabilities	42,080		32,992
Long-Term Liabilities			
Bank Loan	16,000		18,000
Shareholder Loan	15,000		-
Total Long-Term Liabilities	31,000		18,000
Shareholders' Equity			
Common Stock	45,000		40,000
Retained Earnings	8,365		(5,386)
Total Shareholders' Equity	53,365		34,614
Total Liabilities & Equity	126,445		85,606

Note: *Heeling Custom Athletic Shoes' bank line of credit had a limit of CA\$10,000.
Source: Company files

ALRICH FARMS: CASH FLOW ANALYSIS

Richard Bloomfield wrote this case under the supervision of Elizabeth M. A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2017, Richard Ivey School of Business Foundation

Version: 2019-04-17

On January 4, 2016, Rick and Hailey Alrich were reviewing the operations of their farm, located on the outskirts of London, Ontario, Canada. Specifically, Rick and Hailey wanted to evaluate how well they had managed the farm's cash over the past year. Given the volatility of the agricultural industry, cash flow was critically important to the long-term stability of any farm. After 30 years of successfully sustaining their farm business—one that had been passed down through multiple generations of the family—the Alriches hoped that strong financial management would allow them to continue by passing the farm on to the next generation.

CANADIAN AGRICULTURE HISTORY

Agriculture was arguably the most important industry in the world, given the critical importance of food production to the survival of all human societies. While farming practices had been documented for thousands of years, the past century had seen the most dramatic changes in how farms operated and what they produced. Prior to the green revolution¹ between the 1930s and 1960s, most farmers produced food for their immediate family members and then directly sold or exchanged whatever surplus they had at local farmers' markets. The rapid acceleration in technology resulted in the mechanization of cultivation methods, new varieties of seeds, chemical fertilizers, and pesticides. In response, individual farm owners became less likely to produce a variety of food products and instead rapidly began to specialize in one or two specific food commodities. These commodities were sold in bulk at wholesale prices to grain elevators or brokers.² With this dramatic shift in agricultural production, farming had become much less labour-intensive and more dependent on modern machinery and other technological advancements. Over time, as the lifestyle of Canadians became increasingly urban, farming became an alternative lifestyle. For example, in 1931, approximately half of the Canadian population lived in rural settings, and by 2011, 81 per cent of

¹ The term "green revolution" refers to rapid changes in agriculture, aided by research and the development of new technology, which focused almost exclusively on increasing the efficiency of food production, typically through higher yielding crops.

² Wendell Berry, *The Unsettling of America: Culture and Agriculture* (San Francisco: Sierra Club Books, 1996), 34.

Canadians lived in urban centres.³ Furthermore, the number of farms in Canada dropped by 10.3 per cent between 2006 and 2011;⁴ by 2011, only 1.8 per cent of the total Canadian population lived on a farm.⁵

In the 21st century, Canadian farms continued to use less labour. For example, while the total farmland area in operation remained virtually unchanged between 2006 and 2011, in 2006, there were 327,060 farm operators, and this number had dropped to 293,925 by 2011.⁶ Over the same time period, gross farm receipts had increased by almost four per cent, and the average farm size in acres had increased by seven per cent. The majority of the growth in gross farm receipts was concentrated on larger farms. The age of farm operators also increased during this period; the percentage of farm operators aged 55 and older had increased from 32.1 per cent in 1991 to 48.3 per cent in 2011.⁷

Despite the ongoing trend towards larger farms and commodity specialization, the last few decades had also witnessed a renaissance of the “farm-gate-to-consumer” relationship.⁸ More consumers were demanding not only fresh food products but also knowledge about where their food was produced and by whom. These consumers cited health and social benefits for choosing local farmers’ markets over grocery retailers. Thus, local farmers’ markets became increasingly important and prevalent in the marketplace. By selling directly to consumers, farmers eliminated intermediaries (wholesalers, traders, and retailers) and obtained higher margins on these sales.⁹

ALRICH FARMS

Rick and Hailey Alrich were both raised on farms in Southwestern Ontario. Their ancestors had owned and operated their farms since immigrating from England and Scotland in the late 1700s. Farming was viewed as much more than a livelihood for generations of the Alrich family. Despite the demographic shift over time, most of the Alrich family continued to live in rural settings, and many of them continued to operate farms.

Rick and Hailey Alrich had been involved in livestock¹⁰ and crop production since 1985. After discontinuing their beef operation in 1990, they purchased another farm from Rick’s grandfather and focused exclusively on producing commodity crops such as corn, wheat, oats, peas, and soybeans.¹¹ As recent consumer trends demanded more food products directly from the farm gate, Rick and Hailey had begun producing organic pasture-raised chicken and eggs. For three and a half years, Rick and Hailey had been selling chicken and eggs directly to customers who drove to the farm to purchase their products. They planned to soon expand into raising organic grass-fed beef.

³ “Population, Urban and Rural, by Province and Territory (Canada),” Statistics Canada, February 4, 2011, accessed January 19, 2017, www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/demo62a-eng.htm.

⁴ “Chapter 1: Number of Farms in 2011,” Statistics Canada: Snapshot of Canadian Agriculture, January 25, 2016, accessed January 19, 2017, www.statcan.gc.ca/pub/95-640-x/2011001/p1/p1-01-eng.htm#II.

⁵ “Table 004-0127—Socioeconomic Overview of the Farm Population, Distribution in the Total Population and the Farm Population for the Rural and Urban Centres Population by Sex and Age, Every 5 Years (Number unless otherwise noted),” Statistics Canada, November 27, 2013, accessed January 19, 2017, www5.statcan.gc.ca/cansim/pick-choisir?lang=eng&p2=33&id=0040127.

⁶ “Characteristics of Farm Operators: Table 8.1: Total Number of Farms and Total Number of Operators, Census Years 2006 and 2001,” Statistics Canada, May 11, 2007, accessed January 19, 2017, www.statcan.gc.ca/pub/95-629-x/8/4182943-eng.htm.

⁷ “Farm and Farm Operator Data: 2011 Census of Agriculture,” Statistics Canada, January 25, 2016, accessed January 19, 2017, www.statcan.gc.ca/pub/95-640-x/95-640-x2011001-eng.htm.

⁸ Whereas many consumers purchased products from grocery retailers, the term “farm-gate-to-consumer” referred to direct relationships and economic transactions between farmers and end-consumers.

⁹ Gilbert Gillespie, Duncan L. Hilchey, Clare Hinrichs, and Gail Feenstra, “Farmers’ Markets as Keystones in Rebuilding Local and Regional Food Systems,” in *Remaking the North American Food System: Strategies for Sustainability*, ed. Clare Hinrichs and Thomas A. Lyson (Lincoln: University of Nebraska Press, 2007), 65–80.

¹⁰ Livestock were animals raised on a farm to produce a sellable commodity. Food products such as meat, dairy, and eggs were the most common commodities chosen.

¹¹ The couple was also employed in the workforce.

The Alrich farm had survived the abnormally high interest rates of the 1980s, various drought periods, commodity price collapses, and devastating epidemics of crop disease and pest outbreaks. Often, a change in weather patterns could mean the difference between a healthy profit margin and a net loss in any given fiscal year; due to these many unpredictable variables, profitability was a poor metric of the farm's performance. Although they had had to make some difficult financial decisions through the years, the Alriches had never considered selling the farm as a desirable option. For these reasons, the couple focused on maintaining a healthy cash position; if they could remain solvent during vulnerable economic times, they would be well positioned to take advantage of the often contiguous stable years.

CASH MANAGEMENT

Although fiscal 2015 had been a good year (see Exhibits 1 and 2), Rick and Hailey wanted to evaluate their sources and uses of cash during this period. For example, had they used appropriate sources to fund capital expenditures? The couple knew better than to expect a positive cash balance, since the timing of expenses and revenues involved with farming invariably resulted in an overdraft balance at fiscal year-end. However, they did need to ensure that they had not exceeded their negotiated overdraft limit on their business account with their local bank.

CONCLUSION

Rick and Hailey intended to pass on a viable farm operation to their two children, just as the previous Alrich generation had done for them. The couple had farmed for over 30 years, and the time for succession planning was quickly approaching, so taking steps to improve the solvency of their farm operation was paramount.

Rick and Hailey sat down with a pot of locally roasted coffee to create a statement of cash flows for fiscal 2015. They would then assess the current solvency of the farm.

**EXHIBIT 1: ALRICH FARMS—STATEMENT OF EARNINGS
YEAR ENDED DECEMBER 31, 2015 (IN CANADIAN DOLLARS)**

REVENUE

Crop revenue	198,465	
Livestock revenue	<u>26,278</u>	\$224,743
Variable crop costs	125,665	
Variable livestock costs	<u>7,971</u>	<u>133,636</u>
Contribution		91,107

FIXED COSTS

Fuel—machinery & vehicle	5,488	
Maintenance—machinery & vehicle	15,911	
Insurance—machinery & vehicle	3,208	
Equipment repairs	3,330	
Loss on sale of equipment	1,924	
Gain on trade-in of machinery	(3,944)	
Depreciation—fixed assets	17,582	
Salaries	35,000	
Interest	8,687	
General & administration	<u>11,022</u>	
Total fixed costs		<u>98,208</u>
Net income before taxes		(7,101)
Income taxes		<u>—</u>
Net income after taxes		<u><u>\$</u>(7,101)</u>

Note: Fixed assets were depreciated using the straight-line method; in fiscal 2014, Alrich Farms's net income was \$3,042 on gross revenues of \$224,560.

Source: Company files.

**EXHIBIT 2: ALRICH FARMS—STATEMENT OF FINANCIAL POSITION
AS AT DECEMBER 31 (IN CANADIAN DOLLARS)**

ASSETS	2015	2014
Current assets:		
Cash	\$(57,532)	\$(59,394)
Accounts receivable	6,477	4,487
Inventory	14,529	11,585
Total current assets	<u>(36,526)</u>	<u>(43,322)</u>
Fixed assets:		
Land	\$478,000	\$478,000
Land improvements, drainage	\$100,317	\$100,317
Less: Accumulated depreciation	(36,180)	(32,160)
Machinery & vehicle	208,448	198,518
Less: Accumulated depreciation	(43,865)	(54,708)
Equipment	97,258	126,713
Less: Accumulated depreciation	(22,673)	(30,216)
Total fixed assets	<u>781,305</u>	<u>786,464</u>
Total assets	<u><u>\$744,779</u></u>	<u><u>\$743,142</u></u>

EXHIBIT 2 (CONTINUED)

LIABILITIES & SHAREHOLDERS' EQUITY	2015	2014
Current liabilities:		
Accounts payable	\$2,454	\$4,454
Current portion—Farm Credit Canada	3,500	3,500
Current portion—R&E	6,750	6,750
Total current liabilities	12,704	14,704
Long-term liabilities:		
Bank loan payable	27,352	4,775
Tile loan—Township	—	1,589
Mortgage payable—Farm Credit Canada	95,957	99,457
Mortgage payable—R&E	42,000	48,750
Promissory note—T&E	50,000	50,000
Total long-term liabilities	215,309	204,571
Total liabilities	228,013	219,275
Shareholders' equity		
Common stock	100	100
Retained earnings	516,666	523,767
Total shareholders' equity	516,766	523,867
Total liabilities and shareholders' equity	\$744,779	\$743,142

Notes: The Alrich farm had a \$65,000 overdraft limit at the bank; T&E was an arm's-length financial institution of the local municipal township; R&E was a loan from the previous generation of the Alrich family.

Source: Company files.

FINANCIAL RATIO ANALYSIS

Richard H. Mimick prepared this note to provide material for class discussion. The author does not intend to provide legal, tax, accounting or other professional advice. Such advice should be obtained from a qualified professional.

Richard Ivey School of Business Foundation prohibits any form of reproduction, storage or transmission without its written permission. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Richard Ivey School of Business Foundation, The University of Western Ontario, London, Ontario, Canada, N6A 3K7; phone (519) 661-3208; fax (519) 661-3882; e-mail cases@ivey.uwo.ca.

Copyright © 1995, Richard Ivey School of Business Foundation

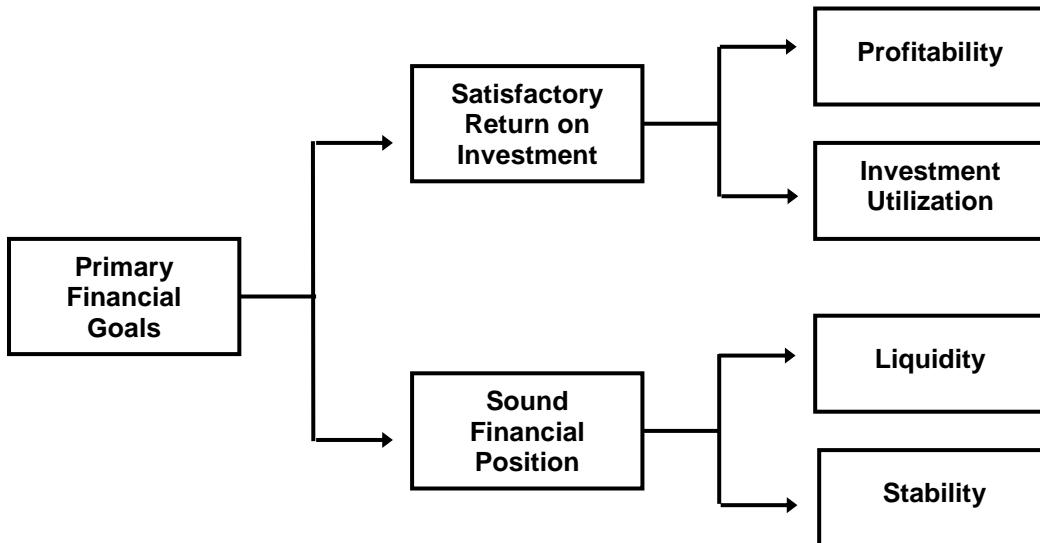
Version: 2016-04-20

Financial ratio analysis is used to evaluate the financial performance and condition of a business enterprise. Its purpose is to provide information about the business entity for decision-making by both external and internal users. For example, creditors use ratio analysis as an input into lending decisions, while potential shareholders may use this information to make investment decisions. Financial ratio analysis also provides the firm's managers with the information required to make a variety of operating decisions and financing decisions.

FINANCIAL GOALS

Financial ratio analysis evaluates the financial performance and condition of a business unit by measuring its progress towards financial goals. The primary goals of a business are to earn a satisfactory return on investment while maintaining a sound financial position. Growth over time may also be a goal in certain businesses, though it is not a prerequisite for achieving acceptable financial performance and position. These broad objectives provide the basis for a financial analyst's evaluation.

Financial analysts assess a firm's progress towards a satisfactory return on investment and sound financial position by focusing their evaluation on the components of these objectives. **Profitability** and **investment utilization** are associated with return on investment while **liquidity** and **stability** are the key elements of financial position. An overview of the relationships among these objectives is presented in Figure 1.

Figure 1**FINANCIAL GOALS: AN OVERVIEW****Return on Investment**

Return on investment is simply the ratio of earnings to investment. A satisfactory return on investment compensates investors for the use of their capital, and for the riskiness of their investment. Earning a satisfactory return on investment is fundamental to the existence and survival of every firm, because all businesses must compete against alternative investments for scarce capital resources.

Profitability

Financial analysts view profitability in two ways: first, as a return obtained from sales activities, and second, as a return generated on capital invested in the business. The first definition of profitability refers to the generation of revenue in excess of the expenses associated with obtaining it. This is a “bottom line” test of how successful a firm’s operations have been, as shown on the bottom of its income statement. Since profits are generated by the use of resources controlled by a business, it is also useful to relate them to the level of capital invested in the firm. This second view of profitability is often a better measure of a firm’s operating and financial success since it relates outputs (profits) to inputs (capital).

Investment Utilization

Investment utilization refers to the effective use of assets. A business must invest capital in various resources in order to support its activities. In general, the greater the amount of activity undertaken by a business, the greater the required support or investment. For example, consider a business that is operating near capacity and expanding its sales. The sales growth must be supported by a higher level of investment in receivables, inventories and plant capacity. Too little investment in these areas will result in lost opportunities, while too much investment means that excess funds will be unproductive, providing a very low rate of return. This implies that a proper balance should exist between sales and the various asset accounts.

Financial Position

Financial position is the financial analyst's term for the quality of the statement of financial position. A sound financial position is indicated when the statement of financial position shows that the business can pay its current debts as they fall due. In addition, the statement of financial position should show that the business has used an acceptable level of debt in financing its investments. A sound financial position is important because a business may be forced into bankruptcy if it cannot pay its obligations as they become due. A firm that is unable to meet its current obligations is said to be insolvent. The level of debt used by a business is an important consideration since the fixed payment obligations imposed by debt financing increase the risk of insolvency if a downturn in business activity occurs.

Short-term Position: Liquidity

Liquidity refers to a firm's ability to meet its short-term obligations. Businesses must be able to pay their current liabilities as they become due, or face possible bankruptcy. For example, a manager may wish to invest as much of his firm's cash in inventory and equipment as possible but if he overdoes it and cannot pay his employees or creditors on time, the firm can be forced to cease operations.

Long-term Position: Stability

Stability refers to a firm's overall financial structure, or the relative amounts of debt and equity on the right hand side of the statement of financial position. Since debt must be repaid, the use of debt capital increases the risk of bankruptcy. Why do firms use debt capital if it increases risk? First, debt financing is typically less expensive than equity capital. Second, the return on ownership capital can be increased if money can be borrowed from others at an interest rate that is lower than the firm's rate of return on assets. This is known as **leverage**. Third, existing owners may want to retain control of a business by limiting ownership investment. As a result, companies attempt to find an optimum financial structure, or balance, between debt and equity financing which is suitable for their objectives and the conditions of the industry in which they are operating.

Growth

Growth refers to increasing in size or to acquiring more of something. A businessperson may assess his or her financial performance by calculating, for example, how much sales or assets have increased from one period to the next. Growth, however, should not be viewed as an absolute measure of a firm's operating and financial success. For example, a business that experiences growth in assets and sales without a corresponding increase in profits would, normally, not be considered a successful enterprise. Moreover, many static but healthy companies exist, which illustrates that growth is not a necessity for every business.

Financial managers must determine the relative emphasis to place on each of the various goals. This decision is shaped by the principal objectives of an organization and the environment in which it operates.

PREPARING A FINANCIAL RATIO ANALYSIS

The financial statements of Novella Ltd., an expanding book wholesaler, will be used to illustrate the techniques for calculating financial ratios. Exhibit 1 presents Novella Ltd.'s income statements for 2003, 2004 and 2005. Exhibit 2 contains the company's statements of financial position as at December 31, 2003, 2004 and 2005.

As changes occur in the size of Novella Ltd.'s various accounts, it is difficult to analyze what is happening by casual inspection of the company's several income statements and statements of financial position. If only one or two accounts changed while the remainder stayed constant, it would be a relatively straightforward task to identify and to interpret such developments. However, many items fluctuate simultaneously. Furthermore, the larger the numbers, the more difficult it is to tell how much they have changed relative to each other.

Financial ratio analysis is used to identify and to interpret changes in financial performance and condition over a period of time. A ratio is simply a fraction. It has two parts: a numerator (the top), and a denominator (the bottom). Using the Novella example, there are endless possible ratios that could be calculated by taking various numbers on the income statements and statements of financial position and by making fractions. Most of the calculations would be meaningless; however, financial analysts have agreed upon a common set of 15 to 20 ratios that are useful in assessing financial performance and financial position.

Exhibits 3, 4, 5, 6 and 7 present these standard ratios for Novella Ltd. The following observations can be made about this ratio analysis:

- The ratios are grouped into five categories, with the headings referring to the five financial goals. In other words, the ratios help analyze the company's progress towards each of these financial objectives.
- The ratios do not look like fractions. Each fraction has been simplified as much as possible.
- Some ratios are percentages, others are in days, others are in the form of proportions, etc. The differences are the result of the various numbers used in deriving the fractions.
- Each ratio has been calculated for three years in order to compare ratios over time and to identify changes in them. A single ratio does not provide much insight as to the direction in which a firm is heading.

The mathematics required to calculate the ratios are quite straightforward. In contrast, interpretation of the ratios is a complex task. Evaluating ratios is difficult because in many cases there are no precise guidelines as to whether a ratio is favorable or unfavorable. For example, a favorable relationship for one company may be totally unacceptable for a business operating under a different set of conditions. Similarly, a certain relationship for a business may be favorable at one point in time but unacceptable for the same firm at another point in its life. As a result, the financial analyst attempts to find some standard of comparison to determine whether the relationships found are favorable or unfavorable. The two most common standards of comparison are the past performance of the company and the performance of other similar companies operating in the same industry.

PROFITABILITY RATIOS

Profitability ratios are used to assess the operating efficiency and overall financial performance of a business.

Vertical Analysis

Financial analysts perform a **vertical analysis** to measure operating efficiency. A vertical analysis is the restatement of the income statement in percentages, using net sales for the year as the base, i.e., 100 per cent. The term “vertical” arises from the fact that percentages are calculated on the vertical axis, in contrast to growth ratios, such as sales growth, which make a horizontal comparison. The purpose of the analysis is to examine the relationship between the level of each expense item and the firm’s sales level. The largest expense in non-service businesses is usually the products which are being sold:

$$\text{Cost of Goods Sold to Sales} = \frac{\text{Cost of Goods Sold} (\$)}{\text{Net Sales} (\$)} \times 100 = ? (\%)$$

This ratio indicates the amount spent to provide the products which were sold; its complement is the company’s “margin” to cover all overhead costs and taxes, and to provide a return to the owners:

$$\text{Gross Profit to Sales} = \frac{\text{Gross Profit} (\$)}{\text{Net Sales} (\$)} \times 100 = ? (\%)$$

This ratio measures the percentage of each sales dollar left to cover operating expenses and to contribute to profits after paying for the cost of goods sold. An increasing trend in the gross profit to sales ratio may be the result of a reduction in cost of goods sold (better cost control in a manufacturing firm, more astute buying in a retailing firm, etc.), or the result of an increase in the level of selling prices, or both. The opposite is true of a declining trend in gross profit to sales. Because cost of goods sold is usually the major expense associated with obtaining sales revenue, financial managers pay close attention to changes in this ratio. For manufacturing concerns, percentages can also be calculated for each component of the cost of goods sold.

The next areas for study are the firm’s various operating expenses, in aggregate and individually:

$$\text{Operating Expenses to Sales} = \frac{\text{Operating Expenses} (\$)}{\text{Net Sales} (\$)} \times 100 = ? (\%)$$

This ratio shows the percentage of each sales dollar spent on operating costs. Percentages are usually calculated for each individual expense item in order to explain more precisely any changes which have occurred. Once again, movements in these ratios can be explained by one or more factors, including an absolute increase or decrease in the level of cost incurred, changes in selling price levels, and shifts in the volume of activities undertaken by the firm. Analysts must be particularly conscious of this last factor; the ratio of a fixed cost item to net sales will, automatically, decline as volume rises and increase as volume shrinks.

The residual after deducting total operating expenses from gross profit is:

Earnings Before Interest & Taxes to Sales =

$$\frac{\text{Earnings Before Interest & Taxes} (\$)}{\text{Net Sales} (\$)} \times 100 = ? (\%)$$

This ratio indicates what percentage of each sales dollar is left to cover financing costs, taxes and profits after meeting all operating expenses.

It is preferable to ignore interest in the calculation of the operating expenses to sales and earnings before interest and taxes to sales ratios, because interest expense is a cost related to the financial policy rather than to operating efficiency. Interest and taxes can then be separately expressed in ratios as a percentage of sales.

The remaining amount is the company's profit for the period. Net income to sales, or profit margin is calculated as follows:

$$\text{Net Income to Sales} = \frac{\text{Net Income} (\$)}{\text{Net Sales} (\$)} \times 100 = ? (\%)$$

This ratio indicates the percentage of each sales dollar that was left as profit to the firm's owners, after paying for products sold and all operating expenses, interest and taxes. It is a measure of overall financial performance during the period.

An inspection of Novella Ltd.'s data shows that profit is increasing, in both absolute dollar terms and as a percentage of sales. Reviewing the vertical analysis, the factor creating the favorable trend is the operating expenses, principally selling and general administration. A possible explanation for this trend may be the existence of fixed costs in these operating expense categories. As sales increase, fixed costs are spread over a larger sales volume. Consequently, the ratio of a fixed cost item to sales should fall. This example illustrates that an understanding of cost behavior is useful to the financial analyst. Ratios related to fixed or "semi-fixed" cost items will inevitably fluctuate as sales volume changes. As a result, trends in these areas may simply be caused by changes in sales volume, rather than inflation, operating efficiency, or management-controlled factors.

Return on Investment

Return on investment is a key measure of overall financial performance. It expresses the relationship between profitability and investment. The most common return on investment ratios are return on assets (ROA) and return on shareholders' equity (ROE).

$$\text{Return on Assets} = \frac{\text{Net Income} (\$)}{\text{Average Total Assets} (\$)} \times 100 = ? (\%)^1$$

Return on assets indicates how much the firm has earned on the total investment in the company. The ratio provides a broad view of management's effectiveness in handling the business resources. As a slight variation of this ratio, earnings before interest and taxes can be substituted for net income in order to eliminate the effect of financial policy on the ratio. When calculated in this way, the ratio produces a return before interest expenses and taxes, which can be compared to other before tax yields in the marketplace.

$$\text{Return on Assets} = \frac{\text{Earnings Before Interest & Taxes} (\$)}{\text{Average Total Assets} (\$)} \times 100 = ? (\%)^2$$

¹ Average Total Assets = (Beginning Total Assets + Ending Total Assets) ÷ 2. Year-end assets may be used if an average cannot be calculated from the data available.

² Average Total Assets = (Beginning Total Assets + Ending Total Assets) ÷ 2. Year-end assets may be used if an average cannot be calculated from the data available.

To assess the quality of this ratio, look both at the trend in the ratio and make comparisons with industry ratios. As well, this ratio can be compared to the interest rates on the firm's debt in order to assess whether leverage is having a positive or negative impact on the firm's profitability.

Return on shareholders' equity measures how much money was made on the shareholders' total investment. A company's equity section includes the original investment of the shareholders plus the profits retained in the company, thus the ratio uses this amount as the investment base:

$$\text{Return on Equity} = \frac{\text{Net Income} (\$)}{\text{Average Shareholders' Equity} (\$)^3} \times 100 = ? (\%)$$

In evaluating this ratio, first consider the returns shareholders might make on alternative investments. For example, if a shareholder is comparing Novella Ltd. to government bonds yielding 12 per cent per annum, he would have to assess the relative returns (which have been higher in Novella) and the relative risks (risk is lower with government bonds) of the two investments. If Novella's return on investment is high enough to compensate for the additional risk, the investor would rank this investment ahead of the government bonds. As well, the trend of the ratio should be examined. The data in Exhibit 3 indicates that Novella Ltd.'s return on investment ratios are increasing and extremely favorable. Very few investments could match the 60.9 per cent return earned on shareholders' equity in 2005.

In addition to these measures of a firm's performance, potential investors may also wish to evaluate the performance of the company's common stock in the marketplace. Data such as the price earnings multiple, the relationship of the share price to book value per common share, dividend yields, and share price trends may be useful in this context.

INVESTMENT UTILIZATION RATIOS

Investment utilization ratios measure how well a firm is using its resources. These ratios are derived from income statement and statement of financial position accounts. The intent in each case is to relate the level of an asset with the undertaking of an operating activity. For example, since accounts receivable are generated by credit sales, the level of investment in this asset is viewed in relation to sales activity.

Inventory Turnover

An important ratio for examining inventory movement is the Inventory Turnover. This ratio measures the number of times inventory "turned over", that is, was sold. Inventory turnover is calculated by dividing the cost of goods sold for the period by the average level of inventory.

$$\text{Inventory Turnover} = \frac{\text{Cost of Goods Sold} (\$)}{\text{Average Inventory} (\$)^4} = ? (\text{times})$$

Average inventory is used because sales occur over the entire period. Although a high inventory turnover is desirable, a rate that is too high may indicate that the firm risks losing sales by not carrying enough inventory to service its customers properly.

³ Average Shareholders' Equity = $(\text{Beginning Equity} + \text{Ending Equity}) \div 2$.

⁴ Average Inventory = $(\text{Beginning Inventory} + \text{Ending Inventory}) \div 2$.

Fixed Asset Turnover

The fixed asset turnover ratio measures the amount of investment which the firm has tied up in fixed assets in order to sustain a given level of sales:

$$\text{Fixed Asset Turnover} = \frac{\text{Net Sales} (\$)}{\text{Average Net Fixed Assets} (\$)} = ? \text{ (times)}$$

This ratio attempts to gauge how efficiently and intensively the firm's fixed assets are being used. It should be noted, however, that this ratio is strongly influenced by depreciation policies, age of the assets, and whether the firm leases rather than buys certain fixed assets (e.g., vehicles, building, etc.) As a result, comparisons between companies, even within the same industry, are difficult.

Total Asset Turnover

The total asset turnover ratio relates sales to the total of all assets owned by the firm:

$$\text{Total Asset Turnover} = \frac{\text{Net Sales} (\$)}{\text{Average Total Assets} (\$)} = ? \text{ (times)}$$

This ratio gives an indication of how well the firm's overall investment is managed relative to the sales volume it supports.

Novella Ltd.'s total turnover ratio has been steadily improving. The results are: 2.0 times in 2003, 3.4 times in 2004, and 3.7 times in 2005.

Turnover ratios should be interpreted very carefully, since the level of investment in plant and equipment is affected by a firm's depreciation and inventory policies, financing decisions (i.e., lease versus buy), and the purchase date of a company's assets. The inconsistencies make comparisons of different firms' ratios difficult. However, increasing or decreasing trends over time within a particular firm can provide clues to the efficiency with which its assets are being used.

A high asset turnover ratio is regarded as a good sign. The ratio suggests that for a given sales volume a lower amount of investment will give a better ratio. Too much investment in any asset is undesirable because there is a cost associated with using capital. In addition, a business may be foregoing other better opportunities by having excessive funds tied up in an asset.

LIQUIDITY RATIOS

Liquidity ratios are used to assess a firm's ability to meet its short-term obligations and to evaluate the level of rapidly available resources which could be marshaled to meet unexpected needs.

Current Ratio

The simplest and most common ratio relates all outstanding current assets to current liabilities:

$$\text{Current Ratio} = \frac{\text{Total Current Assets} (\$)}{\text{Total Current Liabilities} (\$)} = ? \text{ (times)}$$

The current ratio reflects the relative balance between short-term assets and short-term debts. In the Novella example, the 2003 current ratio is 2.0 (also expressed 2.0:1), which can be interpreted as \$2 in current assets for every \$1 in current liabilities. The rationale for using this ratio is that a company must meet its short-term obligations with short-term assets. So long as the company has more current assets than current liabilities, there is a margin of safety in case it becomes necessary to pay off some or all of the current liabilities.

Every industry has found a different level of current ratio to be appropriate. There are no firm guidelines as to the “right” current ratio for a company. Analysts look at a number of factors in determining the adequacy of the ratio. First, the nature of the company’s business may be taken into consideration. In general, firms with predictable cash flows can afford to have a smaller margin of safety than others. Besides this factor, analysts look at the composition of the individual current assets and the turnover of the various assets.

The current ratio can be too high as well as too low. If too much money is kept in cash or inventory, for example, that money may not be being put to work as effectively as it could be.

Acid Test Ratio

A second liquidity ratio, the acid test ratio or “quick” ratio, is a more rigorous measure which tests immediate liquidity. It is calculated as follows:

$$\text{Quick Ratio} = \frac{\text{Cash} + \text{Trading Investments} + \text{Accounts Receivable} (\$)}{\text{Current Liabilities} (\$)} = ? \text{ (times)}$$

The main difference between the current and acid test ratios is usually the amount of money invested in inventory. Inventory is less liquid than other current assets since it is difficult to convert into cash in a hurry. As a result, its inclusion in a liquidity ratio would overstate a company’s **immediate** liquidity. The adequacy of the acid test ratio is assessed by an evaluation of the composition of quick assets and a comparison of the firm’s credit terms with the terms extended by its suppliers. A quick ratio of less than 1.0 (\$1 of quick assets for every \$1 of current liabilities) may still be acceptable, depending upon the nature of the industry and the stability of the firm’s cash flow.

Working Capital

Another measure used to assess liquidity is the total dollar amount of working capital on hand:

$$\text{Working Capital} = \text{Current Assets} (\$) - \text{Current Liabilities} (\$)$$

The rationale is that after the enterprise has enough current assets available to cover its current liabilities, the money left over (working capital) is available with which to work. Again there are no standards, but most analysts tend to think that “more is better”, within reasonable limits.

An inspection of Exhibit 5 data shows that Novella is in a very favorable short-term position. The 2005 ratios are, perhaps, even too high, indicating that the company could consider alternative uses for the excess funds.

Age of Accounts Receivable

The Average age of accounts receivable is calculated in two steps:

- Calculate the average daily sales:

$$\text{Average Daily Sales} = \frac{\text{Total Period Net Sales} (\$)}{\text{Number of days in period}} = ? (\$/\text{day})$$

- Calculate the number of days of net sales represented by the level of accounts receivable currently outstanding:

$$\text{Age of Accounts Receivable} = \frac{\text{Accounts Receivable} (\$)}{\text{Average Daily Sales} (\$/\text{day})} = ? (\text{days})$$

The average daily sales for Novella Ltd. was based on a 360-day period. Of course, there are more than 360 days in a year, though most businesses do not have 360 operating days in a year. Therefore, the use of 360 in the denominator may appear questionable. It is used, however, because it is simpler to think of a year with 12 months of 30 days each. A different denominator — such as 365 days or 260 days (52 weeks × 5 days) — can be used instead, as long as the base chosen is noted and used consistently for all calculations. Although various denominators may be used, a 360- or 365-day base is most practical for ratios involving receivables and payables, since the use of a base approximating a calendar year results in a ratio that is comparable to credit terms (credit terms relate to calendar days rather than to operating days).

The age of accounts receivable ratio shows the average number of days that sales remain uncollected. In other words, on December 31, 2003, Novella Ltd. had 30 average day's worth of sales outstanding. The financial statements (Exhibits 1 and 2) show that as sales increased in 2003 and 2004, Novella increased its investment in receivables. The calculation of the average age receivable (see Exhibit 4) gives a more useful picture of the firm's investment in this asset. It shows that the investment in receivables increased relative to the sales level, from about 30 days in 2003 to 35 days in 2004 and 40 days in 2005. One possible explanation is that the firm may be easing up on credit terms in order to improve sales growth. Alternatively, it may indicate ineffective collection procedures or an over-extension of credit.

Another way to think of the average age of receivables is in terms of the length of time a company must wait, on average, after making a sale before collecting its money. If Novella had credit terms of "due in ten days", an average age of accounts receivable of 30 days indicates poor credit management. The opposite would be true if its terms were "due in 60 days". The longer the average age of accounts receivable, the more money it takes to operate the firm, because customers have the use of the company's money between the time goods are delivered and the time they are paid for. Conversely, credit terms and procedures that are too stringent may drive away customers.

Sometimes the "average" nature of the age of receivables ratio is misleading because some accounts may be due in the very short term, while others are long overdue. One approach to analyzing this problem is to

prepare an “aging schedule”, which groups the various accounts according to the number of days they have been outstanding. For example, an aging schedule may look like this:

Age	Percentage of Accounts Receivable
0-30 days	60
31-60 days	30
Over 60 days	10

Such a breakdown would give more insight into the reasons for any change in the level and quality of the firm's receivables.

Age of Inventory

The calculation of the average inventory period is a two step procedure, similar to the process used to calculate average age of accounts receivable:

- Calculate the average daily cost of goods sold:

$$\text{Average Daily Cost of Goods Sold} = \frac{\text{Total Period Cost of Goods Sold} (\$)}{\text{Number of days in period}} = ? (\$/\text{day})$$

- Calculate the number of days of goods sold represented by the inventory currently on hand:

$$\text{Age of Inventory} = \frac{\text{Ending Inventory} (\$)}{\text{Average Daily Cost of Goods Sold} (\$/\text{day})} = ? (\text{days})$$

This test measures how fast merchandise moves through the business from the date received to the date sold. Although Novella Ltd. increased its investment in inventory in absolute terms between 2003 and 2005, Exhibit 5 indicates that the level of inventory relative to selling levels has actually improved. This is a common trend for growing firms, as purchases often lag sales increases.

In manufacturing companies, it is sometimes useful to refine inventory ratios further in order to reflect the three types of inventory on hand. The relevant formulas for calculation of the ratios then become:

Numerator	Denominator
Raw Materials Inventory	Average Daily Cost of Raw Materials Used
Work-in-Process Inventory	Average Daily Cost of Goods Manufactured
Finished Goods Inventory	Average Daily Cost of Goods Sold

More frequently, the analyst will simply examine the total value of all three types of inventory in relation to the cost of goods being sold, since raw materials and work in process will soon be converted into finished units anyway.

A trend toward a longer inventory period may indicate that the company is carrying excessive inventory for its sales level or that its inventory is becoming obsolete. Higher inventory levels represent larger amounts of money a company has tied up. Reducing inventory will not only release money which may be used more productively elsewhere, it will also usually cut down on storage costs, obsolescence, etc. However, firms

can lose business by not having inventory (known as “stock-outs”) when the customer requests goods. Therefore, companies must attempt to balance the costs of running out of inventory against the costs of maintaining large stock levels.

Average Age of Accounts Payable

The average age of accounts payable is also calculated in two steps:

- Calculate the average daily purchases:

$$\text{Average Daily Purchases} = \frac{\text{Total Period Purchases} (\$)}{\text{Number of days in period}} = ? (\$/\text{day})$$

- Calculate the number of days of purchases represented by the accounts payable currently owing:

$$\text{Age of Accounts Payable} = \frac{\text{Accounts Payable} (\$)}{\text{Average Daily Purchases} (\$/\text{day})} = ? (\text{days})$$

The age of accounts payable, expressed in days, shows how long the company takes to pay for what it buys on credit. Compared with industry figures and the terms of credit offered by the company’s suppliers, this ratio indicates whether the company is depending too much on its trade credit. If the average accounts payable period is excessive, creditors may demand repayment immediately, causing cash problems for the company, or may stop supplying the company until it pays for its previous purchases. Even though stretching the repayment period generates funds for a firm, a bad credit reputation can be developed which may cost the company dearly in the long term. If, conversely, the average accounts payable period is very low in comparison with industry practice, it may indicate that the company is foregoing a potential source of cash.

Since the purchases figure is often unavailable in condensed financial statements, cost of goods sold or cost of finished goods manufactured may be substituted as a proxy for purchases. Although this will not provide a days figure that is comparable to the firm’s credit terms, it does provide a reasonable basis for computing the ratio, since the relationship between cost of sales or cost of goods manufactured and purchases would likely be fairly stable in most situations. The variations of the ratio using these proxies should, therefore, provide the analyst with at least an idea of the direction of accounts payable experience within the firm.

Good management of payables can save a company money. Many suppliers offer terms such as “2/10, net 30”, which means that a two per cent discount will be given if the invoice is paid within ten days, but otherwise the total bill must be paid within 30 days. The savings possible by paying two per cent less within ten days works out to an annual interest rate of about 36 per cent (there are approximately eighteen 20-day periods in a year). Because bank loan rates are normally less than 36 per cent, borrowing to take advantage of purchase discounts can increase profits.

For Novella Ltd., the average accounts payable period increased from 29 days in 2003 to 38 days in 2005. Given that suppliers terms are “net 30”, the company should be alert to any signs of supplier unrest and, perhaps, take action to pay its bills faster.

STABILITY RATIOS

Stability ratios measure the amount of debt in a firm's financial structure and a company's ability to meet the payment schedules associated with long-term debt. The purpose of these ratios is to provide the financial analyst with a view of the financial risk of the firm (the risks which result from using debt) and the protection afforded to creditors in the event of unprofitable operations.

Net Worth to Total Assets

The net worth to total asset ratio indicates the proportion of the assets which have been financed by the owners:

$$\text{Net Worth to Total Assets} = \frac{\text{Total Shareholders' Equity} (\$)}{\text{Total Assets} (\$)} \times 100 = ? (\%)$$

In general, the higher the ratio, the more interested prospective lenders will be in advancing funds. If the ratio is too low, there is danger of encouraging irresponsibility by the owners and of leaving inadequate protection for the company's creditors. In general, firms that operate in industries in which the risk of fluctuations in earnings (and hence operating cash flow) is high (e.g., resource industries, high-technology industries) should target higher ratios than firms in industries which exhibit stable earnings' patterns (e.g., utilities, grocery stores). For example, the earning's potential of the steel industry is highly dependent upon general economic conditions. In an economic recession, steel companies suffer sharp declines in profitability, while an economic boom has the opposite effect on their earnings. Since these firms must cover the fixed payments associated with debt in both good and bad years, they cannot afford to carry too much debt. Besides, this general rule is important to look for trends and to seek comparative industry data to assess the appropriateness of this ratio. An unfavorable ratio or trend may cause difficulty in raising additional capital should it be required.

Total Debt to Total Assets

The total debt to total assets ratio is another way of expressing the same information. Given the fundamental accounting equation (Assets = Liabilities + Equity), this ratio is always the complement of the net worth calculation discussed above:

$$\text{Total Debt to Total Assets} = \frac{\text{Total Liabilities} (\$)}{\text{Total Assets} (\$)} \times 100 = ? (\%)$$

Novella Ltd.'s total debt to total assets ratio in 2005 is 29.4 per cent, indicating a relatively low risk position. As a result, the company should not have problems raising capital if additional debt financing is required. In the future, the company could consider using more debt financing in order to increase the return on shareholders' equity, as long as the firm continues to be able to invest funds in assets which yield returns higher than the cost of debt financing. Judging by previous return on asset performance (refer to Exhibit 3), Novella Ltd. appears well equipped to benefit from further "leveraging."

A slight variation on this ratio focuses only on long-term debt. This calculation indicates the amount of relatively permanent sources of debt in the financial structure, as opposed to the temporary, fluctuating items contained in current liabilities.

Debt to Equity

The debt to equity computation is simply an alternative method for expressing the relative amounts of borrowed versus owners' investment in the firm. Instead of yielding a percentage, this ratio describes how large the firm's liabilities are relative to its total equity.

$$\text{Debt to Equity} = \frac{\text{Total Liabilities} (\$)}{\text{Total Shareholders' Equity} (\$)} = ? \text{ (times)}$$

Long-term Debt Interest Coverage

The long-term debt interest coverage calculation measures how many times the company's profit could pay the interest on the debt it owes. It, therefore, reflects the margin of safety that creditors have in the event of a decline in earnings. The ratio is calculated as follows:

$$\text{Long-term Debt Interest Coverage} = \frac{\text{Earnings Before Interest and Taxes} (\$)}{\text{Interest on Long-term Debt} (\$)} = ? \text{ (times)}$$

A before-tax profit is used because income taxes are calculated after deducting interest expenses. Thus, the ability to pay interest obligations is not affected by income taxes. If a company cannot cover the interest payments from its profit, it will have to delve into its cash and other assets. Failure to meet debt obligations can cause bankruptcy. An unfavorable trend or comparison with the industry average may also give the company a poor credit rating, thereby impairing its ability to obtain additional debt.

This ratio can also be calculated differently:

$$\text{Long-term Debt Interest Coverage} = \frac{\text{Earnings Before Interest, Taxes, Depreciation and Amortization} (\$)}{\text{Interest on Long-term Debt} (\$)}$$

Since depreciation is a non-cash expense, adding it back to net income before calculating interest coverage will demonstrate a company's true ability to pay back interest with its cash resources.

Novella Ltd.'s long-term debt interest coverage ratio is 40 times in 2005, indicating an excellent margin of safety. If desired, the numerator can be made more relevant (and more favorable) by adding back the non-cash expenses incurred by the company. This adjustment is appropriate since it is actually cash flow, rather than profit, which is available to meet the firm's obligations.

This ratio can be altered to include any additional fixed charges (e.g., lease payments) or payment obligations (e.g., principal repayment) that the company regularly incurs. The inclusion of these items make this ratio more comprehensive and indicative of potential problems in meeting all contractual obligations. Care must be taken to adjust for tax factors, however. For example, most debt obligations have a principal and interest payment. The interest is tax deductible; principal repayments are not. To adjust the coverage ratio, non-tax deductible items that are included in the denominator of the ratio must be divided by the complement of the tax rate. This adjustment computes the amount of pre-tax income which will actually be required in order to leave sufficient funds after taxation to meet the necessary obligations.

Fixed Payment Coverage =

$$\frac{\text{Earnings Before Interest and Taxes} (\$)}{\text{Interest + Lease Payments + Principal Repayments}} = \underline{\underline{\text{?}}} \text{ (times)}$$

(1 - Tax Rate)

GROWTH RATIOS

Growth ratios are used to assess the percentage increase or decrease in any financial statement item. Although growth ratios may be calculated over any period of time, the ratios for Novella Ltd. in Exhibit 7 are for one-year periods, a common time horizon. Growth is expressed as a percentage change from one point in time to another, using the first point in the time as a base.

Sales Growth

Sales growth is important because it summarizes the overall activity level of the firm in the marketplace:

$$\text{Sales Growth} = \frac{\text{Year 2 Sales} (\$) - \text{Year 1 Sales} (\$)}{\text{Year 1 Sales} (\$)} \times 100 = \underline{\underline{\text{?}}} \text{ (%)}$$

To evaluate the quality of this ratio, compare the sales growth percentage with company price increases and the rate of inflation, in order to assess whether a company has experienced real growth in volume. In addition, look at both the trend over time and industry growth rates, where available. A well-established firm selling a mature product will demonstrate slower growth than a small, young enterprise introducing new products or attacking new markets.

Profit Growth

Profit growth is of great concern to the owners and managers of a business, since it describes the overall efficiency of operations relative to previous periods:

$$\text{Profit Growth} = \frac{\text{Year 2 Profit} (\$) - \text{Year 1 Profit} (\$)}{\text{Year 1 Profit} (\$)} \times 100 = \underline{\underline{\text{?}}} \text{ (%)}$$

Profit growth may also be assessed by comparisons to the rate of inflation and industry growth rates.

Asset Growth

Asset growth summarizes the change in the level of all resources owned by the firm over the course of the period:

$$\text{Asset Growth} = \frac{\text{Year 2 Total Assets} (\$) - \text{Year 1 Total Assets} (\$)}{\text{Year 1 Total Assets} (\$)} \times 100 = \underline{\underline{\text{?}}} \text{ (%)}$$

Asset growth normally goes hand in hand with sales growth. If assets are growing significantly and sales are not, the analyst is given a signal that something may be wrong. Conversely, substantial sales growth without corresponding asset growth is often a signal that existing resources are becoming more fully utilized and that expansions (e.g., new factory capacity, increased inventories) will have to be undertaken to support continued growth.

NOVELLA LTD. — SUMMARY

The financial ratio analysis of Novella Ltd. reveals a basically healthy company. The firm's profitability is increasing and it is earning an excellent return on invested capital. Investment utilization ratios are increasing rapidly. The liquidity ratios indicate that the company's position is sound, although the exceptionally high level of liquidity may be unnecessary. An investigation into credit practices, however, might provide some insight into why the accounts receivable and accounts payable ratios are deteriorating. The stability ratios show that creditors are well protected, and suggest that the company could raise additional debt financing if needed. The growth ratios are very positive and consistent with other results.

THE LIMITATIONS OF FINANCIAL RATIO ANALYSIS

Financial analysis can be an extremely powerful tool. It does, however, have a number of limitations. First, financial ratio analysis deals primarily with the assessment of quantitative data. The analyst should keep in mind that financial analysis, like other decision-making tools, involves the assessment of both **qualitative** and **quantitative** data.

Second, the standards of comparison used by the financial analyst are imperfect. For example, a comparison between past and present performance may tell the analyst whether the company's position is better or worse, or whether the trend in the relationship is upward or downward. However, it provides no true indication of what an acceptable ratio actually would be, nor does it necessarily follow that any trends will continue into the future. The analyst must use common sense, experience and other information to draw conclusions from the patterns suggested by the numbers.

Third, comparisons involving external standards may not be valid if the situations being compared are different. One very common problem is that few companies, even within the same industry, are similar enough to facilitate good comparisons. Attributes such as sizes, product lines, customers and suppliers, to name a few, can represent significant differences. As well, it would be difficult to draw precise conclusions from a comparative analysis of companies using different accounting practices, since the accounting methods used have an effect on the ratios. Similarly, a comparison of ratios between companies may be misleading because of differences in fiscal year-end (especially in seasonal industries) or differences in the acquisition dates of long-lived assets. As a result, analysts must attempt, wherever possible, to make at least crude adjustments for significant differences before comparisons are made.

Fourth, many common ratios have a number of different definitions (e.g., return on investment) or methods of calculation (e.g., number of days in a "year"), creating the potential for confusion. By labeling ratios clearly, the financial analyst can attempt to reduce any possible ambiguity that may arise.

Fifth, comparisons of past and present performance can be misleading since conventional financial accounting records are not adjusted for price level changes. For example, consider a firm that is raising

prices to keep pace with inflation but is not experiencing any real growth in sales. Other things being equal, the company's fixed asset turnover ratio will tract upward, giving the analyst a false signal of improvement.

Sixth, financial ratios may be biased if a firm is experiencing rapid growth or is in a state of decline. For example, the average age of receivables ratio will be overstated for growing firms. To understand this distortion, consider the method used to derive average daily sales (the denominator of the average age of receivables ratio). Average daily sales is based on sales experience over the entire period under consideration. As a result, in a situation of extremely rapid growth the average will be understated relative to present sales experience (i.e., the most recent weeks or months). If the denominator of the ratio is understated it follows that the ratio itself will be overstated. Financial analysts must make allowances for this type of discrepancy.

Seventh, financial ratios prepared on an annual basis may conceal short-run changes in financial relationships. For example, since a seasonal business will experience short-run changes in its financial relationships, a single annual evaluation of relationships may conceal important problems that have occurred during the year. Similarly, the management of a company may sometimes take short-run actions to improve ratios before financial statement dates. This behavior suggests that shorter measurement intervals would be appropriate for some situations. In seasonal industries, the "normal" or "healthy" levels for various ratios (e.g., current ratio) fluctuate dramatically as the firm progresses through the various stages of its operating cycle.

Finally, and most importantly, since financial ratios are based on historical information, they reflect past relationships only. These patterns may or may not continue into the future. As a result, the financial analyst must make predictions about future relationships carefully. Good financial analysts view a past relationship merely as one possible guideline for making projections.

Although financial ratio analysis has several inherent limitations, the technique can provide a great deal of information for decision-makers. The quality of the information provided is directly related to the thoughtfulness exercised when performing the analysis.

FINANCIAL ANALYSIS: A CONCEPTUAL FRAMEWORK

When undertaking a financial investigation, the first task of the financial analyst is to identify the types of financial ratio analysis that would be useful for a particular type of investigation being made. Different types of investigations will require different forms of financial analysis. For example, a banker investigating the possibility of extending a line of credit to a business would be primarily concerned with the firm's short-run, debt-paying ability. A financial analysis focusing on the liquidity of the business would be relevant for this investigation. In contrast, a potential investor may be interested in the long-run performance of a business. In this case, an analysis concentrating on profitability and growth may be of most interest.

Second, it is important to undertake a general size-up of the company and the industry in which the firm operates. This size-up should include factors such as the size of the industry, nature of product groupings and market segments, competitors, seasonality, stage in the product life cycle, susceptibility to general economic conditions, production strategy, technological factors, etc. Such an overview will provide much of the perspective necessary to make sense of the ratios being generated. As well, the notes to the financial statements should be scanned and significant accounting policies should be observed (e.g., specific identification versus FIFO).

Once the analyst has identified the relevant areas of analysis, the quantitative aspects of the analysis can be performed. “Number crunching” in financial analysis rarely provides answers. Rather, it suggests questions that need to be answered. As a result, the analyst’s investigation is never complete until a fourth stage has been undertaken. Using the ratio data plus other qualitative information about the industry, the analyst attempts to draw conclusions and implications which will aid in making better decisions.

Exhibit 1

Novella Ltd.
INCOME STATEMENT
For the Years Ending December 31
($\$000$ s)

	2005	2004	2003
Net Sales	\$3,200	\$2,100	\$1,020
Cost of Goods Sold:			
Beginning Inventory	\$340	\$200	\$300
Purchases	<u>2,000</u>	<u>1,400</u>	<u>500</u>
Cost of Goods Available	\$2,340	\$1,600	\$800
Less: Ending Inventory	<u>420</u>	<u>340</u>	<u>200</u>
Cost of Goods Sold	<u>\$1,920</u>	<u>\$1,260</u>	<u>\$600</u>
Gross Profit	\$1,280	\$840	\$420
Operating Expenses:			
Selling	\$445	\$310	\$195
General Administration	186	144	107
Depreciation	34	46	64
Other	<u>15</u>	<u>10</u>	<u>5</u>
Total Operating Expense	<u>680</u>	<u>510</u>	<u>370</u>
Earnings Before Interest and Tax	\$600	\$330	\$50
Less: Interest Expense	<u>15</u>	<u>20</u>	<u>30</u>
Income Before Tax	\$585	\$310	\$20
Less: Income Taxes	<u>234</u>	<u>124</u>	<u>8</u>
Net Income	<u>\$351</u>	<u>\$186</u>	<u>\$12</u>

Exhibit 2

Novella Ltd.
STATEMENT OF FINANCIAL POSITION
As at December 31
($\$000$ s)

	2005	2004	2003
Assets			
Current Assets:			
Cash	\$91	\$34	\$40
Accounts Receivable	356	205	85
Inventory	420	340	200
Prepaid Expenses	2	5	5
Total Current Assets	<u>\$869</u>	<u>\$584</u>	<u>\$330</u>
Plant and Equipment:			
Office Equipment (net)	\$51	\$64	\$80
Vehicles (net)	74	70	100
Total Fixed Assets	<u>\$125</u>	<u>\$134</u>	<u>\$180</u>
Total Assets	<u><u>\$994</u></u>	<u><u>\$718</u></u>	<u><u>\$510</u></u>
Liabilities & Shareholders' Equity			
Current Liabilities:			
Accounts Payable	\$210	\$133	\$40
Notes Payable (Bank)	-	40	100
Taxes Payable	20	10	1
Accrued Expenses	2	4	4
Current Portion of Long-term Debt	20	20	20
Total Current Liabilities	<u>\$252</u>	<u>\$207</u>	<u>\$165</u>
Long-term Liabilities:			
Long-term Debt	\$40	\$60	\$80
Total Liabilities	<u>\$292</u>	<u>\$267</u>	<u>\$245</u>
Shareholders' Equity:			
Capital Stock	\$250	\$250	\$250
Retained Earnings	452	201	15
Total Shareholders' Equity	<u>\$702</u>	<u>\$451</u>	<u>\$265</u>
Total Liabilities & Shareholders' Equity	<u><u>\$994</u></u>	<u><u>\$718</u></u>	<u><u>\$510</u></u>

Exhibit 3

Novella Ltd.
PROFITABILITY ANALYSIS
For the Years Ending December 31
 $(\%)$

	2005	2004	2003
Vertical Analysis:¹			
Net Sales	100.0	100.0	100.0
Cost of Goods Sold	60.0	60.0	58.8
Gross Profit	40.0	40.0	41.2
Operating Expenses:			
Selling	13.9	14.8	19.1
General Administration	5.8	6.9	10.5
Depreciation	1.1	2.2	6.2
Other	0.5	0.5	0.5
Total Operating Expenses	21.3	24.3	36.3
Earnings Before Interest & Tax	18.8	15.7	4.9
Interest	0.5	1.0	2.9
Income Before Tax	18.3	14.7	2.0
Income Taxes	7.3	5.9	0.8
Net Income	<u>11.0</u>	<u>8.9</u>	<u>1.2</u>
Return on Investment:²			
Return on Assets (after interest & taxes)	41.0	30.3	2.4
Return on Assets (before interest & taxes)	70.1	53.7	9.8
Return on Equity	60.9	52.0	4.5

¹Detail may not add to totals because of rounding

²Return on investment calculations are based on the average of beginning and ending equity of assets, except for 2003 which is based on year-end equity or assets.

Exhibit 4

Novella Ltd.
INVESTMENT UTILIZATION ANALYSIS
For the Years Ending December 31

	2005	2004	2003
Inventory Turnover ¹	5.1 times	4.7 times	3.0 times
Total Asset Turnover ²	3.7 times	3.4 times	2.0 times
Fixed Asset Turnover ³	24.7 times	13.4 times	5.7 times

Exhibit 5

Novella Ltd.
LIQUIDITY ANALYSIS
As at December 31

	2005	2004	2003
Current Ratio	3.4/1	2.8/1	2.0/1
Acid Test Ratio	1.8/1	1.2/1	0.8/1
Working Capital	\$617,000	\$377,000	\$165,000
Average Age of Receivables (days sales) ⁴	40 days	35 days	30 days
Average Age of Inventory (days COGS) ⁴	79 days	97 days	120 days
Average Age of Payables (days Purchases) ⁴	38 days	34 days	29 days

¹Inventory turnover is based on average inventory except for 2003 which is based on year-end inventory.

²Total asset turnover is based on average total assets, except for 2003 which is based on year-end total assets.

³Fixed asset turnover is based on average fixed assets, except for 2003 which is based on year-end fixed assets.

⁴A 360-day year was used.

Exhibit 6

Novella Ltd.
STABILITY ANALYSIS
As at December 31

	2005	2004	2003
Net Worth to Total Assets	70.6%	62.8%	52.0%
Total Debt to Total Assets	29.4%	37.2%	48.0%
Long-term Debt Interest Coverage ¹	40 times	16.5 times	1.7 times

Exhibit 7

Novella Ltd.
GROWTH ANALYSIS

	2004-2005	2003-2004
Sales	52.4%	105.9%
Profits	88.7%	1450.0%
Assets	38.4%	40.8%

¹Long-term debt interest coverage is based on the assumption that all interest applies to long-term debt.

TERRACYCLE INC. (ABRIDGED)

Andrew Smith wrote this case under the supervision of Elizabeth M.A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca.

Copyright © 2007, Richard Ivey School of Business Foundation

Version 2024-04-19

It was January 2006, and Betsy Cotton, chief financial officer of TerraCycle Inc., sat in her office considering the company's future. TerraCycle, located in Trenton, New Jersey, focused on applying business practices that would allow for the creation of profit as well as help to minimize the impact on, and to even replenish, natural resources. TerraCycle's main product, All Purpose Plant Food, was an all-natural fertilizer used to foster growth in plants. Cotton planned to first assess TerraCycle's historical performance, and she wanted to project the company's overall results.

ECO-CAPITALISM

In recent years, there had been a trend in North America to focus more on the environment and humanity's effect upon it. There was a realization that the globe had a finite amount of resources and, as such, individuals and companies would need to rethink their impact on the environment and make a concerted effort to minimize this impact.

This point of view was taken one step further with the new and emerging concept of eco-capitalism. Eco-capitalism was a belief that not only should a business's impact on environmental resources be reduced, but also steps should be taken to renew these resources, as long as these actions were profitable. When facing alternative methods of production, if one method created a profitable byproduct, profit-oriented companies would certainly choose this method. The concept of eco-capitalism took the same point of view, with a slight twist: the byproducts were considered profitable if they aided the environment and provided a return for the company.

TERRACYCLE INC.

A Brief History

A strong belief in eco-capitalism was what led to the creation of TerraCycle Inc. in the fall of 2001 by Tom Szaky and Jon Beyer. Both men were Princeton University (U.S.A.) students, and the company concept was developed for a business plan competition. The partners had arranged with Princeton Dining Services to

gather dining hall waste, which was then fed to worms in a prototype “worm gin.”¹ Research and product development were performed at the Rutgers University Eco-Complex, a facility that aimed to provide real-world applications for environmentally sustainable technologies. TerraCycle operated a worm gin within the Eco-Complex’s greenhouse. Through further experimentation with the process, the partners developed the end product, the All Purpose Plant Food.

In the spring of 2003, Szaky took an extended leave of absence from Princeton in order to pursue the business on a full-time basis. Operating on a relatively tight budget, the business was funded with prize money from business plan competitions and angel investors.²

Growth was slow in the early stages, but in May 2004, TerraCycle experienced a major breakthrough when The Home Depot agreed to begin selling TerraCycle Plant Food online. This growth continued as TerraCycle’s products were picked up by a number of companies across North America, including Whole Foods, Home Depot Canada, Wal-Mart Canada, Wild Oats and Do-It-Best.

Committed to being the “ultimate” eco-capitalist corporation, TerraCycle applied this concept to all its business practices. Its products utilized an all-natural, environmentally friendly production process and were packaged using waste, such as recycled pop bottles. This unique concept and its innovative nature, as well as TerraCycle’s environmental focus, had always been a source of praise for the company. The noble concept caught people’s attention, and TerraCycle routinely received public recognition and positive press coverage for its efforts. Most recently, *Red Herring* magazine named TerraCycle one of the 100 most innovative companies, and Home Depot Canada awarded TerraCycle the Environmental Stewardship Award, one of only two company-wide awards presented by Home Depot Canada.

TerraCycle Products

The first product developed and sold by TerraCycle was All Purpose Plant Food (see Exhibit 1), an organic liquid plant food. The production of this plant food (see Exhibit 2) started with source-separated organic waste that was fed to worms. The resulting material was separated into a fine, particle-sized mixture that was then liquefied over a seven-day period. Finally, once the mixture was completely liquefied, it was packaged into recycled two-litre and 20-fluid-ounce³ pop bottles and shipped to customers.

Unlike other competitive fertilizers, TerraCycle’s Plant Food not only had a far more natural and environmentally friendly production process, but also this production process helped to eliminate organic waste and used recycled pop bottles, thus reducing the impact of this waste on the environment.

TerraCycle had also found a noble way to collect the recycled pop bottles used for packaging. In 2005, the company launched a program called the Bottle Brigade. This program allowed schools, charities and other non-profit groups throughout North America to collect 20-fluid-ounce pop bottles and remit these pop bottles to TerraCycle. In return, TerraCycle would either give the group five cents per bottle or make a donation on the organization’s behalf to the Nature Conservancy that saved one square metre of rain forest per bottle submitted. Over time, this program would provide a large supply of bottles; however, it had yet to provide the major supply of the bottles for TerraCycle.

¹ The mixture of organic waste as it is being fed to the worms prior to it being separated and liquefied. The resulting worm excretions were a solid, granular plant fertilizer which was then liquefied to create the liquid plant fertilizer.

² Affluent individuals who provide capital for business start-ups, usually in exchange for an equity stake.

³ Twenty fluid ounces are approximately equal to 591 millilitres.

TerraCycle developed and sold other environmentally friendly gardening products, such as Water-Less and ProFusion. Water-Less, a gel form of the All Purpose Plant Food, provided similar fertilization, but the gel would remain to absorb and release liquid over a longer period of time, reducing the need to water. ProFusion was a fertilizer specifically formulated for soil-less hydro gardens.⁴ Similar to TerraCycle's other products, these were also packaged in reused packaging, such as recycled oil containers for the ProFusion product. These products were still in their infancy and were offered on a limited basis only to fit a specific need and at the request of a customer. As a result, sales of these other products were negligible when compared to the All Purpose Plant Food sales.⁵

TerraCycle's Historical Financial Performance

TerraCycle was still in the growth phase of the business and, as such, the financial results achieved had not yet reached the anticipated levels of success (see Exhibit 3 and Exhibit 4 for fiscal 2004 and fiscal 2005 financial statements). The eco-capitalist philosophy, however, was beginning to show a great deal of promise for the company. In addition to the moral benefits of running an environmentally forward business, TerraCycle was experiencing positive signs of growth. To date, production levels had not yet reached economies of scale,⁶ resulting in disproportionately high costs and ensuing losses. The sales growth achieved more recently, however, appeared to be an indication that a more efficient level of production might be within sight.

THE COMPETITION

The gardening industry was a diverse one, with a wide range of customers' needs and preferences as well as varying levels of expertise and experience. Gross sales (see Exhibit 5 for industry statistics) were significant, and this attracted a sizable number of competitors, ranging from small local businesses to large multinational companies. Large multinational companies would often operate under multiple brand names, some of which competed against each other. The plant food segment of the market in which TerraCycle operated was no different. There were a number of competitors in varying sizes, but this segment was dominated by two large competitors, The Scotts Miracle-Gro Company and Spectrum Brands.

The Scotts Miracle-Gro Company

The Scotts Miracle-Gro Company (Scotts) offered a wide variety of gardening products under different brand names. Scotts operated globally, was a publicly traded company and was quite large, both financially and in terms of number of employees. Scotts focused on the lawn and garden market. The products offered by Scotts were the number-one-selling products in almost every market in which they competed. In fiscal 2005, Scotts achieved net sales of \$2.3 billion (see Exhibit 5 for Scotts' ratio statistics). One of its products, Miracle-Gro, had become the dominant plant food in the industry, enjoying a tremendous amount of brand name recognition and customer loyalty. Miracle-Gro was a concentrate of which a small amount was added to water and used to feed plants. Unlike TerraCycle's plant food, but similar to most plant foods, Miracle-Gro was not derived from an all-natural production process and did not contain all-natural ingredients.

⁴ A garden that uses water for growing in place of soil, sometimes referred to as hydroponics.

⁵ Subsequent to the time of the case, sales of these products were discontinued.

⁶ Economies of scale refers to the expected cost savings that result from higher levels of production.

Spectrum Brands

Spectrum Brands (Spectrum), the other major competitor in the plant food segment of the market, also provided a wide range of gardening products under different brand names.⁷ Spectrum was a publicly traded company with over 10,000 employees and annual sales in the area of \$2.8 billion (see Exhibit 5 for Spectrum's ratio statistics). Spectrum's product lines which posed the largest threat to TerraCycle, were the Peters Professional line and the Garden Safe line of products. The Peters Professional line was a line of granular fertilizers designed for home gardening. This brand had different fertilizer mixes that could be used for different types of plants. Variegated Violet and Orchid Plant Food were two of the fertilizer mixes being sold by Peters Professional at the time. The Garden Safe line was a naturally derived liquid fertilizer mix, a similar product to TerraCycle's All Purpose Plant Food. This product line, however, was not as well known amongst its direct competitors in the market, and it did not represent a very large market share.

Do-it-yourself Composters

Another competitor for TerraCycle's products was do-it-yourself composters. They used home composting to generate nutrient-rich soils used for home gardening, thereby reducing the need to buy fertilizers. Among a variety of reasons, these gardeners composted at least partially for environmental concerns, but they primarily used this method as a means of reducing their overall level of waste, as well as providing a useful byproduct for their gardening. Although not difficult, composting took some time, space and effort in order for it to work effectively and the result was still not generally as potent as vermicompost.⁸

THE CONSUMERS

TerraCycle's products were not intended for commercial growers; instead, the end users for TerraCycle's All Purpose Plant Food products were individual gardeners. These customers enjoyed gardening around their home, tending to small gardens as well as potted plants within their homes. TerraCycle's products provided these gardeners with more environmentally conscious products for fertilizing their plants and gardens.

TerraCycle did not sell to these end consumers directly. Instead, TerraCycle sold to retailers that sold to these end consumers. The bulk of TerraCycle's sales came from large multi-national retailers. In fiscal 2005, Wal-Mart U.S.A. represented 44 per cent of TerraCycle's total sales; Home Depot U.S.A., 16 per cent; Wal-Mart Canada, 15 per cent; and Home Depot Canada, 13 per cent. The remaining 12 per cent of sales were made to other retailers, including Home Hardware, Whole Foods and True Value.

Retailers were given credit terms of net 60 days, no discounts by TerraCycle and all sales were made on credit. Often, some retailers took longer than 60 days to pay, but TerraCycle could always be assured that they would pay eventually.

Due to their size, some retailers enjoyed a great deal of negotiating power with all of their suppliers, including TerraCycle. TerraCycle often made special arrangements in order to keep these retailers satisfied, such as providing products in special displays or being lenient with regards to product returns.

⁷ Spectrum also had other brands outside the gardening industry, such as Rayovac, a line of batteries.

⁸ Mixture of partially decomposed organic waste, bedding, and worm castings (excretions).

FUTURE EXPECTATIONS FOR TERRACYCLE

Cotton expected sales growth for TerraCycle's existing products. Cotton did not expect annual percentage sales growth to be as dramatic as it was from fiscal 2004 to fiscal 2005; however, she did believe it was reasonable to assume that half this level of sales growth would be achieved in fiscal 2006. With expanded sales, Cotton believed that TerraCycle would begin to reach economies of scale; consequently, she anticipated cost of goods sold would decrease to 65 per cent of sales. Salaries, office and administrative, insurance, telephone and communication expenses would remain the same dollar amount as the previous fiscal year. Considering TerraCycle's goals for growth and profitability, Cotton thought it would make sense to increase the marketing budget by \$20,000. All other operating expenses would remain the same percentage of sales as those experienced in fiscal 2005.

Cotton estimated that cash on hand would remain the same, but many of the other assets would change. With rapid growth experienced in fiscal 2005, managing customers' accounts had been an issue; however, Cotton projected that with a focus in this area, customer payments for all products would return to the results experienced in fiscal 2004. Inventory and accounts payable levels had also suffered during TerraCycle's 2005 growth period. Although she did not believe that TerraCycle could reach fiscal 2005 industry levels in the short-term, Cotton was confident that with proper attention, TerraCycle would be able to reach levels of 85 days⁹ for inventory and 64 days⁹ for accounts payable for all products offered.

In addition to the expected changes in the working capital accounts, Cotton anticipated that the amount due from the shareholder would be collected. She also thought that prepaid expenses would increase by 50 per cent, given the company's growth. Finally, due to the increased sales, more manufacturing facilities would be needed for increased production. TerraCycle would purchase \$47,710 worth of additional manufacturing equipment. Depreciation of these and other fixed assets for fiscal 2006 was expected to be \$28,475. There was no change expected in patents and trademarks. Amortization of these patents and trademarks was expected to total \$1,770 for fiscal 2006.

The demand loan on the balance sheet represented a loan from Zoltan Szaky that may be called or repaid at any time. Zoltan Szaky indicated that he had no interest in calling the loan in the near future. This loan bears interest at 12 per cent per annum. For fiscal 2006, Cotton expected the Insurance Payable account to be eliminated. There were no anticipated changes to the equity accounts; although, if financing was needed, Cotton would have to evaluate whether to finance through debt or equity. If the decision was to finance through equity, the company would have to issue additional shares at 25 cents per share.

CONCLUSION

Cotton knew history did not predict the future. She wanted to learn what had led to the company's positive growth from TerraCycle's past performance so that she could apply these best practices to future plans. She was interested in analysing the company's past performance from profitability, liquidity and cash flow perspectives. Cotton also wanted to consider the benefits and drawbacks of debt versus equity financing, as well as the likelihood of actually being able to obtain the required financing. She planned to project an income statement and a balance sheet for fiscal 2006. Cotton was unsure as to whether TerraCycle would be able to operate at status quo sustainably, and was open to considering new business ideas. Cotton had always enjoyed assessing TerraCycle's past performance and strategizing for the future, and she looked forward to the current task and its outcomes.

⁹ Calculated using cost of goods sold.

Exhibit 1

CURRENT AND PROPOSED PRODUCTS



Source: www.terracycle.net

Exhibit 2
PRODUCTION PROCESS

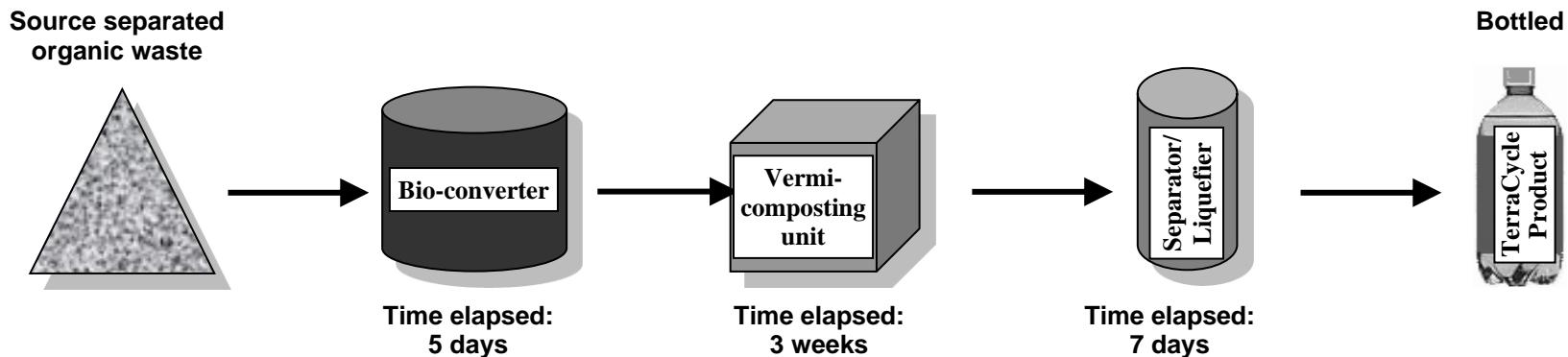


Exhibit 3

INCOME STATEMENT
For the year ending December 31
(all numbers are in U.S. dollars)

	2005		2004	
REVENUE				
Sales	\$ 461,665	100.0% ¹	\$ 104,470	100.0%
Less: Cost of goods sold	<u>487,524</u>	<u>105.6%</u>	<u>150,113</u>	<u>143.7%</u>
Gross profit	<u>(25,859)</u>	<u>(5.6%)</u>	<u>(45,643)</u>	<u>(43.7%)</u>
OPERATING EXPENSES				
Salaries	\$ 579,887	125.6%	\$ 335,142	320.8%
Office & administrative	33,585	7.3%	67,342	64.5%
Insurance	43,815	9.5%	13,868	13.3%
Advertising	75,283	16.3%	26,815	25.7%
Research	14,267	3.1%	20,775	19.9%
Property overhead ²	92,846	20.1%	36,942	35.4%
Telephone & communications	23,632	5.1%	19,492	18.7%
Professional Fees/licenses	47,138	10.2%	79,555	76.2%
Travel/vehicles	74,514	16.1%	82,909	79.4%
Interest expense	18,218	3.9%	1,643	1.6%
Depreciation & Amortization	30,766	6.7%	5,098	4.9%
Miscellaneous	<u>1,818</u>	<u>0.4%</u>	<u>1,300</u>	<u>1.2%</u>
Less: Total operating expenses	<u>(1,035,769)</u>	<u>(224.4%)</u>	<u>(690,881)</u>	<u>(661.3%)</u>
Net income before taxes	<u>(1,061,628)</u>	<u>(230.0%)</u>	<u>(736,524)</u>	<u>(705.0%)</u>
Income taxes³	<u>—</u>	<u>0.0%</u>	<u>—</u>	<u>0.0%</u>
NET INCOME AFTER TAX	<u>\$ (1,061,628)</u>	<u>(230.0%)</u>	<u>\$ (736,524)</u>	<u>(705.0%)</u>

¹ Totals may be off due to rounding.

² Includes items such as rent, utilities, etc.

³ Should TerraCycle begin to generate income, Cotton anticipated paying income tax at a rate of 25 per cent.

Exhibit 4

BALANCE SHEET
As at December 31
(all numbers are in U.S. dollars)

	2005	2004
ASSETS		
Current Assets:		
Cash	\$ 120,929	\$ 83,941
Accounts receivable	267,691	20,561
Due from shareholder ¹	75,000	—
Inventory	421,980	81,605
Prepaid expenses	30,600	55,825
Total current assets	\$ 916,200	\$ 241,932
Long-term assets:		
Fixed assets	151,712	94,341
Less: Accum. dep'n., fixed assets	<u>(57,405)</u>	<u>94,307</u>
Patents & trademarks	42,059	26,560
Less: Accum. amort., patents & trademarks	<u>(4,545)</u>	<u>37,514</u>
Total long-term assets	131,821	23,785
Total Assets	<u>\$ 1,048,021</u>	<u>\$ 329,481</u>
LIABILITIES & SHAREHOLDERS' EQUITY		
Liabilities		
Current liabilities:		
Accounts payable	\$ 228,020	\$ 52,565
Salaries payable	48,927	—
Insurance payable	21,348	15,550
Demand loan	<u>149,988</u>	<u>—</u>
Total Current Liabilities	<u>\$ 448,283</u>	<u>\$ 68,115</u>
Shareholders' equity		
Common stock	292,011	292,011
Series A preferred stock	1,117,000	1,117,000
Series B preferred stock	1,500,000	100,000
Retained earnings	<u>(2,309,273)</u>	<u>(1,247,645)</u>
Total shareholders' equity	<u>599,738</u>	<u>261,366</u>
Total Liabilities & Shareholders' Equity	<u>\$ 1,048,021</u>	<u>\$ 329,481</u>

¹ Represents an amount due from the company's largest shareholder, relating to the purchase of Series B preferred shares.

Exhibit 5**INDUSTRY AND MAJOR COMPETITOR RATIOS**

	Industry		Scotts Miracle-Gro		Spectrum Brands	
	2005	2004	2005	2004	2005	2004
Vertical analysis:						
Gross profit to sales	25.5%	27.9%	36.3%	37.6%	37.7%	42.8%
Operating expenses to sales	21.5%	23.7%	28.2%	26.1%	35.0%	36.4%
Profit before taxes to sales	4.0%	3.3%	6.7%	7.5%	2.7%	2.4%
Current ratio	1.2	1.3	1.6	1.9	1.9	1.6
Acid test ratio	0.6	0.8	0.8	1.1	0.7	0.8
Age of accounts receivable (days)	30.0	38.0	49.1	50.0	58.3	73.6
Age of inventory (days)¹	65.0	61.0	77.5	79.5	113.1	117.5
Age of accounts payable (days)¹	24.0	40.0	36.2	35.7	70.6	100.4
Debt to equity	1.9	2.0	1.0	1.3	3.8	4.2
Interest coverage	3.4	3.4	4.8	4.2	1.5	2.4
Fixed asset turnover	10.0	5.8	7.0	6.4	7.6	7.8
Total asset turnover	2.4	1.9	1.2	1.0	0.6	0.9

Industry Ratios Source: The Risk Management Association (RMA) Annual Statement Studies 2006-2007.

Competitors Ratios Source: All competitive ratios have been derived from the companies Fiscal 2006 Annual Reports.

¹ Calculated using cost of goods sold.

A NOTE ON FINANCING ALTERNATIVES

Scott Griffith prepared this case under the supervision of John F. Graham solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 1993, Richard Ivey School of Business Foundation

Version: 2014-04-28

The need for cash is often the biggest concern of a business. Cash is required in day-to-day operations, as well as for financing future growth. However, since few businesses experience the luxury of having large on-hand cash reserves waiting for investment, they frequently seek additional financing.

The funds needed to finance a firm's operations or to purchase assets can be obtained from a large variety of sources. One of management's key responsibilities is to select the right type of financing to ensure the long-term profitability of the business. Management must consider such diverse factors as the firm's current debt levels, the financing costs, the accepted risk level, the desire for corporate control, the flexibility to respond to future financing needs, and the pattern of the capital structure in the industry.

While the sources for funds are wide-ranging, essentially the options are limited to some basic alternatives. A business can raise money either internally or externally. These two generic headings contain the following subsets:

- Internal Financing
 - Improve operating cash flow
 - Adjust working capital
 - Dispose of fixed assets.
- External Financing
 - Raise equity
 - Take on debt — short-term or long-term financing

A closer look at the five options will be undertaken.

INTERNAL FINANCING

Improve Operating Cash Flow

While this solution may seem to be the most obvious, it is often the most elusive. Furthermore, this option lacks the immediacy that is often needed when seeking additional funds. Nevertheless, if it can be carried out, it is a very effective way of generating more cash.

A business essentially has two options to increase the positive spread between cash revenues and cash expenses: it can increase revenues or it can cut back expenses. Most businesses constantly seek to increase revenues; alas, in order to do so, they often must increase expenses disproportionately. Costs such as advertising and promotion often rise substantially when the business attempts to gain market share. Thus, while the solution to increase revenues seems to be the perfect solution, it is often not implementable.

Cutting cash costs is another way to generate cash. Management will often consider laying off employees, cutting back on advertising, and reducing so-called “luxury” accounts such as travel and entertainment. Care must be taken, however, to ensure that these cuts have a marginal effect on sales. For instance, if the advertising budget were to be cut in half, the adverse effect on sales might more than offset the promotional dollars saved. Nonetheless, management should be on the lookout for unnecessary cash expenses to see if any cash could be kept in the firm.

Adjust Working Capital

The excess of current assets over current liabilities is called **working capital** and is another indication of short-term financial strength. Working capital is the amount that would remain if all current obligations were paid (i.e., current liabilities); therefore, this tool assesses the company's ability to meet its short-term obligations as they come due. The working capital amount should be sufficient to meet these obligations on a day-to-day basis. In an effort to improve a company's working capital position, management will examine how much cash can be generated by adjusting receivables, inventory and payables, it is helpful to have a firm understanding of how the “days” ratios are calculated (i.e., days of receivables, days of inventory, and days of payables).

Accounts Receivable

An account receivable is established when a customer receives goods with payment promised at a later date. Essentially, the customer is using the supplier as a source of credit. The quicker the customer pays, the less money the supplier has tied up in its customers hands. Thus, in the most extreme case, a cash-strapped business could demand immediate payment from all its customers and sell all subsequent goods on a COD (cash on delivery) basis. Of course, by doing so, the supplier would likely lose many customers to a competitor with more generous credit terms. Hence, a balance must be struck between the need for funds by way of debt collection, and the potential for lost sales.

In a more realistic sense, businesses with historically lax credit policies are more likely to be able to achieve a one-time inflow of cash by decreasing the days that it takes to collect cash from a credit sale. In order to calculate the amount of cash that can be generated from an expedited collection strategy, either of the following formulas may be used:

Cash generated by decreasing the days of outstanding receivables =

$(\text{days by which outstanding A/R are reduced}^1) \times \text{average daily credit sales}^2$

or

$$\left(\text{days by which outstanding } \frac{A}{R} \text{ are reduced} \right) \times \frac{\text{outstanding A/R } (\$)}{\text{days of outstanding A/R}}$$

For example, assume that Bigco Inc. earned \$360,000 in credit sales last year. At year-end, 50 days (or \$50,000³) of accounts receivable were still outstanding. If Bigco expected similar credit sales for the upcoming year, and could reduce its days of outstanding receivables to the industry norm of 30 days, it could generate \$20,000.

$$(50 \text{ days} - 30 \text{ days}) \times \frac{\$360,000 \text{ Credit Sales}}{360 \text{ days}} = \$20,000$$

or

$$(50 \text{ days} - 30 \text{ days}) \times \frac{\$50,000 \text{ outstanding A/R}}{50 \text{ days A/R outstanding}} = \$20,000$$

Inventory

A firm with considerable inventory stocks has money tied up in those stocks which could be put to use elsewhere. By reducing the number of days that inventory remains in the possession of the business, a firm can generate cash. In order to calculate exactly how much cash can be generated through an inventory reduction strategy, the following formulas can be used:

Cash generated by lowering inventory =

$$(\text{days by which on-hand inventory is reduced}^4) \times \text{average daily COGS}^5$$

or

$$(\text{days by which on-hand inventory is reduced}) \times \frac{\text{outstanding inventory } (\$)}{\text{days of inventory}}$$

When determining that an inventory reduction strategy is a good way to generate additional funds, a business should take care to ensure that inventory levels are not dropped to a point where stock-outs may result. Furthermore, a firm with substantial inventory may do so in order to take advantage of generous supplier bulk discounts, or to minimize lead-times required for an order. Nevertheless, it is quite possible that a firm has considerable excess inventory for no real justifiable reason and would improve its cash flow immensely by reducing the number of days of inventory on hand.

¹ Days by which outstanding accounts receivable can be reduced = (old "days" of outstanding accounts receivable) – (proposed "reduced" days of outstanding accounts receivable).

² Average daily credit sales = total credit sales ÷ 360 days

³ Age of receivables = $\frac{\text{outstanding accounts receivable}}{\text{average daily credit sales}} = \frac{\$50,000}{(\$360,000/360\text{days})} = 50 \text{ days}$

⁴ Days by which on-hand inventory is reduced = (old "days" of inventory) – (proposed "reduced" days of inventory).

⁵ Average daily cost of goods sold = cost of goods sold ÷ 360 days

For example, Bigco Inc. noticed that its cost of goods sold for all sales (cash or credit) totalled \$504,000 last year. A total of \$168,000 (or 120 days⁶) worth of inventory was on hand at year-end. If Bigco could reduce its inventory levels to the industry average of 90 days, it could generate \$42,000 calculated as follows:

$$(120 \text{ days} - 90 \text{ days}) \times \frac{\$504,000 \text{ cost of goods sold}}{360 \text{ days}} = \$42,000$$

or

$$(120 \text{ days} - 90 \text{ days}) \times \frac{\$168,000 \text{ outstanding Inventory}}{120 \text{ days of Inventory outstanding}} = \$42,000$$

Accounts Payable

A payable works in the opposite manner to a receivable. Businesses often use suppliers as a source of short-term financing by delaying payment to the suppliers as long as possible. The longer a buyer takes to pay suppliers, the longer the money is available for the buyer to use elsewhere.

While payables are a financing source, care must be taken that buyers do not upset quality suppliers by delaying payment to an unacceptable level. Nervous creditors are likely to take drastic action (such as lawsuits) in order to collect monies owed to them by delinquent payers. Furthermore, a business can quickly earn a reputation for being a poor credit risk which would make finding reliable suppliers willing to offer credit terms much more difficult. As well, some businesses may decide to pay very quickly thereby taking advantage of supplier credit terms.

To calculate the cash that can be generated by extending the supplier borrowing period (i.e. stretching the accounts payable a little longer) either of these two formulas will work:

$$\begin{aligned} \text{Cash generated from stretching accounts payable} &= \\ (\text{days by which payables can be stretched}^7) \times \text{average daily purchases}^8 & \end{aligned}$$

or

$$(\text{Days by which payables can be stretched}) \times \frac{\text{outstanding payables } (\$)}{\text{days of outstanding A/P}}$$

For example, of the \$270,000 in credit purchases made by Bigco, the firm still owed \$33,750 by year-end (or a total of 45 days of outstanding accounts payable⁹). Bigco was not taking advantage of supplier discounts. If Bigco stretched its payables to the industry average of 60 days, it could then generate \$11,250 in cash.

⁶ *(Days of inventory) = $\frac{\text{dollar value of inventory on-hand}}{\text{average daily cost of goods sold}} = \frac{\$168,000}{(\$504,000 / 360 \text{ days})} = 120 \text{ days}$*

⁷ *Days by which payables can be stretched = (proposed increased days of payables) - ("old" days of payables).*

⁸ *Average daily purchases = total credit purchases ÷ 360 days*

⁹ *Days of accounts payable = $\frac{\text{outstanding accounts payable}}{\text{average daily credit purchases}} = \frac{\$33,750}{(\$270,000 / 360 \text{ days})} = 45 \text{ days}$*

$$(60 \text{ days} - 45 \text{ days}) \times \frac{\$270,000 \text{ credit purchases}}{360 \text{ days}} = \$11,250$$

or

$$(60 \text{ days} - 45 \text{ days}) \times \frac{\$33,750 \text{ outstanding A/P}}{45 \text{ days of outstanding A/P}} = \$11,250$$

If Bigco combined all three adjustments to working capital, a total of \$73,250 could be generated internally.

Proceeds from working capital adjustments represent a **one-time** source of cash (unless similar adjustments can be made in subsequent years). Additionally, an implementation strategy may be very difficult to formulate, and ample time would be needed for results to become evident. Nevertheless, it is helpful to see if monies can be raised internally before seeking external debt or equity financing, particularly if the monies are needed for a short-term use.

Reduce Fixed Assets

Sometimes a firm will raise funds by selling off unneeded fixed assets such as land, buildings, and equipment. Usually this is an undesirable strategy used by firms with few other alternatives. Often a fair return cannot be obtained for the assets, especially if the money is needed quickly. Furthermore, this is a stopgap solution that can seldom be repeated for future needs.

Nevertheless, there are some times when a disposal strategy makes sense. If, for instance, an asset was purchased in anticipation of growth that now seems unlikely, or if a firm is operating significantly below capacity, or if a firm has a stake in another company that does not contribute to the main business, the decision to sell off assets may be prudent. A very low asset turnover ratio frequently points to such a scenario.

When judging the potential return from such a strategy, it is important to be conservative in the market value assessment of an asset, particularly when disposing of equipment. A redundant, two-year-old piece of production machinery that originally cost \$1,000,000, may have a mere \$200,000 resale value once one considers the machine's current book value, the state of the industry (which may be operating at overcapacity), and technological improvements made to similar equipment over the past few years. Management must be careful not to hold "fire sales" to solve short-term financing problems.

EXTERNAL FINANCING

Raise Equity

Infusions of equity are considered long-term sources and thus should be used to finance long-term ventures. Certainly, a firm must have a solid equity base before it can expect to receive any significant debt financing.

Often, a debt-to-equity ratio is calculated to determine the likelihood of a company receiving external financing. Typically, a high debt-to-equity ratio indicates a risky company.

Unfortunately, many firms with a high debt-to-equity ratio arrive that way not because of their “secure” nature, but rather because successive net losses have diminished the equity base. After all, debt to equity rises not only if debt increases and equity remains constant, but also if equity goes down and debt remains constant. As the debt-to-total assets ratio gets closer and closer to 100 per cent, the business ownership transfers more and more to the creditors. While an 81 per cent debt-to-total assets ratio is acceptable for power companies, a similar ratio for a gold mine indicates trouble.

Equity can be raised privately or publicly; however, few businesses qualify for public issuance. When raising private equity, the owner seeks out individual investors: business contacts, successful college buddies, venture capitalists. Public issues occur when monies are raised from the general public or an investment dealer (who buys securities from the business and then sells them publicly).

Equity financing has many advantages. A strong equity base allows the company the flexibility for future ventures. Furthermore, while dividend payments are paramount for future investment, in a worst-case scenario, they may be postponed (unlike interest payments). However, there are some disadvantages. Investors demand results — equity infusions may put more pressure on the firm to succeed in the short term rather than developing a competent long-term plan. Moreover, the owners of the business must be willing to give up some control over the business. Last, but certainly not least, equity is more expensive than debt. Interest payments are considered an expense and are, therefore, tax deductible whereas dividends are not expensed. Consider the following example: a \$100,000 dividend payment is fully realized by the firm (Scenario A), whereas a \$100,000 interest payment, with a tax rate of 40 per cent, is really only costing the company \$60,000 (Scenario B). In this case, the retained earnings account is increased by \$40,000 more if the firm uses debt rather than equity financing.

	SCENARIO A	SCENARIO B
Net Income before Interest and Taxes	\$200,000	\$200,000
Less: Interest	0	100,000
Net Income	<u>\$200,000</u>	<u>100,000</u>
Taxes (40 per cent)	<u>(80,000)</u>	<u>(40,000)</u>
Income after Taxes	<u>\$120,000</u>	<u>60,000</u>
 Cash Paid in Dividends	 <u>(100,00)</u>	 0
 Net Increase to Retained Earnings	 \$20,000	 \$60,000

Take on Debt

Debt financing is another manner in which businesses can raise funds. Both long-term and short-term debt financing are available. Businesses should exercise care when selecting the medium of financing. Short-term financing should be used only for short-term uses; whereas, long-term uses ideally should be funded through long-term debt. For instance, it would be unwise for a business to fund the purchase of a new plant with a 90-day note.

In order to qualify for credit, a business must meet the criteria used by lenders. These criteria are often referred to as the four C's of Credit: ***business Conditions, Character, Capacity*** to repay, and ***Collateral***.

Conditions refer to the environment surrounding the business. In what shape is the industry? What external forces could affect the business? Is there a target market for the firm's product(s)? Prospective borrowers should perform favorably on these scales.

Character refers to the professionalism, dependability, accountability, honesty and reputation of the prospective borrower. Past performance of the business and previous experiences with the principal borrower affect a lender's "character" judgement. For instance, a bank may look unfavorably on a corporation owned by a sole shareholder that paid out very high dividends despite poor earnings.

Capacity to repay has a dual meaning. First, would the business have sufficient cash flow to make all necessary principal and interest payments? Interest coverage ratios are often used to answer this question. Second, what seems to be management's ability to use the additional financing wisely and prudently? Is the firm capable of making money?

Collateral is the pledge offered by a business in exchange for funds. If a business stops operating or is liquidated, ownership of the physical assets used as collateral would be rightly transferred to the lender.

When determining the value of an asset used for collateral, the lender will likely not use the asset's book value, but rather its liquidation value. Lenders make an educated guess as to the net realizable value of the asset and discount accordingly. Thus, a piece of machinery with a book value of \$500,000 may be discounted by 50 per cent because of the difficulty involved in the resale of the equipment.

Loans that require a collateral pledge are considered ***secured*** unlike ***unsecured*** loans which are based on the faith and trust of the borrower. Firms with a high debt-to-equity ratio will usually have to secure the loan since lenders worry about receiving payment, as there would be less money to go around should the business fail and become insolvent.

Short-term Financing

Short-term financing, generally used to categorize loans that are less than two years in duration, is usually handled by chartered banks. Firms with good credit ratings may be able to use options such as a ***line of credit, revolving credit, or interim financing***.

An ***operating line of credit*** is an agreement between the borrower and the bank whereby a temporary short-term loan is granted to a firm. The business uses these funds, as needed, to help finance day-to-day operations. This method is usually desired for seasonal businesses who, needing to produce for a peak season, experience a cash strain for only a limited time period during the year.

Revolving credit is similar in nature. Here the bank sets a maximum amount which the firm may borrow. The business then uses the funds to help finance day-to-day operations. Interest is paid only on the outstanding balance; however, the banks usually charge a higher rate of interest to compensate for the additional risk.

Interim financing (alias **bridge financing**) is a temporary loan that allows a business to start a long-term project (such as a new plant construction) before the balance of financing (such as a mortgage payment) is in place. A strong working relationship with the financial institution is usually required for such an option.

These three short-term loans may either be secured or unsecured. Unsecured loans are larger risks for the bank and are, therefore, offset with higher interest rates. However, they offer the businesses greater flexibility in their operations. Firms unable to obtain unsecured credit because of low credit standing or an unproven track record, will have to pledge some assets as security. Secured loans are more common, especially with small businesses. Short-term assets such as accounts receivable and inventory are often used for collateral (since non-current assets are usually financed by long-term secured mortgages). For instance, a loan may be tied to accounts receivable whereby the bank agrees to allow a revolving credit line up to a maximum of 75 per cent of receivables. The borrower is obliged to inform the bank, on a continuous basis, of the status of the accounts receivable.

Long-term and Intermediate Financing

Loans that are to be paid off over several years are usually referred to as long-term loans. Long-term debt usually finances long-term assets such as land, major equipment purchases, and buildings. Mortgages are the most common form of long-term debt. The mortgaged asset is used to secure the loan. Payment terms are pre-scheduled and include both interest and principal components. Interest rates are usually a few percentage points above the prime rate.

Sometimes loans of two to five years are referred to as intermediate financing. This medium-term financing is usually sought by businesses needing an on-going cash inflow, or assets with a relatively short useful life, such as equipment. Term loans used to finance equipment purchases are considered intermediate. These are loans tailored to suit the needs of the borrower and are usually accompanied by covenants. A business may have to pledge that no additional borrowing will take place, or that salaries of the company executives cannot increase unless approved by the lender.

Larger, stable, established firms can often borrow from the general public by issuing bonds. Unfortunately, this long-term option is not available to the majority of businesses.

While debt financing is cheaper than equity financing, the firm's decision-making flexibility is somewhat restricted. Risk-averse creditors, who now have a stake in the business, will often guard their investment by placing strict covenants on the borrower, thereby limiting future decisions to more conservative options. Borrowers must ensure that cash flow is always sufficient to make debt payments, lest they risk provoking a nervous creditor into calling the loan. Nevertheless, with proper management, debt, in moderation, is a useful and often necessary tool for all businesses.

CASE IN POINT

At the risk of oversimplifying, a parallel can be drawn between a business's need for more cash and a student's need for more cash (particularly as the school year closes).

Let's assume you realize that only \$50 is left in your savings account, yet you still have a month of school. You suddenly take on the role of financial manager. How could you generate funds?

1. You may wish to generate the funds internally by improving "net income". You seek additional revenue: you may get a part-time job or you may buy more lottery tickets. You may try to cut back on expenses. For instance, your entertainment budget, which was \$75 per week in September is now cut back to \$25 per month. The food bills are altered so that macaroni and cheese now becomes a "treat".
2. You may try to generate funds internally by manipulating your "working capital". You could reduce your "days of receivables" by getting on the phone and asking all your friends (customers) to pay back the money they owe you. You could reduce your "inventory". Instead of buying \$20 worth of groceries, you scrounge the kitchen and eat whatever is left over (thereby generating \$20). You could stretch your "payables" by not paying back all those people to whom you owe money until the school year is out (suppliers). Care must be taken that you do not alienate all your suppliers and buyers. You must try to avoid food stock-outs or else you will go hungry.
3. You may try to dispose of any "fixed assets". You could sell your old car, your stereo or any other personal item that has value. You would rather seek other means since this cash crunch is only short-term.
4. You may go (further) into debt. You may increase your debt on your credit card bills. You may seek additional loans from home. However, this option may be tricky if you already owe significant amounts of money since the people from whom you are borrowing worry about your capacity to repay. They may notice a poor "debt-to-equity" ratio and request some equity contribution from you.
5. You may try and raise equity. You increase your personal investment in the business (i.e., your school year) by throwing in the money that you had saved for your vacation. You may seek additional financing from an outside investor who feels your education is a worthy investment (i.e., call Mom with a heart-warming plea). However, you may no longer have complete control of your finances. For instance, the additional investors may want proof that the funds are necessary for survival and are not just "comfort dollars" so that you may attend a Blue Jays' game.

CONCLUSION

Finding the proper financing is often "easier said than done." Many businesses have to forgo potentially excellent opportunities because of a lack of cash. Nevertheless, if all avenues are explored, a solution that is beneficial in both the short term and the long term can probably be found.

SOURCES

Meigs, Robert, F., Meigs, Walter, B., Lam, Wai, P., *Financial Accounting*, Mc-Graw Hill Ryerson Limited, Toronto, 1991.

Solomon, Lanny M., Walther, Larry M., Plunkett, Linda M., Vargo, Richard J. *Accounting Principles*, 4th ed., West Publishing Company, St. Paul, MN, 1993.

FINANCIAL PLANNING — PROJECTED FINANCIAL STATEMENTS

Mark Heisz wrote this case under the supervision of Richard H. Mimick solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 1983, Richard Ivey School of Business Foundation

Version: 2022-03-29

Projected (or pro forma) financial statements are an attempt by a financial planner/analyst¹ to determine the future financial position of a firm. These projections should be based on the most objective information available. The task of the financial planner is to assimilate the available information into a set of projected financial statements which represent the “best guess” as to what financial performance will be.

Financial forecasts serve several purposes:

1. They forecast cash (working capital) needs of the firm.
2. They provide information for creditors regarding future financial position.
3. They allow management to view the future in dollar figures and perhaps alter their operating policies to bring financial performance into line with the company’s objectives.
4. They provide managers with a reasonable standard from which to evaluate actual performance (budgets).

Managers use financial forecasts extensively in making both operating and financing decisions; consequently, preparation of projected financial statements is a critical element of forward planning for any firm.

The following description is designed to provide an understanding of the methods used in preparing projected financial statements, as well as to outline how these projections can be modified and used in financial planning and management decision making.

PREPARATION OF PROJECTED FINANCIAL STATEMENTS

The approach which should be taken in developing projections for financial planning purposes is to draw up a “base case” set of statements which represent the most likely outcome. Sources of information from which assumptions can be drawn to develop the projections are:

- Historical financial performance (e.g. ratio analysis).
- Management policies and estimates (e.g. sales forecasts).

¹A financial planner/analyst could be an owner/manager of a small business, a financial consultant, a banker, an investor, a manager, etc.

- Environmental factors (e.g. economic, competitive, legal, etc.)
- Guesses and estimates about the future operations of the firm and the industry.

The information gathered from these sources will provide both a base case set of projections and additional data about other possible outcomes which could greatly affect financial performance.

THE PROJECTED INCOME STATEMENT

The projected income statement is prepared before the projected statement of financial position because the projected profit level must be ascertained from the projected income statement to be included in the equity accounts on the projected statement of financial position.

The starting point in preparing the projected income statement is the sales forecast. Management estimates of the sales level, based on information gathered from sales personnel, usually provide the most reliable projection. However, a forecast may also be developed by extrapolating past performance. For example, if sales have grown by 10 per cent for the past three years, a reasonable assumption might be that sales will increase by 10 per cent this year. The sales forecast must be evaluated carefully in light of current environmental factors (economic, competitive, etc.) to ensure objectivity in the projection.

The second step is to estimate the level of expenses. The key factor to remember when estimating expenses is that some expenses vary with sales volume (e.g. sales commissions, direct labor) while others do not vary with small changes in volume (e.g. management salaries, occupancy costs). Since information about the variable and fixed portions of the expenses is often not readily available, management estimates and policies and past relationships (vertical analysis) must be relied upon when expenses are being projected.

The final step is to determine the level of taxation which the company will face. This information is fairly simple to determine, either through past experience or by examining current government taxation policies.

SHARKY PUBLISHING LIMITED

Projected Income Statement

An example may help to illustrate the procedures used to develop a projected income statement. Sharky Publishing Limited is a small publisher of budget-priced romance novels. The 2001 income statement and a vertical analysis for 2000 and 2001 appear in Exhibits 1 and 2.

Ray Sharky, owner of the company, has indicated that sales are expected to increase by 20 per cent over the preceding year. He also believes that he can keep his cost of goods sold at the same percentage of sales as last year. Sharky believes that administrative expenses and salaries are fixed in relation to sales volume and will, therefore, only increase by the expected level of inflation — 12 per cent. A few expenses will, however, change by amounts other than the inflation rate:

1. Royalties, which represent a flat seven per cent of sales.
2. Selling expense, which will remain at five per cent of sales, since all sales people are on commission.
3. Depreciation expense, which will be the same as last year.
4. Promotion and advertising expense, which will increase by 100 per cent over the 2001 level because Sharky is planning two major promotional campaigns in the coming year.

Sharky tells you that his tax rate will be the same as in previous years.

Sharky has provided much of the information required to prepare a projected income statement; however, he did not mention what he expected Other Expenses to be in 2002. Consequently, we must estimate the amount of Other Expenses. The most common method of arriving at this figure is to look at the vertical analysis and determine the level of expenses by estimating it as a percentage of sales. Other Expenses for Sharky Publishing have been 2.6 per cent and 2.4 per cent of sales, respectively in the past two years. A reasonable approach in this case would be to average the percentages and use 2.5 per cent of sales as an expected level of Other Expenses.

When assumptions are derived solely from the ratio analysis, the impact of any developing trend should be evaluated. In addition, the amount of the expense should be examined to determine whether the expense has remained fixed in the recent past. All assumptions that are made in developing projected statements should be clearly documented, either in footnotes or in brackets next to the item. Clear documentation allows easy understanding of the statements by other parties as well as making the statements clear to the financial planner who may wish to alter some assumptions for further analysis (sensitivity).

In order to prepare the projected income statement, the tax rate must be determined. Sharky indicates that the rate will be the same as the previous year's. Therefore, the rate is determined by dividing the 2001 taxes in the 2001 Net Income Before Tax ($23,250 \div 93,000$). The expected tax rate will, therefore, be 25 per cent for 2002.

The projected income statement for Sharky Publishing Limited for 2002 may now be developed and is presented in Exhibit 3.

Projected Statement of Financial Position

Once an income statement has been projected, the next step is to develop a projected statement of financial position. The same sources of information are used to develop the projected statement of financial position as were used to project the income statement.

The steps required are as follows:

1. Enter those items which are not expected to change from the most recent balance sheet (e.g. fixed assets at cost, if no purchases are planned.)
2. Enter owners' or shareholders' equity as the equity previously reported plus projected income less any dividends (or drawings) plus any planned additional investment.
3. Use a liquidity analysis and management policy to determine the expected level of accounts receivable, inventory and accounts payable (e.g. if the age of accounts receivable from the ratio analysis is 30 days [and is not expected to change] and projected sales are \$2,400,000, then accounts receivable is expected to be $30 \div 360 \times \$2,400,000 = \$200,000$).
4. Include any planned fixed or current asset acquisitions and include depreciation (add to accumulated depreciation) from the projected income statement.
5. Include any planned debt financing (e.g. issue of bonds).

After you have followed these steps, you may find some items are still missing. In such instances, the financial planner is forced to make assumptions, and usually previous experience serves as the best guide for those assumptions. Also, a plug figure must be used to balance the statement of financial position. The two

most common choices for the plug figure are cash (if the company is not expected to require financing), or a bank loan (if the company is expected to be in need of cash). In most cases, cash may be used and should the cash figure be negative, that amount would represent the additional financing required. Another approach often used is to establish a minimum operating cash balance for the firm, thereby increasing any projected financing needs by the established minimum balance.

To illustrate this process, we can return to the example of Sharky Publishing Limited (the statement of financial position as at December 31, 2001, and a partial ratio analysis for 2000 and 2001 are presented in Exhibits 4 and 5). Sharky has indicated that he does not plan to alter his policies regarding inventory levels or payables. Sharky does, however, plan to alter his policy regarding accounts receivable. In order to help stimulate sales, he plans to offer terms of net 45 days rather than the previous net 30 days. He feels that his average age of receivables will, therefore, increase to 45 days. Fixed asset acquisitions are expected to equal the depreciation expense for 2002 (therefore, the net book value of fixed assets will remain the same).

He also plans to sell 1,000 shares of stock to his brother-in-law in exchange for \$100,000. He will use some of the \$100,000 to pay off his bank loan and will keep the remainder in the company's bank account. Sharky's policy is to pay 50 per cent of his net income in dividends on the last day of the year. The information above allows a projected statement of financial position for Sharky Publishing Limited as at December 31, 2002, to be developed as shown in Exhibit 6.

The accounts which will not change materially from the 2001 statement of financial position are prepaids, accruals, and mortgage payable (no current portion); consequently, we can enter these figures into our projected statement of financial position. The next step is to determine shareholders' equity; common stock will increase \$100,000 from the sale of stock. Retained earnings will be:

Beginning Retained Earnings	\$ 237,000
Add: Projected Net Income for 2002	106,425
Less: Dividends	(53,213)
Ending Retained Earnings	\$ 290,212

The level of accounts receivable, inventory, and accounts payable must be determined using the assumptions supplied by Sharky:

$$\text{Accounts Receivable: } \$2,400,000 \text{ (Sales)} \times 45 \text{ days} / 360 \text{ days} = \$300,000$$

$$\text{Inventory: } \$888,000 \text{ (COGS}^2\text{)} \times 35 \text{ days} / 360 \text{ days} = \$86,300^3$$

$$\text{Accounts Payable: } \$888,000 \text{ (COGS)} \times 30 \text{ days} / 360 \text{ days} = \$74,000^3$$

The next step is to fill in the remaining accounts based on information available:

1. Cash — allow to serve as a plug figure.
2. Fixed assets at cost should increase by \$72,500 — the expected level of depreciation (since fixed asset acquisitions are expected to equal the depreciation expense).
3. Accumulated depreciation — add \$72,500 depreciation expected from the projected income statement.
4. Taxes payable — historically, it appears to contain the amount of tax incurred during the year — tax for 2002 is expected to be \$35,475.

The final step is to determine the plug figure (cash) necessary to make the statement of financial position balance. The projections indicate that a negative cash balance of \$41,163 will cause the statement of financial position to balance. The presence of a negative cash balance indicates that, under the assumptions used, Sharky Publishing will require a bank loan (or some other form of financing) on December 31, 2002.

² Cost of Goods Sold.

³ Numbers have been rounded to nearest \$100.

ANALYSIS OF PROJECTED STATEMENTS

The question which comes to mind at this time is “having done all of the ‘number crunching’, where do we go from here?” The answer will depend upon the particular circumstances, but in most cases the financial planner will next analyse the projected statements to determine whether the results are in line with the company’s expectations and objectives. The first step in the analysis is quite often to assess the cash position of the firm. The projected statement of cash flows can be prepared to aid in analyzing the cash in-flows and out-flows for the year.

Projected Statement of Cash Flows

In the example, Sharky is very pleased with the expected profit level but is concerned about the amount of bank loan projected. Sharky figured that the \$100,000 in shares he sold would allow him to operate without a bank loan. To determine where all his cash has gone, a projected statement of cash flows is prepared. The preparation of this statement is identical to the process carried out in dealing with historical data. The projected statement of cash flows appears in Exhibit 7.

We can see from the statement of cash flows that the major use of cash is a one-time investment made necessary by the increase in credit terms from 30 to 45 days. The statement also highlights other key sources and uses of cash projected for 2002.

Ratio Analysis

Ratio analysis is another technique often employed to assess the future financial position and operating results of a firm. This analysis allows management to highlight potential problem areas and formulate alternative operating strategies.

For example, many loans contain covenants which require the company to maintain certain financial conditions such as minimum current ratio, working capital level, etc. In such instances, a ratio analysis for projected statements allows management to take action to prevent the possibility of breaking any loan covenants.

Sensitivity Analysis

The other major form of analysis which the financial planner will undertake is sensitivity analysis. The purpose of a sensitivity analysis is to determine the level of financial flexibility of the company. Sensitivity analysis involves altering the assumptions originally used to develop the projected statements and re-projecting statements based on the altered assumptions. The planner must ask what could possibly occur that would alter the financial projections. For example, what if sales increased by 15 per cent? what if raw material cost increased by 30 per cent? what if sales fell by 30 per cent? what if operating expenses were \$1,000,000 more than expected? The potential questions are endless; consequently, the financial planner must establish some criteria to help determine which assumptions should be altered. These criteria should allow the financial planner to prioritize the assumptions in terms of those which would have the greatest impact on the projected statements. The criteria should address:

1. The relative level of uncertainty (e.g. cost of goods sold could be 35 per cent higher or lower depending on energy costs).
2. The level of “downside” risk (e.g. sales may be 25 per cent lower than expected if the economy is in recession).

3. The relative impact on the final financial results (e.g. what would have the greatest impact on profit — a 35 per cent increase in cost of goods sold, or a 25 per cent decrease in sales?)

The criteria will help to determine which assumptions the financial planner should alter when projecting the statements. Quite often a computerized financial planning model is used to facilitate this type of analysis. The financial model allows the user to alter one or many assumptions and will very quickly project financial statements based on the new assumptions. But, in all cases, the financial planner must assess which outcomes are most likely and make financial decisions based on projections under those assumptions.

To return to the example of Sharky Publishing, Sharky feels that the assumption with greatest uncertainty, downside risk, and impact on financial performance is the cost of goods sold percentage. He indicates that the price of paper could increase substantially due to declining world supplies and, therefore, cost of goods sold could increase by 15 per cent. In order to determine the impact that the cost increase would have on the financial performance of Sharky Publishing, we must re-project the income statement and statement of financial position (Exhibits 8 and 9).

The projections indicate that if cost of goods sold increases by 15 per cent, net income will decrease to \$6,525 and the cash need will increase to \$126,312. Sharky is now able to evaluate the potential level of financing required and therefore arrange a financing package based on the most probable outcome, but allowing him enough financial flexibility to survive a 25 per cent increase in cost of goods sold.

CASH BUDGETING AND PROJECTED FINANCIAL STATEMENTS

By utilizing many of the same assumptions contained in the projected financial statements, a cash budget may be developed for the firm on a monthly basis. This budget will detail the expected expenditures and receipts of cash and will, therefore, project the short-term cash requirements of the firm. Cash budgeting becomes especially critical if the company's sales are seasonal or growing, or if the company plans to change any operating policies (e.g. seasonal to level production). The cash budget provides the information required to assess short-term financing requirements, as well as highlighting areas where cash may be generated by altering operating policies. (Monthly projected statements of financial position could provide the information regarding cash requirements but do not clearly indicate the specific expenditures and receipts that have caused the cash requirement.)

Weaknesses of Financial Forecasting

Financial projections contain many assumptions and estimates based on the best information available at a point in time. These forecasts are an attempt to predict the future which is, to say the least, a most imprecise art. Therefore, the forecasts are often viewed as products of a "crystal ball" process and are considered suspect on that account. While it is true that projections are only estimates of the future, they do contain the best guess possible and, therefore, represent a planning tool which offers an alternative to a "hit and miss" process. The financial planner uses the projected statements to assess financing needs and suggest financing policies that will improve the future financial position of the firm.

CONCLUSION

Forecasting through projected financial statements enables a financial planner to assess the future prospects for a firm. The projections allow management the opportunity to alter operating strategies in order to obtain corporate objectives and to plan for and secure financing to keep the corporation solvent. As well, the forecasts provide information for creditors or investors, and for management evaluation of performance when the actual results are available. In short, financial projections allow management to develop a corporate and financing strategy which will allow the firm to continue to exist and move towards the overall corporate objectives.

SUMMARY

The preparation of a projected income statement involves:

1. Using management estimates to determine sales.
2. Using vertical analysis and cost behavior patterns to estimate expenses.
3. Determining the tax rate.

The preparation of a projected statement of financial position involves:

1. Entering amounts which will not change.
2. Determining equity by adding the projected profit level and any planned investment and subtracting any planned dividends or withdrawals (dividends).
3. Using liquidity analysis to determine the expected level of receivables, payables and inventory.
4. Including planned asset acquisitions and depreciation, and any debt financing.
5. Using a plug figure (cash or bank loan) to bring statement of financial position into balance.

Evaluation of projected financial statements could include:

1. Ratio analysis
2. Projected statement of cash flows
3. Sensitivity analysis

Exhibit 1**INCOME STATEMENT
For the year ended December 31, 2001**

Sales	\$ 2,000,000
Cost of Goods Sold	740,000
Gross Profit	<u>\$ 1,260,000</u>
Operating Expenses	
Administrative Expense	\$ 135,000
Selling Expense	100,000
Promotion and Advertising	52,000
Royalties	140,000
Salaries Expense	620,000
Depreciation	72,500
Other Expense	<u>47,500</u>
Total Operating Expenses	\$ 1,167,000
Income Before income Tax	\$ 93,000
Taxes	23,250
Net Income After Tax	<u>\$ 69,750</u>

Exhibit 2**RATIO ANALYSIS
Vertical Analysis
(%)**

	2001	2000
Sales	100.0	100.0
Cost of Goods Sold	<u>37.0</u>	<u>38.5</u>
Gross Profit	63.0	61.5
Operating Expenses:		
Administrative	6.8	5.4
Selling	5.0	5.0
Promotional Advertising	2.6	2.4
Royalties	7.0	7.0
Salaries	31.0	32.6
Depreciation	3.6	3.4
Other	<u>2.4</u>	<u>2.6</u>
Net Income Before Tax	4.6	3.1
Taxes	<u>1.1</u>	<u>0.8</u>
Net Income After Tax	<u><u>3.5</u></u>	<u><u>2.3</u></u>

Exhibit 3**PROJECTED INCOME STATEMENT
For the year ending December 31, 2002**

Sales (\$2,000,000 x 1.20)	\$ 2,400,000
Cost of Goods Sold (37% of Sales)	<u>888,000</u>
Gross Profit	\$ 1,512,000
Operating Expenses:	
Administrative Expense (\$135,000 x 1.12)	\$ 151,200
Selling Expense (5% of Sales)	120,000
Promotion and Advertising (2 x \$52,000)	104,000
Royalties (7% of Sales)	168,000
Salaries Expense (\$620,000 x 1.12)	694,400
Depreciation Expense (as in 2001)	72,500
Other Expenses (2.5% of Sales)	<u>60,000</u>
Total Operating Expenses	\$ 1,370,100
Income Before Tax	\$ 141,900
Taxes (25%)	<u>35,475</u>
Net Income After Tax	<u>\$ 106,425</u>

Exhibit 4

STATEMENT OF FINANCIAL POSITION
As at December 31, 2001

Assets

Current Assets:

Cash	\$ 2,000	
Accounts Receivable	167,700	
Inventory	72,000	
Prepays	<u>4,375</u>	
Total Current Assets		\$ 246,075
Fixed Assets	\$ 725,000	
Less: Accumulated Depreciation	\$ 285,025	<u>\$ 439,975</u>
Total Assets		<u>\$ 686,050</u>

Liabilities and Shareholders' Equity

Current Liabilities:

Bank Loan	\$ 74,000	
Accounts Payable	62,000	
Taxes Payable	23,250	
Accruals	<u>4,800</u>	
Total Current Liabilities		\$ 164,050
Mortgage Payable		<u>185,000</u>
Total Liabilities		<u>\$ 349,050</u>

Shareholders' Equity:

Common Stock	\$ 100,000	
Retained Earnings	<u>237,000</u>	
Total Shareholders' Equity		<u>\$ 337,000</u>
Total Liabilities and Shareholders' Equity		<u>\$ 686,050</u>

Exhibit 5
SELECTED FINANCIAL RATIOS

LIQUIDITY	2001	2000
Current Ratio	1.5:1	1.6:1
Acid Test Ratio	1.03:1	1.05:1
Working Capital	\$ 82,025	\$ 76,320
Age of Receivables in Days' Sales ¹	30 days	30 days
Age of Payables in Days' Cost of Good Sold ¹	30 days	27 days
Age of Inventory in Days' Cost of Good Sold ¹	35 days	32 days
STABILITY		
Net Worth to Total Assets	49%	62%

¹360-day year used.

Exhibit 6

PROJECTED STATEMENT OF FINANCIAL POSITION
As at December 31, 2002

Assets

Current Assets:

Cash (plug)	\$ (41,163)
Accounts Receivable (45 days of Sales)	300,000
Inventory (35 days of COGS)	86,300
Prepays (no change)	<u>4,375</u>
Total Current Assets	\$ 349,512
Fixed Assets (+ \$72,500)	\$ 797,500
Less: Accumulated Depreciation (+ \$72,500)	<u>357,525</u>
Total Assets	<u>\$ 789,487</u>

Liabilities and Shareholders' Equity

Current Liabilities:

Accounts Payable (30 days of COGS)	\$ 74,000
Taxes Payable (taxes expense)	35,475
Accruals (no change)	<u>4,800</u>
Total Current Liabilities	\$ 114,275
Mortgage Payable (no change)	<u>185,000</u>
Total Liabilities	\$ 299,275

Shareholders' Equity:

Common Stock (+ \$100,000)	\$ 200,000
Retained Earnings (as calculated)	<u>290,212</u>
Total Shareholders' Equity	\$ 490,212
Total Liabilities and Shareholders' Equity	<u>\$ 789,487</u>

Exhibit 7

PROJECTED STATEMENT OF CASH FLOWS
For the year ending December 31, 2002

Operations:		
Net Income		\$ 106,425
Adjustments to Cash Basis:		
Depreciation	\$ 72,500	
Accounts Receivable	(132,300)	
Inventory	(14,300)	
Accounts payable	12,000	
Taxes Payable	<u>12,225</u>	<u>\$ (49,875)</u>
Net Cash from Operations		\$ 56,550
Financing Activities:		
Bank Loan Reduction	\$ (74,000)	
Common Stock	100,000	
Dividends Declared	<u>(53,213)</u>	<u>(27,213)</u>
Investing Activity:		
Fixed Asset Investment		<u>\$ (72,500)</u>
Net Cash Flow	\$ (43,163)	
Cash Balance December 31, 2001		<u>2,000</u>
Cash Balance December 31, 2002		<u>\$ (41,163)</u>

Exhibit 8

PROJECTED INCOME STATEMENT
For the year ending December 31, 2002
(under the assumption that cost of goods sold is 15 per cent above forecast)

Sales (\$2,000,000 x 1.20)	\$ 2,400,000
Cost of Goods Sold (\$888,000 x 1.15)	<u>1,021,200</u>
Gross Profit	<u>\$ 1,378,800</u>
 Operating Expenses:	
Administrative Expense (\$135,000 x 1.12)	\$ 151,200
Selling Expense (5% x Sales)	120,000
Promotion and Advertising (2 x \$52,000)	104,000
Royalties (7% x Sales)	168,000
Salaries Expense (\$620,000 x 1.12)	694,400
Depreciation Expense (as in 2001)	72,500
Other Expense (2.5% x Sales)	<u>60,000</u>
 Total Operating Expenses	<u>\$ 1,370,100</u>
Income Before Tax	\$ 8,700
Taxes (25%)	2,175
Net Income After Tax	<u>\$ 6,525</u>

Exhibit 9**PROJECTED STATEMENT OF FINANCIAL POSITION****As at December 31, 2002***(Under the assumption that cost of goods sold is 15 per cent above forecast)***Assets**

Current Assets:

Cash (Plug)	\$ (126,312)
Accounts Receivable (45 days of Sales)	300,000
Inventory (35 days of Cost of Goods Sold)	99,300
Prepays (no change)	<u>4,375</u>
Total Current Assets	\$ 277,363
Fixed Assets (+ \$72,500)	\$ 797,500
Less: Accumulated Depreciation (+ \$72,500)	<u>357,525</u>
	\$ 439,975
Total Assets	<u>\$ 717,338</u>

Liabilities and Shareholders' Equity

Current Liabilities:

Accounts Payable (30 days of Cost of Goods Sold)	\$ 85,100
Taxes Payable (Taxes Expense)	2,175
Accruals (no change)	<u>4,800</u>
Total Current Liabilities	\$ 92,075
Mortgage Payable (no change)	185,000

Shareholders' Equity:

Common Stock (+ \$100,000)	\$ 200,000
Retained Earnings (Beginning + $\frac{1}{2} \times$ Net Income After Tax (\$237,000 + $\frac{1}{2}$ [\$6,525] = \$240,263)	<u>240,263</u>
Total Shareholders' Equity	\$ 440,263
Total Liabilities and Shareholders' Equity	<u>\$ 717,338</u>

ADEPT CHEMICAL INC.

Lindsay Brock wrote this case under the supervision of Elizabeth M.A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) publishcases@ivey.ca; www.iveypublishing.ca.

Copyright © 2008, Ivey Business School Foundation

Version: 2023-04-12

In February 2008, Mike Brock, chief executive officer (CEO) of Adept Chemical, Inc. (Adept), a regional supplier of cleaning and hygiene products and services, was deciding if he should bid on \$3 million in new business from Cargill Foods. Cargill was Adept's largest customer and had recently named Adept as a preferred supplier. The new business, i.e., supplying sanitation products for nine meat-processing plants, starting July 1, 2008, would be a huge opportunity to grow Adept's sales and profitability. Qualitatively and quantitatively, Brock wanted to make the bid as attractive as possible. Brock wondered how to structure the deal, and, if Adept was successful in winning the contract, whether he should bring on his youngest son, Adam, as a new sales and service employee.

THE INDUSTRY

Food and Beverage Manufacturing

On average, the Canadian food and beverage manufacturing industry generated \$82 billion in domestic retail and foodservice sales¹ and was the third largest employer in Canada.² It was subdivided into 17 sectors (see Exhibit 1), of which Adept participated significantly in three: meat-processing, poultry-processing and brewing (see Exhibit 2 for Adept's customer list). Bakery products made up the majority of the food and beverage manufacturing industry in Toronto (see Exhibit 3).

The industry experienced modest sales growth of three to four per cent from 2006 to 2007; however, it had one of Canada's lowest average pre-tax profit margins (4.3 per cent in 2006). Despite low profit margins, investments were still being aggressively undertaken in new plants, while current plants were under expansion. Modernization projects and upgrades were being put into place.

George Weston Limited (Weston) founded in 1882, was one of the largest companies in the North American food processing and distribution industry. Weston operated Weston Foods and Loblaw Companies Limited (Loblaw). Weston Foods was involved primarily in the baked goods and dairy manufacturing industries, while Loblaw was Canada's largest food distributor and a leading provider of general merchandise, drugstore

¹ www.agriculture.gov.sk.ca/Statistics-Processing, June 24, 2008.

² www.thecanadianencyclopedia.com/index.cfm?PgNm=TCE&Params=A1ARTA0002883, May 13, 2008.

and financial products and services.³ Other significant industry players included McCain Foods Limited (the world's largest producer of frozen potato products), Olymel (Canada's largest pork and poultry processor), General Mills, Kraft and Coca-Cola.

Regulations

To protect the health and safety of Canadian consumers, the food and beverage manufacturing industry was heavily regulated by the Canadian Food Inspection Agency and by Health Canada. These government agencies regulated and enforced strict processing, handling, packaging and labeling laws. For example, food processing areas had to be sanitized every four hours of production time, and nutritional content had to be displayed on all packaging. In more recent years, due to increased public awareness about food-safety issues, these laws and restrictions had become even more stringent, which had the effect of encumbering manufacturers. Food and beverage manufacturers were required to measure more areas more often, and were being held more accountable for results that did not meet the government's standards. Food and beverage manufacturers could be fined or closed down for repeated non-compliance. Environment Canada imposed similarly strict regulations on the treatment and disposal of manufacturing waste water and byproducts.

Adherence

In response to exacting regulation, all food and beverage manufacturers operated a food safety department responsible for reducing the threat of food-borne pathogens and protecting the food supply. Common food-borne pathogens included salmonella,⁴ E. coli⁵ and listeria.⁶ These food safety departments purchased equipment, chemicals, detergents and solutions from suppliers in the food and beverage hygiene industry to keep their company's food and beverages safe and to clean their factories.

Food and Beverage Hygiene

Food and beverage hygiene suppliers competed on product formulations, price and service. Product formulations that could extend shelf-life, reduce bacteria counts or improve yield⁷ would be considered superior products and attractive to manufacturing customers. Given the food and beverage manufacturing industry's low-profit margins, offering the lowest price was equally as attractive and was often enough to win contracts. Finally, on-time shipments and quick repair services were important to overall customer satisfaction. Consulting was considered a value-added service. Manufacturers rarely switched suppliers since it was risky, time consuming and expensive.

³ http://www.weston.ca/en/abt_corprof.html, June 24, 2008.

⁴ Salmonella is a bacterium most commonly found in raw eggs.

⁵ E. coli bacteria are usually associated with eating unwashed vegetables and meat that becomes contaminated post-slaughter.

⁶ Listeria bacteria outbreaks have been caused by hot dogs, deli meats, raw milk, cheeses, raw and cooked poultry, raw meats, ice cream, raw vegetables, and raw and smoked fish.

⁷ Yield refers to the amount of meat that, for example, can be packaged and sold from one chicken.

Competition

The Canadian food and beverage hygiene industry was dominated by two large, multi-national corporations: EcoLab, Inc. (EcoLab) and JohnsonDiversey Holdings, Inc. (JDH).

EcoLab, based in St. Paul, Minnesota, developed and marketed products and services for the hospitality, foodservice, health-care and industrial markets. The company provided cleaning and sanitizing products and programs, as well as pest elimination, maintenance and repair services, primarily to hotels and restaurants, health-care and education facilities, quick-service (fast food and other convenience store) units, grocery stores, commercial and institutional laundries, dairy plants and farms, food and beverage processors, and the vehicle wash industry.⁸ EcoLab considered itself the “world leader in premium commercial cleaning and sanitizing.”⁹ It was a publicly traded corporation with \$5 billion in worldwide sales and 23,000 associates who performed sales and service functions. See Exhibit 4 for EcoLab’s key financial ratios.

JDH, headquartered in Racine, Wisconsin, operated four separate companies, one of which competed in the food and beverage hygiene industry. Like EcoLab, JDH offered cleaning and hygiene products and services in hundreds of countries across several industries (food and beverage, lodging, health care, etc.). JDH was an unlisted (private) company, with sales of almost \$3 billion in 2004.¹⁰

EcoLab and JDH competed in the same geographic area as did Adept, and many of Adept’s current customers had previously been supplied by EcoLab or JDH. In the past, when Adept had bid for a contract currently supplied by EcoLab or JDH, the two competitor companies would respond by offering to price-match Adept’s bid in order to keep their accounts. If customers were currently satisfied with the products and services offered, EcoLab and JDH were successful in keeping their contracts.

In addition, there were several smaller detergent-business competitors servicing different industries such as hospitals, schools and retail food distributors, that competed indirectly with Adept.

ADEPT CHEMICAL, INC.

Chief Executive Officer Mike Brock

Brock started his career working at Silverwoods Dairy (an ice cream and milk products manufacturer) in London, Ontario, at the age of 18. Brock moved into the food and beverage hygiene industry in 1981 when he accepted a job with EcoLab. Brock worked as a salesperson and then as a sales manager for EcoLab until 1989 when he was hired as the senior vice-president of sales for JDH. In 1997, Brock became the CEO of Alex C. Fergusson, Inc. (AFCO), a \$16 million private detergent and sanitation business located in Philadelphia, Pennsylvania. Brock relocated to Canada four years later to be closer to his family and to launch Adept. Brock’s goals for the business were simple: to provide himself with a job (at a salary of \$80,000) until retirement, to recoup his initial investment in Adept through dividends over the next 10 years, and to leave a legacy for his three children.

⁸ Dow Jones Factiva, 2008.

⁹ www.ecolab.com, May 13, 2008.

¹⁰ www.johnsondiversey.com/cultures/en/default.htm, May 13, 2008.

History

Adept Chemical, Inc. was incorporated on August 1, 2001, with an objective to be the best regional supplier of cleaning and hygiene products and services in the Montreal-to-Windsor corridor; however, Adept would accept business in Canada and the United States when customers required mainly products, not service. Adept's initial strategy was to bid on the food and beverage manufacturers' detergent business with the hopes of gaining the sanitization business (for the food itself) over time. Adept had four legally protected specialized sanitizers that had an outstanding record for reducing or eliminating food-borne pathogens. These sanitizers targeted specific bacterium, unlike Adept's competitors' products, which used one sanitizer to kill all bacteria (but did so less effectively). In 2004, Adept decided to focus new sales on the specialized sanitation business because it had significantly higher margins than other detergent products. This had proven to be an excellent decision because food and beverage manufacturers were having a difficult time meeting the new, stricter, food-related regulations. A long-term goal of the company was to build an export business for its four specialized exclusive sanitizer products.

Corporate Structure

Adept was owned by three stakeholders: Sodrox Chemicals (Sodrox) (50 per cent), Mike Brock (35 per cent) and Ken Pedder (15 per cent). Adept was essentially a marketing arm of Sodrox, a firm that operated several other marketing arms in non-competing industries. Sodrox blended chemicals according to Adept's formulas, shipped the product to customers, took orders, billed customers, collected payments and handled payroll. In exchange, Adept paid Sodrox for the cost of the finished goods plus 15 per cent on this cost. Adept had two full-time employees, Brock and Pedder. Pedder was Brock's brother-in-law, and he had worked for Brock at AFCO. Brock was the CEO, focusing mainly on sales, while Pedder focused on servicing existing customers.

The Sales Process

The first step in securing a sale was the sales call. In the beginning, Brock was permitted to make sales calls only because he knew many of the safety managers from his employment with EcoLab and JDH.¹¹ After Adept had developed a reputation for high-quality, low-priced products with exceptional service, Brock began receiving unsolicited calls asking for his "pitch." In fact, Brock had received so many sales-call requests in the past year that he was turning them down on a regular basis due to lack of time.

The next step was to perform a plant audit of the potential customers' facilities. A plant audit involved such steps as taking samples, measuring bacteria counts and identifying areas for improved safety or lower costs. A plant audit allowed Brock to showcase his skill and experience. After the audit, several meetings took place, both with and without an Adept representative to determine "the fit" between the company needs and Adept's offerings.

The final step was to negotiate and prepare the contract (or bid), outlining prices, services provided, equipment rentals/purchases and guarantees. Contracts were generally three to five years in length and prevented competitors from gaining the same business within this time period.

¹¹ Small hygiene suppliers would not normally be given the opportunity to bid on such large contracts. Also, many former employees of large companies are required to sign non-compete agreements stating that they will not compete with their former employer in a certain geographical area or during a certain time period. Brock's non-compete agreements had expired in Canada.

Recent Financial Performance

Adept had experienced strong growth each year since incorporation (see Exhibit 5), but, like many small and growing companies, although profitable, it was plagued with cash-flow problems.

THE CARGILL FOODS BID

New Business

Cargill Foods was an international provider of food and agricultural products and services.¹² Privately held, Cargill employed 158,000 employees in 66 countries. Since Adept had recently been named as a preferred supplier, it was allowed to bid on any new business that Cargill tendered (resulting from the opening of new plants) or on expiring contracts with current suppliers. Cargill's contracts with current suppliers for sanitation products were set to expire on June 30, 2008, instigating Cargill's call for bids. The business on which Brock wanted to bid included seven additional meat-processing plants in Ontario and two meat-processing plants in Alberta for a contract length of three years. This proposed bid, if awarded to Adept, was expected to increase monthly sales by an additional \$250,000. At that price, gross margins would average 63 per cent.

The Deal

If Adept's bid was accepted, Adept would need to invest in equipment at a cost of \$30,000 per plant, paid for upon purchase. The company depreciated equipment over 10 years (straight-line) with no expected residual value. Adept would also need the equivalent of one month's inventory (15 days' worth at the customer's plant(s) and 15 days' worth in Adept's warehouse) on-hand for this contract. Payment from Cargill was expected to be in line with Adept's fiscal 2007 days of accounts receivable. Although Sodrox preferred to be paid within 60 days, it had allowed Adept to pay late without consequence in the past. Additional annual costs for this contract would include salaries (\$40,000), a car allowance (\$10,200), and maintenance costs for the car (\$9,600), which would be spread evenly throughout the year and would be paid in the same month the work was performed. Brock also estimated that 20 per cent of his time would be spent managing the account; therefore, the proposal should also cover 20 per cent of his salary, which would remain unchanged in the next fiscal period.

Brock was considering an alternative deal wherein Adept would lower the bid price by seven per cent, but Cargill would have to purchase its own equipment. This alternative would be financially attractive to Cargill, given the length of the contract. Brock wanted to compare the two proposals, both from a return on investment perspective and from a monthly cash flow perspective (for six months from July 2008 to December 2008).

Financing

The first hurdle Brock faced would be winning the contract; however, if awarded, financing would be another challenge. While Sodrox had the resources to finance the contract, it was hesitant to do so considering it had not yet received any dividends from its investment in Adept. Brock believed the bank would also be hesitant to extend further loans since banks rarely deemed this kind of equipment as collateral (i.e. it was too specialized to have any significant resale value).

¹² www.cargill.com, May 15, 2008.

A New Employee

If Cargill accepted either one of Adept's bids, Brock would need to hire a new salesperson to take on some of Brock's sales responsibilities. Brock was currently the only employee making sales calls, but he believed that his youngest son, Adam, or another qualified person could be trained within three to six months to handle sales calls on his own.

Adam graduated from secondary school in June 2002 at the age of 19. He had worked in the car industry for many years; first as an oil guard and oil change technician and then as a front counter salesperson at Midas¹³ and Canadian Tire. Although Adam was passionate about cars, the career prospects in that field were not very appealing. He was excited about the opportunity to work with and learn from his father in an altogether different industry. Brock also wondered what qualities and characteristics a new sales person should possess, and whether hiring family members was a wise decision.

CONCLUSION

Brock was excited about the potential new business, but he had some serious concerns about cash flow and his time commitments to this new business along with his current responsibilities. He wanted to project financial statements for fiscal 2008. He expected a similar growth rate of total sales to that experienced between fiscal year 2006 and 2007, regardless of whether the new bid was accepted. He also expected that total operating expenses would remain the same percentage of sales. If the new bid were accepted, only one month of the new business would be reflected in the fiscal 2008 statements; however, Brock did not feel the need to project further out.

¹³ Midas is an auto maintenance and repair services company with locations across the United States and Canada.

EXHIBIT 1: CANADIAN FOOD AND BEVERAGE MANUFACTURING SECTORS

Sector
Meat-processing
Poultry-processing
Fish products
Dairy
Confectionery
Sugar
Vegetable
Baking
Biscuit
Miscellaneous food
Vegetable oil
Feed
Flour and breakfast cereal
Soft-drink
Distilling
Brewing
Wine

Source: www.thecanadianencyclopedia.com, May 15, 2008.

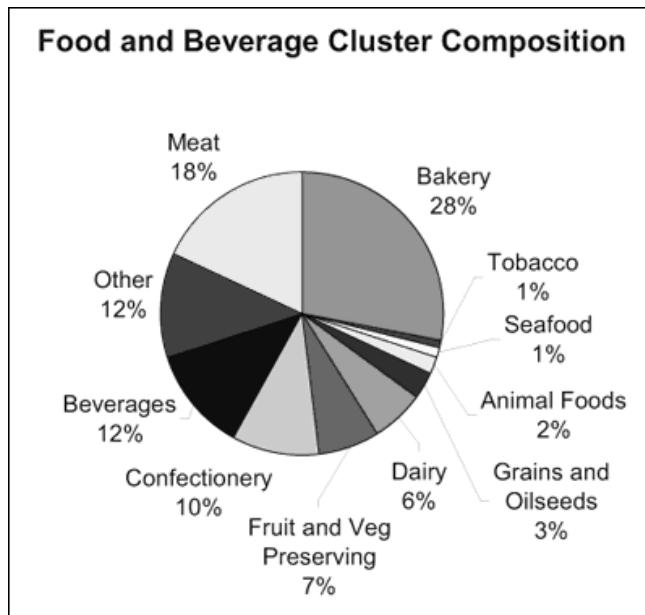
EXHIBIT 2: ADEPT CUSTOMER LIST
(Segmented by industry and listed in order, from most to least sales dollars)

MEAT & POULTRY (67% of Adept's sales)
Cargill Foods (four plants)
Maple Leaf Foods
Cami Poultry

MISCELLANEOUS (30% of Adept's sales)
Hubbert's Industries
R-Squared Products
BoxSys
Great North Chemicals
Touche Bakery

BREWERY (3% of Adept's sales)
Cool Beer
Wellington Brewery
Lakes of Muskoka Brewery
Cameron's Brewing Co.
F&M Brewery
Newstadt Spring Brewery
Black Oak Brewery
Stratford Brewery
King Brewery
Amber Brewery
Durham Brewing Company
Winemakers of Hanover
Grand River Brewery
Robert Simpson Brewery
D. Sykes Brewery
Slater Brewery

Source: Company files.

EXHIBIT 3: SHARE OF FOOD AND BEVERAGE MANUFACTURING IN TORONTO

Source: <http://www.toronto.ca/invest-in-toronto/food.htm>, June 26, 2008

EXHIBIT 4: ECOLAB—KEY RATIOS FISCAL 2007

Current ratio	1.13
Acid test	0.83
Long-term debt to equity	31.0
Interest coverage	13.1 times
Net income before tax to sales	11.1%
Gross profit to sales	50.4%
Return on assets	9.6%
Return on equity	24.1%
Inventory turnover	6.7 times
Age of accounts receivable	60.5 days

Source: Company profiles, www.factiva.com, May 20, 2008.

EXHIBIT 5: STATEMENT OF EARNINGS FOR THE YEARS ENDING JULY 31

	2007	2006	2005
REVENUE			
Product sales	\$ 824,494	\$ 620,990	\$ 481,377
Equipment sales	33,639	12,734	12,557
Other sales	1,546	991	2,150
Total Revenue	<u>\$ 859,679</u>	<u>\$ 634,715</u>	<u>\$ 496,084</u>
Cost of Goods Sold			
Product purchases ¹	\$ 402,833	\$ 248,771	\$ 189,677
Equipment purchases	27,784	11,092	8,375
Freight	44,924	32,683	25,890
Packaging	<u>13,601</u>	<u>18,724</u>	<u>23,324</u>
Total Cost of Goods Sold	<u>489,142²</u>	<u>311,270</u>	<u>247,266</u>
Gross Profit	<u>\$ 370,537</u>	<u>\$ 323,445</u>	<u>\$ 248,818</u>
OPERATING EXPENSES			
Accounting & legal	\$ 2,616	\$ 1,597	\$ 2,657
Advertising and promotion	4,001	3,018	598
Depreciation	10,990	8,507	7,666
Bad debt	—	967	722
Bank charges	1,481	858	853
Benefits	4,389	3,630	—
Insurance	10,737	9,167	5,269
Interest	12,569	9,496	6,775
Lab and test kits	728	3,553	1,114
Meals, entertainment and travel	20,307	15,152	10,137
Miscellaneous	1,318	466	265
Office expenses	8,559	18,350	9,438
Rentals	1,886	1,926	873
Service work	10,080	3,600	—
Shop expenses	43,099	32,728	25,011
Telephone	10,995	7,387	7,384
U.S. exchange	6,869	1,988	4,142
Vehicle expense	40,855	34,764	32,971
Wages	130,000	129,020	132,594
Payroll taxes	<u>6,827</u>	<u>7,169</u>	<u>7,853</u>
Total Operating Expenses	<u>\$ 328,306</u>	<u>\$ 293,343</u>	<u>\$ 256,322</u>
Net Earnings (loss)³	<u>\$ 42,231</u>	<u>\$ 30,102</u>	<u>\$ (7,504)</u>

¹ Product purchases included cost of finished goods and 15 per cent paid to Sodrox.

² In 2007, Adept began selling a few commodity products that had significantly higher COGS than did its other products.

³ Sodrox pays corporate tax on Adept's earnings.

EXHIBIT 5 (CONTINUED)**Vertical Analysis**

	2007	2006	2005
REVENUE			
Product sales	95.9%	97.8%	97.0%
Equipment sales	3.9%	2.0%	2.5%
Other sales	0.2%	0.2%	0.4%
Total Revenue	100.0%	100.0%	100.0%
Cost of Goods Sold			
Product purchases	46.9%	39.2%	38.2%
Equipment purchases	3.2%	1.7%	1.7%
Freight	5.2%	5.1%	5.2%
Packaging	1.6%	2.9%	4.7%
Total Cost of Goods Sold	56.9%	49.0%	49.8%
Gross Profit	43.1%	51.0%	50.2%
OPERATING EXPENSES			
Accounting and legal	0.3%	0.3%	0.5%
Advertising and promotion	0.5%	0.5%	0.1%
Depreciation	1.3%	1.3%	1.5%
Bad debt	0.0%	0.2%	0.1%
Bank charges	0.2%	0.1%	0.2%
Benefits	0.5%	0.6%	0.0%
Insurance	1.2%	1.4%	1.1%
Interest	1.5%	1.5%	1.3%
Lab and test kits	0.1%	0.6%	0.2%
Meals, entertainment and travel	2.4%	2.4%	2.0%
Miscellaneous	0.2%	0.1%	0.1%
Office expenses	1.0%	2.9%	1.9%
Rentals	0.2%	0.3%	0.2%
Service work	1.2%	0.6%	0.0%
Shop expenses	5.0%	5.2%	5.0%
Telephone	1.3%	1.2%	1.5%
U.S. exchange	0.8%	0.3%	0.8%
Vehicle expense	4.8%	5.5%	6.6%
Wages	15.1%	20.3%	26.7%
Payroll taxes	0.8%	1.1%	1.6%
Total Operating Expenses	38.2%	46.2%	51.7%
Net Earnings (loss)	4.9%	4.7%	(1.5%)

For use only in the course BUS 2257 - Accounting & Business Analysis - Fall/Winter 2024-25 at Ivey Business School from 9/5/2024 to 4/4/2025.
Use outside these parameters is a copyright violation.

EXHIBIT 5 (CONTINUED)**Statements of Financial Position as at July 31**

	2007	2006	2005
ASSETS			
Current assets:			
Cash	\$ —	\$ —	\$ —
Accounts receivable ⁴	132,613	92,791	77,794
Prepays	4,388	3,483	2,075
Inventory	<u>19,908</u>	<u>17,943</u>	<u>20,281</u>
Total current assets	<u>156,909</u>	<u>114,217</u>	<u>100,150</u>
Capital assets:			
Customer equipment (net) ⁵	77,952	56,842	64,308
Control panels (net)	1,953	2,442	3,053
Computers (net)	1,680	1,003	1,433
Vehicles (net)	<u>11,363</u>	<u>—</u>	<u>—</u>
Total capital assets	<u>92,948</u>	<u>60,287</u>	<u>68,794</u>
Total Assets	<u><u>\$ 249,857</u></u>	<u><u>\$ 174,504</u></u>	<u><u>\$ 168,944</u></u>
LIABILITIES AND SHAREHOLDERS' EQUITY			
Current liabilities:			
Operating line of credit ⁶	\$ 34,327	\$ 43,078	\$ 63,565
Accounts payable ⁷	113,250	65,944	70,227
Accrued liabilities and other current payables	<u>5,575</u>	<u>6,248</u>	<u>6,020</u>
Total current liabilities	<u>153,152</u>	<u>115,270</u>	<u>139,812</u>
Long-term liabilities:			
Sodrox term loan	88,000	100,000	100,000
Shareholder loan	45,000	45,000	45,000
Personal loan	<u>42,240</u>	<u>35,000</u>	<u>35,000</u>
Total long-term liabilities	<u>175,240</u>	<u>180,000</u>	<u>180,000</u>
Total liabilities	<u>328,392</u>	<u>295,270</u>	<u>319,812</u>
Shareholders' equity			
Capital stock	120,000	120,000	120,000
Retained earnings	<u>(198,535)</u>	<u>(240,766)</u>	<u>(270,868)</u>
Total shareholders' equity	<u>(78,535)</u>	<u>(120,766)</u>	<u>(150,868)</u>
Total Liabilities and Shareholders' Equity	<u><u>\$ 249,857</u></u>	<u><u>\$ 174,504</u></u>	<u><u>\$ 168,944</u></u>

⁴ Accounts receivable related only to product sales.⁵ Represents equipment owned by Adept but located at customer manufacturing plants.⁶ The line of credit had a \$50,000 limit and an average interest rate of eight per cent per annum.⁷ Adept paid all cost of goods sold expenses on account.

DICORE INTERNATIONAL

Rob Bremner wrote this case under the supervision of Elizabeth M.A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2014, Ivey Business School Foundation

Version: 2023-04-12

On June 4, 2013, Paul Calvin, senior vice president and general manager of the North American division of Dicore International (Dicore) put down his headset after another long conference call with the company's global management team. Dicore, a leading global drilling services provider specializing in mining and water projects, was one of the largest drilling service providers in the world, with a presence in 27 countries across five different continents. The conference call ended on a high note: although the company's expected equipment utilization rates for the remainder of the year were sub-par, Calvin was optimistic that the proposed expansion into the southwestern United States would "turn things around" for shareholders.

As Dicore's North American division's general manager, it was Calvin's responsibility to determine whether Dicore should enter the southwestern United States. If so, he had to outline the expansion strategy along with its associated risks and the necessary actions to mitigate those risks.

THE MINING INDUSTRY

The profitability of the largest mining companies in the world was highly dependent on mineral prices. Mineral prices fluctuated considerably based on supply and demand in the commodity markets, and these macroeconomic trends had a large impact on the mining industry (see Exhibits 1 and 2). When metal prices were low, it was uneconomical to make further investments in mining and exploration, so mining companies responded by cutting their exploration budgets. In severe circumstances, if it was no longer economical to extract a certain metal, some operating mines halted operations completely.

Exhibit 3 shows a breakdown of aggregate exploration spending by region. In the United States, gold and copper led the exploration market, with gold and base metals¹ accounting for 54 per cent and 31 per cent of exploration spending, respectively. In Canada, gold accounted for 49 per cent of exploration spending and copper followed as the second largest driver. In 2012, aggregate nonferrous² exploration spending increased to \$21.5 billion—up from \$17.25 billion in 2011³ (see Exhibit 4).

¹ Base metals include copper, zinc, nickel and lead, among other less common minerals.

² Although ferrous (iron) exploration represented a significant market, Dicore was not involved (and had no intention to become involved) in ferrous exploration in the Americas.

³ SNL Metal Economics Group.

Industry conditions in 2013 were turning out to be less favourable than in prior years. In spite of increased exploration spending, overall mining industry profits in 2012 fell to \$68 billion, a 49 per cent drop from the prior year. This fall in profitability would, in turn, lead to decreased industry-wide spending in 2013. Annual capital expenditure across the top 40 mining companies was projected to be \$110 billion in 2013, a 21 per cent drop from 2012. This projected decline in spending was the direct result of investors' reactions to the industry's declining profitability. Stock prices had plummeted almost 20 per cent⁴ in the first four months of 2013. By contrast, the stock market as a whole had performed relatively well. In fact, the S&P 500, a well-known stock market index, had appreciated steadily during the same period and was up over 14 per cent by the end of May 2013.⁵

MINERAL DRILLING SERVICE PROVIDERS

Drilling service providers were contracted primarily by mining companies in the exploration and development stages of mining. Drilling services were required for a variety of reasons: mineral exploration, gaining access to groundwater or draining groundwater, blasting or ventilating underground mining operations. This work was almost always contracted out because drilling required a high level of expertise. Depending on the terrain and rock-type, a small mistake could delay a project several weeks and cost tens of thousands of dollars. Furthermore, drilling equipment was expensive; some drills could cost over \$3 million⁶ depending on their capabilities (see Exhibit 5).

Drilling was a slow process, and often took place in remote, inaccessible locations. Typically, roads had to be cleared through forested areas to access the drilling site, and sometimes drills had to be flown to mountain peaks or driven over frozen bodies of water. The crew responsible for operating the drill usually lived in a camp—or a hotel, if there was a town nearby—for several weeks at a time. A hole with a depth of 2,000 metres could take several days (operating 24 hours a day) or weeks to drill, depending on the kind of drill, the difficulty of the terrain, and the skill level of the operator. In exchange for the high level of capital investment and expertise required, drilling companies marked up their services by an average of 40 per cent on their cost of sales.

CUSTOMERS

Mining companies typically contacted a number of different drilling contractors when drilling services were required. First, a request for proposal (RFP) was issued that included information on the scope of the work (specifying the location, number of holes required and the depth of each hole) and the number of required drills (based on total metres and the length of time given to complete the work). Drilling contractors then submitted a proposal (a bid) with details and pricing information at a price per metre drilled. Payment for drilling services was made after the contract was completed.

Dicore's customers could generally be split into two categories: "majors", the large, internationally established mining companies, and "juniors", start-up companies that had yet to establish an operating mine.

Majors owned and operated several active mines, typically in different countries around the world. Often, the work they offered to exploration drilling companies was linked to their existing operations and, as such, spanned multiple years. A drilling contract offered by a major averaged one year in length and \$5 million.

⁴ PWC Mining Trends Report.

⁵ Google Finance.

⁶ All figures are in U.S. dollars unless stated otherwise.

These companies typically used cash flow to finance their exploration budgets, but in some circumstances, equity markets were used. When deciding on a contractor, majors would look at the bid price, the drilling company's safety record and the quality of its past work. To simplify the bidding process, majors preferred, where possible, to use the same contractor for their exploration work in different regions around the world.

In the southwestern United States, a number of majors were active, including Anglo American, Rio Tinto Group, Barrick Gold Corporation, Newmont Mining Corporation and Goldcorp. These companies were among the largest and most reputable in the industry, and had established large open-pit mines in the area.

Juniors usually offered contracts that spanned six months on average and rarely surpassed one year in length. A typical contract was \$250,000. In spite of the lower average price per contract, juniors were keen to ramp up exploration as soon as capital was made available through equity markets. As a result, juniors were often willing to pay a higher price per metre than majors. Calvin explained:

Juniors are all about enticing the (equity) markets—they are a bunch of promoters. They will do anything just to publish another press release, they don't care who does the drilling. You can charge a higher price per metre, sure, but it's like gambling; these companies don't have an operating mine.

A variety of juniors operated in the southwestern United States, most of which were Canadian-listed and managed companies. A few of the juniors had proven reserves in the area, which helped reduce the risk of sporadic, short-term work for drilling companies.

DRILLING TECHNOLOGIES

There were several different kinds of drilling technologies, each of which required a different skillset.

Core Drilling

Core drilling (also known as diamond drilling) extracted a sample of the earth (called a core) for analysis by geologists, who examined the rock for its mineral content. Core drills typically cost \$800,000 and required highly skilled operators. The quality of the core samples could vary depending on the prospective terrain and the skill level of the operator. For example, operators were almost always paid a bonus based on the depth drilled, so they would often drill too quickly in an attempt to maximize their bonuses. This action had costly results: drill bits (embedded with synthetic diamonds to assist in cutting rock) were worn out or "burned" prematurely and core samples could shatter, making analysis more difficult for geologists.

Rotary Drilling

Unlike core drilling, rotary drilling was a destructive process. Rather than a core sample, the only byproducts of a rotary drill were rock shavings and a hole (much like a traditional drill used at home). In addition to mining exploration, rotary drills were also used in the oil and gas and water drilling industries. For mineral exploration, rotary drilling was used to pass through non-prospective ground prior to reaching solid rock, where a core drill was then used to retrieve core samples.⁷ Rotary drills were also used to drill for groundwater, which was often necessary in operating mines.

⁷ Alternatively, certain minerals (coal or iron) could be surveyed by deploying advanced instruments into the ground, which eliminated the need for core sampling.

Rotary drills were much more expensive than core drills. Rotary drills often cost close to \$3 million, primarily because of their large size. Unlike core drills, rotary drills were very versatile and could be equipped to perform a variety of functions. The technology in rotary drills was also more advanced, and thus required operators with a specific skillset. As a result, in addition to a universal shortage of drill operators, skilled rotary drillers were particularly difficult to find. If the drill operator was not prudent when managing a difficult situation, expensive components could be damaged, stuck or lost in the drill hole. For example, if the driller ran the drill with the same drill bit for too long, or with too much torque, the drill string⁸ could break and become lost in the hole. If this happened, there was a good chance that the hole would cave in, and the drill string would have to be written off entirely. Drill strings ranged from several hundred metres to over a kilometre in length, and the drilling company almost always had to cover this cost.

Due to the complexity, cost and skill involved with rotary drilling, drilling contractors charged twice the price per metre drilled for rotary operations over core operations. Relative to the large number of core drilling service providers, there were fewer players in the North American drilling industry who offered rotary services.

DICORE INTERNATIONAL

History (1963 to 2012)

Dicore International began as a water well drilling company in 1963. Although initially a public company, Dicore was privatized in 1997 by its current management. The company primarily operated throughout Europe and Africa as a water drilling service provider until Calvin was hired in 2006 to begin operations in North America. Experiencing very little growth over its long history, 2006 marked a turning point for Dicore; the North American operations were to serve as a base for Dicore's entrance into mineral exploration. Since then, Dicore grew through multiple acquisitions of smaller drilling companies around the world. The first of these acquisitions was made in 2007 and expanded Dicore's Canadian operations. In August of the same year, Dicore began selling its shares on the Toronto Stock Exchange through an initial public offering. This sale of shares allowed Dicore to raise the capital it needed to meet its growth goals and make further acquisitions: two in Australia, one in Brazil and one in Chile.

2013

Dicore's stock currently traded at \$0.97 per share and the company had 80 million shares outstanding. The company's stock price had recently fallen from its peak of \$5.12 per share in early 2012. Prior to that, the price had risen steadily since the 2008 financial crisis, when Dicore's stock hit an all-time low of \$0.50 per share. Historical financial information, including income statements, statements of financial position and statements of cash flow are provided in Exhibits 6, 7 and 8, respectively. Select company ratios can be found in Exhibit 9.

Dicore's current operations were divided across five different regions: Europe, Asia Pacific, Africa, Latin America and North America. Each region operated from its own regional office and, although Dicore's head office was located in Europe, regions operated autonomously.

⁸ A drill string is comprised of a series of three metre-long drill rods, to the end of which the drill bit is secured. The string is lengthened by adding additional drill rods as the drill progresses through the ground. The price of a rotary drill rod was, on average, \$1,500, relative to \$200 for a core drill rod.

Dicore North America

Dicore North America operated out of two offices: one in western Canada and one in eastern Canada. Although internationally the company operated in several different market segments, Dicore North America's revenues were attributed almost solely to mineral exploration. The company had been operating in the United States since 2007 using Canadian assets and personnel. Most of Dicore's previous projects were in northern Minnesota and were successful at the time, but Dicore ceased operations in the region in 2009. The work in northern Minnesota had been administered by Dicore's office in eastern Canada, but Calvin believed that if Dicore was to re-enter the U.S. market, a permanent operation should be established in the country.

In fiscal 2012, the North American division competed in core drilling and rotary drilling. The division generated \$21.3 million in rotary and related drilling services revenue and \$42.7 million in core drilling services revenue. Cost of sales was \$12.85 million and \$30.74 million for rotary and core drilling services, respectively. The company operated a fleet of 39 drills (compared to a total of 330 internationally), of which 33 were core drills and six were rotary drills. Fiscal 2012 utilization rates were approximately 45 per cent for core drills and 85 per cent for rotary drills—far lower than what Calvin would have liked. Calvin wanted to analyse core vs. rotary drilling segments on a contribution basis.

Paul Calvin

Paul Calvin, born in Northern Ontario, Canada, started working in the drilling industry when he was 17 years old. His summers were spent working in Greenland as a drilling assistant for Longyear Inc. (now Boart Longyear). Calvin graduated from Queen's University with a degree in mining engineering in 1981 and then began working as a drill manager with Longyear. While at Longyear, Calvin held several different positions, including director of sales and marketing and regional general manager, until he was offered the position as general manager of Logan Drilling Group (a drilling company located on the east coast of Canada) in 1988. In 1990, he returned to Longyear as its vice president of drilling services until 2006 when he was hired by Dicore. Although Calvin had enjoyed working in the drilling industry, he planned to retire within the next five years.

DRILLING IN THE SOUTHWESTERN UNITED STATES

Requirements

The southwestern region of the United States (southwestern region) was renowned for its difficult ground conditions, significant amounts of ground water⁹ and high operational standards. The deposits in the region were generally low grade and highly fractured.¹⁰ This necessitated the use of mud, additives and stabilizers during the drilling process and a degree of skill to use these products correctly. Complicating operations further was a global shortage of drilling personnel—particularly experienced and competent drill operators—and the southwest was no exception to this shortage.

The mines in the area generally required extensive drilling (rotary, core and water well) through all stages of mining life.¹¹ Most other regions in the United States tended to be “single purpose” markets, requiring only one kind of drilling and Calvin thought that there were too many operators competing in those areas.

⁹ Groundwater served to strip away the drill string's lubricants.

¹⁰ Fractured rock was separated by a joint or a fault into two or more pieces.

¹¹ Mine life referred to the different stages associated with extracting minerals from the earth. Initially, exploration was carried out in an area thought to have a sizeable mineral deposit. If a deposit was found and extraction was economically viable, the

Most states in the southwestern region required a drilling licence (a complicated and time-consuming procedure) before commencing operations. There were several grades of licences that covered mining, oil and gas, and water and more than one was required in order to offer a full range of drilling services.

Environmental regulations in the southwestern region were also quite onerous, but not always up to date relative to other international markets. For example, certain commonplace safety procedures were not required for rotary drills, but the southwestern region's standards board (the MSHA) rigorously enforced the existing regulations. When a standard was violated, the drill was required to shut down and both the client and contractor were considered to have made an infraction. If any environmental damage was sustained, the drilling company was responsible for all costs to reverse the damage. In the past, environmental violations had bankrupted some drilling companies.

Competitors

Approximately 400 drills represented by 25 companies currently operated in the southwestern region. Dicore's two primary competitors were large international companies: Boart Longyear (Boart) and Major Drilling Group International (MD). Dicore competed with both companies in several countries around the world.

Boart Longyear

With roughly 10,000 employees and over \$2 billion in revenues in 2012, Boart Longyear was the largest drilling service provider in the world.¹² The company manufactured its own drills and drilling equipment and sold them to competitors like Dicore, in addition to operating its own contracting division. As a 120-year-old global exploration drilling company, the Boart Longyear brand was well known throughout the mining industry. The company had a great deal of expertise and provided multiple kinds of drilling services, including both core and rotary drilling. Despite its brand recognition and experience, Boart had recently been struggling with complex projects in the southwestern region. This struggle was largely due to high turnover in the region and the loss of experienced management.

Major Drilling International Group

As the second largest global drilling service provider, Major Drilling International Group (MD) had earned close to Cdn\$700 million¹³ in its last fiscal year. The company, founded in 1980, had developed a strong brand associated with excellent performance around the world. MD provided a wide variety of drilling services including both core and rotary drilling; however, MD lacked the experience and reputation that Boart Longyear had garnered in the rotary drilling sector. MD had entered the southwestern region through the acquisition of a smaller core drilling company, and since then was recognized primarily as a core driller in the region.

Others

The balance of Dicore's competitors in the southwestern region were smaller, operating four to 20 drills each. These companies were usually run by former Boart Longyear or Major Drilling employees, who had branched out on their own. Most of these companies remained local because its drill crews were reluctant to

next stages involved developing or constructing an open-pit or underground mine. Finally, the mineral was extracted. The entire process could take decades.

¹² Boart Longyear 2012 Annual Report, http://media.corporate-ir.net/media_files/IROL/20/207760/2012AnnualReport/index.html, accessed October 3, 2013.

¹³ At the time of the case, Cdn\$1 = US\$0.966 mid-market.

work too far from home for extended periods of time—quite the opposite of what Dicore experienced in other regions around the world. Three competitors, TonaTec Exploration, National EWP and Blackstone Exploration (Blackstone), were very competent at completing complex projects. TonaTec Exploration was predominantly a core driller, National EWP offered both core and rotary services and Blackstone specialized in rotary services. All three companies had secured long-term working relationships with majors.

Calvin believed the remaining competitors had not embraced recent trends in the market, so their HSE performances¹⁴ were below average. See Exhibit 10 for a list of competitor and industry ratios.

FUTURE PROSPECTS

With Dicore's earnings falling below analyst expectations and the company's stock price approaching an all-time low, management was looking at options to drive growth and profitability. To that end, Calvin believed it was paramount to increase drill utilization and minimize unnecessary capital expenditure. Although he had considered fiscal 2013 a "write-off", he wanted to lock in contracts for 2014. Identifying contracts for the following fiscal year would be an achievement that could be promoted to potential shareholders as fiscal 2013 progressed and would hopefully lead to an appreciation in the company's stock price. To accomplish this, Calvin would have to ensure any expansion was finalized and ready to service customers by the fourth quarter of 2013. Although there were drawbacks to operating in the southwestern region, if Dicore was to expand, it had ultimately decided that the southwest was the next logical step based on Dicore's current operations and the fact that the southwestern region represented nearly half of all mineral exploration in the United States. If expansion was to be pursued, Calvin would have to decide on the best expansion method for Dicore.

Organic Growth

If Dicore chose to grow its operations organically into the southwest, Calvin thought it best to begin by offering only core drilling services. Although the rotary business had a tremendous upside, he was cautious of the high capital costs associated with rotary services. Under this option, the southwestern region operation would begin with four core drills, each transferred from current operations in Canada. Each drill had cost \$475,000.

Calvin was confident that he would be able to achieve utilization rates of 55 per cent, but it was possible that the transferred drills would only achieve 40 per cent utilization rates. Each drill would generate \$1,625,000 revenue annually when operating at 100 per cent utilization. Along with each drill, ancillary equipment would also be transferred. The equipment had initially cost Dicore \$225,000 per drill. Transportation costs to move the drills and accompanying equipment from Canada would cost \$200,000. In-hole tools (used during the drilling process) would cost \$100,000 per drill and would be purchased in the southwestern region. Five vehicles would be required to fully support operations, which could be purchased at a cost of \$40,000 each. An office would also be required, and it would be rented. Office set-up and other initial set-up costs associated with administration would total \$50,000.

Drill crews operated in two, 12-hour shifts each day, seven days a week. At all times, each drill was staffed by one driller and one drilling assistant. A foreman was also required per drill who only worked one shift per day. Crews worked in rotations: five crew members would work seven days each week for six weeks at a time, followed by three weeks off. An additional five crew members would need to be hired per drill to fill the rotations. Drillers earned \$37 an hour (an average, including overtime pay at time and a half and a bonus

¹⁴ HSE performance related to a driller's ability to manage its health, safety and environmental impact.

based on the number of metres drilled), and drilling assistants were paid an average of \$24 per hour. Foremen were compensated at a daily rate of \$475 per day.¹⁵ Depreciation accounted for 7 per cent of revenue. Fuel, maintenance and other consumables, which were variable costs, totalled 20 per cent of revenue and were purchased on credit. Some cash would also be tied up in the company's working capital accounts: Calvin projected that the southern region's operations would average 40 days of accounts receivable and 45 days of accounts payable. Inventory was purchased as required and, as such, the initial investment was negligible.

In addition to crew wages and other variable costs, the southwestern region branch would require a total of five ancillary employees, including the divisional manager. Two mechanics would be hired and each would be paid \$100,000 annually, a secretary and administrative employee would be hired and paid annual salaries of \$40,000 and \$50,000, respectively, and a regional manager would be hired at \$150,000 annually. Dicore would also incur an additional 20 per cent of total salaries to cover the cost of employment and fringe benefits. Finally, annual selling, general and administrative costs of \$65,000 per year would be incurred to facilitate the branch's operations.¹⁶

Calvin believed he could execute this plan in two to three months since suitable candidates for the regional manager position had already been identified. It would take another month to secure work for the first drill. Calvin assessed all potential opportunities against a 20 per cent hurdle rate or a five-year payback period. This was considered the minimum acceptable rate—if utilization rates across the company increased, the benchmark would increase as well.

The Blackstone Opportunity

The alternative to growing organically was to grow through acquisition. Past acquisitions had been very successful, so when there was talk of further expansion, Calvin had set out immediately to find a suitable business to acquire. Using four criteria (listed in Exhibit 11), he found that Blackstone Exploration (Blackstone) was the most suitable potential acquisition target in the southwestern region.

Acquisition

Blackstone began as a one-drill operation in 1997. It was founded by Dale Willemsen, who had left his job as a drill supervisor and combined his savings, along with capital raised from family and friends, to purchase a rotary drill. Blackstone had a current fleet of four rotary drills (each costing approximately \$2.5 million, including ancillary equipment) and 20 employees, including both Willemsen and his wife. Willemsen's wife, Barb Willemsen, was part owner and primarily acted as Willemsen's secretary but also completed some of the estimation work. Blackstone's income statement and statement of financial position for the past three years are given in Exhibits 12 and 13, respectively.

If an acquisition was pursued, it would be a lengthy and complicated process. It would take Dicore six months to complete its due diligence and close the acquisition. Calvin was confident the acquisition would go through if Dicore offered \$8.2 million for 100 per cent of Blackstone, but he would need to convince Dicore's global management team that such an offer was in Dicore's best interest. If the offer went through, Dicore would incur additional legal, accounting and due diligence fees of \$100,000.

¹⁵ Drillers, drill assistants and foremen were employed as needed.

¹⁶ Annual rental payments for office space are included in these selling, general, and administrative costs.

Calvin thought Blackstone's annualized 2013 net cash flow from operations, excluding any changes in working capital items, would be a reasonable proxy to estimate future annual cash flows from the acquisition. He believed any changes in Blackstone's working capital accounts would be negligible if the acquisition was pursued; however, Dicore would need to budget approximately \$500,000 in capital expenditures annually to sustain the level of cash flow currently generated by Blackstone.

Calvin also wanted to determine whether it made sense to transfer four core drills from Canada and begin offering core services, in addition to Blackstone's rotary services, to take advantage of operating synergies between the two services. If both core and rotary operations were pursued, the four core drills would likely operate at approximately 40 per cent utilization each year. All fixed costs associated with the organic growth option would be saved, except for the regional manager's salary and associated cost of employment. Dicore would also not incur the initial \$50,000 office and administrative setup costs associated with the organic growth option if Calvin decided to pursue both operations.

Management

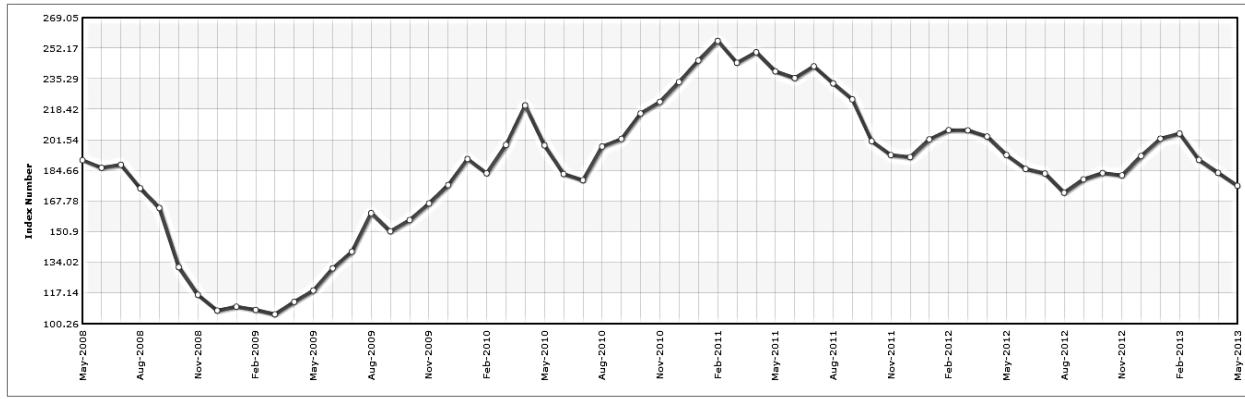
Regardless of the alternative Calvin recommended, a decision would have to be made as to who would manage the southwestern region's operations. From an organizational perspective, the new division would be organized by its drilling services; therefore, if both rotary and core operations were pursued, Dicore required management for two separate divisions. It was up to Calvin to decide whether one manager was capable of overseeing both divisions, or if hiring two managers was worth the extra cost; thus, if Calvin asked Willemsen to remain with the company, Calvin would have to decide whether Willemsen would manage one or both of the divisions. Willemsen was quite familiar with regional norms, but Calvin was unsure of Willemsen's technical expertise in core drilling services. Willemsen would earn \$220,000 annually if it was decided he would manage any part of the southwestern region's operations, but Calvin believed Willemsen would be inclined to retire after receiving the buyout for Blackstone. If Willemsen was asked to stay, what sort of measures, if any, should be taken to ensure Willemsen would remain with Dicore? Alternatively, would it make sense for Calvin to actively manage one or both divisions? If so, it would make sense for him to relocate to the southwest.

DECISION

Calvin knew these business decisions needed careful consideration. Aside from the primary decision of whether to enter the southwestern region drilling market, Calvin had to decide if Dicore should enter the rotary drilling segment in that region or simply leverage Dicore's expertise in core drilling. Should he begin operations in the United States from scratch as he had done seven years ago in Canada, or should he recommend the acquisition of Blackstone? If Blackstone was acquired, the option to offer core services in the southwestern region remained, and he would have to deal with the management structure regardless of the option pursued. Calvin did not feel the need to create projected statements.

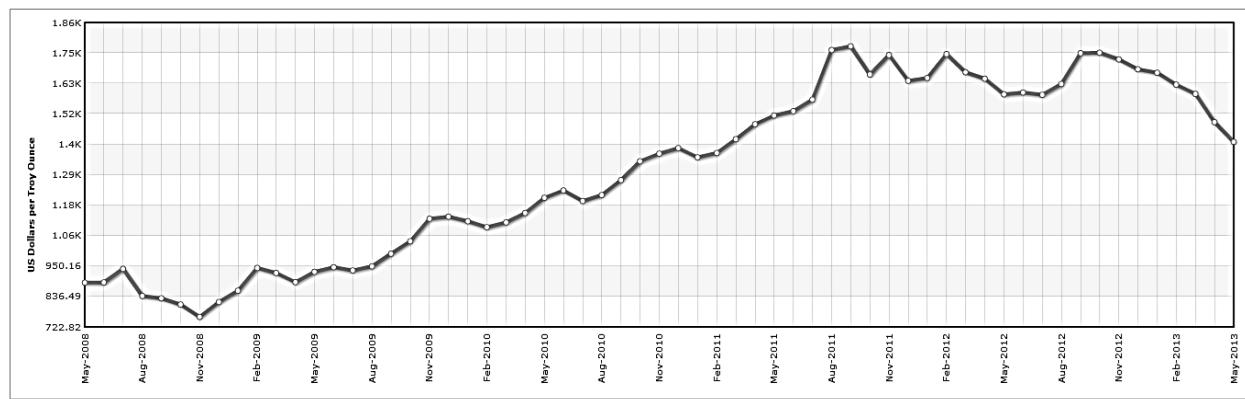
Whatever Calvin decided to recommend to the executive committee, financing would be necessary. Did Dicore have enough cash to finance the expansion internally? If not, which would make more sense — debt or equity financing? With a list of decision alternatives, Calvin sat down and began his analysis. With whatever option he chose to pursue, he knew a detailed action plan and contingency plan would be vital to the venture's success.

EXHIBIT 1: METALS HISTORICAL PRICE INDEX



Source: www.indexmundi.com, accessed October 1, 2013.

EXHIBIT 2: HISTORICAL GOLD PRICES



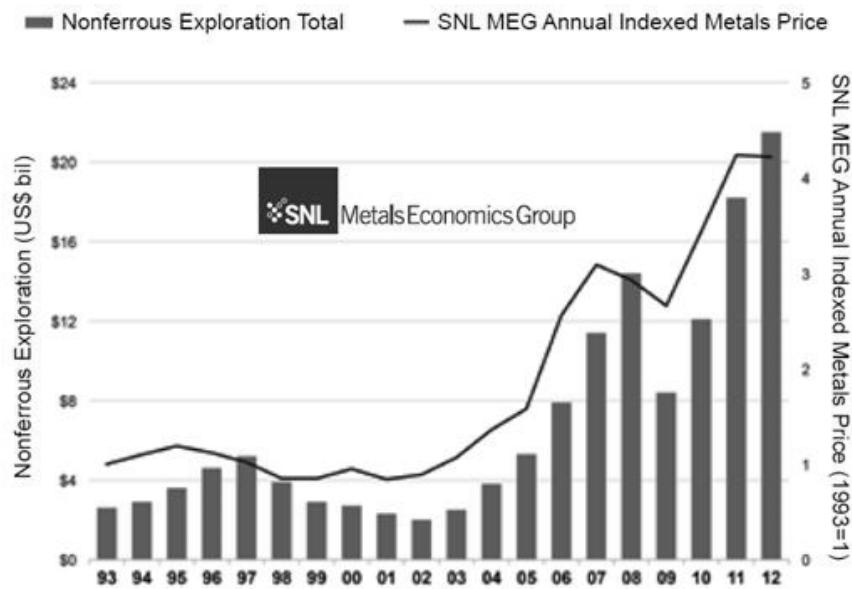
Source: www.indexmundi.com, accessed October 1, 2013.

EXHIBIT 3: BREAKDOWN OF EXPLORATION SPENDING BY REGION (2012)



Source: SNL Metal Economics Group, World Exploration Trends 2013.

EXHIBIT 4: TOTAL NONFERROUS EXPLORATION SPENDING



Source: SNL Metal Economics Group, World Exploration Trends 2013.

EXHIBIT 5: CORE DRILL



Source: Company files.

EXHIBIT 6: STATEMENT OF EARNINGS
Dicore International
For the years ending December 31
In millions of US\$

	2012	2011	2010	
REVENUE				
Cost of sales ¹	\$367.52 299.59	100.0% 81.5%	\$301.14 231.71	100.0% 76.9%
Gross Profit	<u>67.93</u>	<u>18.5%</u>	<u>69.43</u>	<u>23.1%</u>
OPERATING EXPENSES				
Selling, general and admin. expense ¹	35.7 (12.75)	9.7% (3.5%)	25.98 0.02	8.6% 0.0%
Other operating expenses	<u>22.95</u>	<u>6.2%</u>	<u>26.00</u>	<u>8.6%</u>
Total operating expenses				
Operating income	44.98	12.2%	43.43	14.4%
Other, net	<u>(4.62)</u>	<u>(1.3%)</u>	<u>(3.4)</u>	<u>(1.1%)</u>
Net income before tax	40.36	11.0%	40.03	13.3%
Income tax	<u>7.74</u>	<u>2.1%</u>	<u>9.62</u>	<u>3.2%</u>
Net income (loss)	\$32.62	8.9%	\$30.41	10.1%

Source: Company files.

¹ Includes depreciation for property, plant and equipment.

EXHIBIT 7: STATEMENT OF FINANCIAL POSITION
Dicore International
As of December 31, in millions of US\$

ASSETS	2012	2011	2010
Current assets:			
Cash and equivalents	\$35.90	\$24.31	\$14.92
Accounts receivable — trade, net	54.93	45.49	41.00
Receivables — other	11.72	9.49	13.71
Total inventory	52.29	40.75	32.38
Prepaid expenses	4.68	2.97	3.48
Total current assets	159.52	123.01	105.49
Long-term assets:			
Property, plant & equipment, total, gross	291.20	204.88	154.34
Accumulated depreciation, total	144.42	112.38	76.05
Net property, plant & equipment	146.78	92.5	78.29
Goodwill, net	133.68	50.63	50.67
Intangibles, net	0.08	—	—
Long-term investments	0.33	0.18	0.19
Other long-term assets, total	23.11	7.98	10.80
Total long-term assets	303.98	151.29	139.95
Total assets	<u>\$463.50</u>	<u>\$274.30</u>	<u>\$245.40</u>
LIABILITIES AND SHAREHOLDERS' EQUITY			
Current Liabilities:			
Accounts Payable	\$24.79	\$28.06	\$21.77
Notes payable/short-term debt	26.11	7.64	1.83
Current portion of long-term debt/finance leases	41.19	24.27	28.50
Other current liabilities, total	34.76	30.68	27.93
Total current liabilities	126.85	90.65	80.03
Long-term liabilities:			
Long-term debt	56.31	6.21	1.53
Finance lease obligations	5.43	11.09	9.83
Deferred income tax	8.76	3.98	7.21
Other liabilities, total	53.64	5.71	5.41
Total long-term liabilities	124.14	26.99	23.98
Total liabilities	250.99	117.64	104.01
Shareholders' equity:			
Common stock, total	1.63	1.47	1.47
Share premiums and retained earnings	219.68	159.43	137.34
Other equity, total	(8.80)	(4.20)	2.60
Total equity	212.50	156.70	141.40
Total liabilities & shareholders' equity	<u>\$463.50</u>	<u>\$274.30</u>	<u>\$245.40</u>

Source: Company files.

EXHIBIT 8: STATEMENT OF CASH FLOWS
Dicore International
For the years ending December 31
In millions of US\$

	2012	2011
OPERATING ACTIVITIES		
Net income	\$32.62	\$30.41
Adjustments to cash basis:		
Depreciation, amortization & impairment	36.54	28.80
Loss on sale and disposal of assets	0.07	0.41
Accounts receivable — trade, net	(9.44)	(4.49)
Receivables — other	(2.23)	4.22
Inventory	(11.54)	(8.37)
Accounts payable	(3.27)	6.29
Non-current portion of provisions & other liabilities	<u>(0.31)</u>	<u>9.63</u>
Net cash flow from operations	42.44	66.90
FINANCING ACTIVITIES		
Issuance (retirement) of stock, net	(3.66)	(3.27)
Issuance (retirement) of debt, net	68.83	(7.98)
Dividends	<u>(7.07)</u>	<u>(2.96)</u>
Net cash flow from financing	58.1	(14.21)
INVESTING ACTIVITIES		
Capital expenditures	(39.51)	(35.70)
Other investing cash flow items, total	<u>(49.44)</u>	<u>(7.60)</u>
Net cash from investing	(88.95)	(43.30)
Net cash flow	11.59	9.39
Beginning cash	<u>24.31</u>	<u>14.92</u>
Ending cash	<u>\$35.90</u>	<u>\$24.31</u>

Source: Company files.

EXHIBIT 9: SELECT COMPANY RATIOS
Dicore International

	2012	2011	2010
PROFITABILITY			
Gross margin	18.5%	23.1%	22.0%
Operating margin	12.2%	14.4%	10.3%
Net profit margin	8.9%	10.1%	6.9%
Return on assets	7.0%	11.1%	4.6%
Return on equity	15.4%	19.4%	8.0%
FINANCIAL STRENGTH			
Quick ratio	0.85	0.91	0.91
Current ratio	1.26	1.36	1.32
Total debt to equity ¹	0.61	0.31	0.30
Interest coverage	9.7	12.8	11.9
EFFICIENCY			
Inventory turnover	3.0	3.1	2.2
Receivable turnover	6.7	6.6	4.0
Asset turnover	0.8	1.1	0.7
Age of payables	56.4	80.5	110.2
Age of receivables	53.8	54.4	90.0
Age of inventory	119.0	117.0	164.0
GROWTH			
Sales growth	22.0%	83.6%	

Source: Company files.

¹ Calculated using interest-bearing debt only.

EXHIBIT 10: KEY COMPETITOR RATIOS
Fiscal 2012

	Boart Longyear	Major Drilling	Industry
Profitability			
Gross margin	25.5%	31.7%	18.8%
Operating margin	6.3%	11.6%	11.3%
Net profit margin	3.4%	7.5%	11.1%
Return on assets	3.3%	7.6%	5.8%
Return on equity	6.0%	10.2%	8.2%
Financial Strength			
Quick ratio	1.1	2.3	2.5
Current ratio	2.4	3.3	3.4
Long-term debt to equity ¹	0.53	0.06	0.15
Total debt to equity ¹	0.53	0.08	0.20
Interest coverage	13.9	28.7	12.1
Efficiency			
Inventory turnover	3.2	5.2	5.0
Receivable turnover	7.9	5.4	10.7
Asset turnover	1.0	1.0	0.5
Age of payables	68.3	55.5	—
Age of receivables	46.6	50.7	—
Age of inventory	128.2	66.7	—
Growth			
Sales growth	(0.4%)	(12.7%)	(16.1%)

Source: www.reuters.com/finance/stocks, accessed October 1, 2013.

¹ Calculated using only interest-bearing debt.

EXHIBIT 11: ACQUISITION TARGET CRITERIA**1. Superior Performance**

We are not interested in a turnaround business. We want a company that offers a superior level of performance consistent with what we do elsewhere.

2. Profitable Operation

We want a company that already knows how to charge for services, control costs and generate cash consistent with other Dicore operations.

3. Superior HSE Performance

If a target company does not understand this culture, growth would suffer as we fixed the poor HSE performance.

4. Motivated Seller

The vision of the seller has to be motivated and their vision of the future of the business must be well aligned with ours. If not, we will be distracted by conflicting points of view and the future strategy of the business.

Source: Case writer.

EXHIBIT 12: STATEMENT OF EARNINGS
Blackstone Exploration Inc.

	2013, year-to-date		For the year ending Dec. 31, 2012		For the year ending Dec. 31, 2011	
REVENUE	\$2,539,102	100%	\$8,201,534	100%	\$7,992,148	100%
Field expenses (cost of sales) ¹	455,180	17.9%	1,605,064	19.6%	2,342,779	29.3%
Gross profit	2,083,922	82.1%	6,596,470	80.4%	5,649,369	70.7%
OPERATING EXPENSES						
Professional fees	11,501	0.5%	9,214	0.1%	7,448	0.1%
Travel, entertainment and meals	36,066	1.4%	65,297	0.8%	54,877	0.7%
Wages and benefits	390,005	15.4%	2,165,866	26.4%	2,108,932	26.4%
Miscellaneous	32,423	1.3%	29,863	0.4%	10,625	0.1%
Rent	406,281	16.0%	1,288,621	15.7%	1,238,783	15.5%
Utilities	13,161	0.5%	29,809	0.4%	31,969	0.4%
Supplies	141,223	5.6%	404,350	4.9%	407,600	5.1%
Miscellaneous	9,604	0.4%	146,803	1.8%	71,929	0.9%
Insurance	5,035	0.2%	325,873	4.0%	139,653	1.7%
Safety	1,544	0.1%	2,180	0.0%	1,323	0.0%
Dues and subscriptions	748	0.0%	14,543	0.2%	0	0.0%
Office supplies	6,040	0.2%	36,848	0.4%	7,420	0.1%
Advertising	884	0.0%	588	0.0%	0	0.0%
Total operating expenses	1,054,515	41.5%	4,519,855	55.1%	4,080,558	51.1%
Total operating profit	1,029,407	40.5%	2,076,615	25.3%	1,568,811	19.6%
Other income and expenses						
Other income	0	0.0%	43,435	0.5%	994,786	12.4%
Reimbursements ²	473,410	18.6%	653,149	8.0%	0	0.0%
Total other income & expenses	473,410	18.6%	696,584	8.5%	994,786	12.4%
Total net income	1,502,817	59.2%	2,773,199	33.8%	2,563,597	32.1%
Income tax	525,986	20.7%	970,620	11.8%	897,259	11.2%
Net income (loss)	\$ 976,831	38.5%	\$1,802,579	22.0%	\$1,666,338	20.8%

Source: Company files.

¹ Includes depreciation, which represents 9 per cent of the cost of sales annually.

² Represented costs that Blackstone had incurred initially and recorded as an expense, which were subsequently reimbursed by the customer.

EXHIBIT 13: STATEMENT OF FINANCIAL POSITION
Blackstone Exploration Inc.

	As at June 1, 2013	As at Dec 31, 2012	As at Dec 31, 2011
ASSETS			
Cash	\$817,475	\$514,380	\$1,032,611
Accounts receivable	216,890	22,141	9,581
Net fixed assets	42,383	86,740	319,638
 Total assets	<u>\$1,076,748</u>	<u>\$623,261</u>	<u>\$1,361,830</u>
LIABILITIES & EQUITY			
Accounts payable	\$108,676	\$36,496	\$4,820
Bank loan	25,000	25,000	25,000
 Total liabilities	<u>133,676</u>	<u>61,496</u>	<u>29,820</u>
Common stock	18,026	18,026	0
Retained earnings			
Opening balance	543,739	1,332,010	(150,420)
Add: Net income	976,831	1,802,579	1,666,338
Less: Dividends	595,524	2,590,850	183,908
Ending balance	925,046	543,739	1,332,010
 Total Equity	<u>943,072</u>	<u>561,765</u>	<u>1,332,010</u>
 Total liabilities & equity	<u>\$1,076,748</u>	<u>\$623,261</u>	<u>\$1,361,830</u>

Source: Company files.

PHIL'S HAULAGE

Brian Langen wrote this case under the supervision of Elizabeth M.A. Grasby solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized, or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveypublishing.ca. Our goal is to publish materials of the highest quality; submit any errata to publishcases@ivey.ca.

Copyright © 2015, Richard Ivey School of Business Foundation

Version: 2017-04-06

It was January 1, 2013, and Mike Rice, president and chief executive officer of Rice Commercial Group, was assessing his options after his company's recent acquisition of Phil's Haulage (PH). PH was a hauling company, located in Mount Albert, Ontario, Canada, a small town an hour northeast of Toronto. The company transported construction materials and aggregates¹ from one location to another. After a few successful years of growth in the hauling business, Rice was contemplating a new opportunity for PH: Should the company expand into the excavation market?

THE INDUSTRY

The Site Preparation Process

Hauling and excavating were two components of site preparation, the process of readying undeveloped land for construction. The site preparation process included hauling, excavating and grading, demolition of buildings and other structures, site services installation, septic system installation, earth moving and land clearing, followed by the preparation of a foundation suitable for the construction of new development infrastructure.

The first step in the process was to remove any unwanted trees, shrubs and structures from the site. Once the land was clear of these unwanted objects, the first layer of topsoil was also removed because it was too soft and was considered an unsuitable foundation for construction. The removed materials were then hauled to an off-site dump location.

The next and final step in the site preparation process was to grade the land using a cut-and-fill method. This grading method removed earth from higher elevated areas and placed it into lower elevated areas, and then compacted the earth in layers to create a level site that provided a strong foundation for construction. If there was a shortage of suitable material² on the site, additional material was purchased and hauled to the site. Conversely, if there was excess material on the site, it was hauled off the site to a selected dumping location.

¹ Includes sand, gravel, crushed stone or recycled concrete.

² "Suitable material" refers to earth that is strong enough to provide a solid foundation for construction.

Grading was often the most time-consuming and complex part of the site preparation process, and it required the use of heavy machinery, including excavators, bulldozers and road rollers.

The site preparation process varied in length, depending on the slope and acreage of the land, but the process usually ranged between two to three months for smaller projects and up to six months for larger projects. Once this process had been completed, construction of the new infrastructure could begin.

Site Preparation Contractors

The Canadian site-preparation contractors industry was comprised of 8,297 businesses that generated \$3.89 billion in revenue annually.³ These businesses were typically small (99 per cent of them employed fewer than 100 people)⁴ and, therefore, usually specialized in only one or two of the site preparation services.

The site preparation contractors industry was directly tied to the construction industry since new construction opportunities created demand for site preparation. As a whole, the Canadian construction industry was projected to grow 1.4 per cent from 2012 to 2013, with over \$404.5 billion worth of intended construction investments (see Exhibit 1). Of the \$404.5 billion, public sector construction investments were projected to increase 1.9 per cent to \$89.3 billion in 2013, with the remaining \$315.2 billion coming from private corporations. Construction investment was expected to increase in six of Canada's 13 provinces and territories for 2013. Alberta expected the largest increase in construction investment (\$2.7 billion), while Ontario was a close second with an expected \$2.6 billion increase.⁵ Construction and construction-related activities employed over 1.24 million Canadians.⁶

The Government of Ontario was extending Highway 404 to reach 13 kilometres farther north. Highway 404 was a major transportation route that connected downtown Toronto with the region to the northeast. Recent developments at the northern end of Highway 404 included Canadian head offices for Honda Motor Company, BMW Canada, and an office complex and training facility for Enbridge.

THE CUSTOMER

PH contracted its hauling services to many different organizations in Mount Albert and the surrounding area, but the majority of its business came from land development companies. Land development companies purchased undeveloped land with the intention of building a commercial, residential or industrial complex. These companies were responsible for the zoning⁷ of the land with municipal governments, as well as for site preparation, new construction and maintenance of the complex if it were leased.

Land development companies contracted many different organizations throughout their development process. They chose their contractors based on a number of criteria, including proximity to the development site, price, reliability and convenience. Proximity to the development site was important because certain

³ Canadian Industry Statistics, www.ic.gc.ca/app/scr/sbms/sbb/cis/establishments.html?code=23891&lang=eng, accessed February 10, 2015.

⁴ Ibid.

⁵ Private and Public Investment 2014 (intentions), www.statcan.gc.ca/daily-quotidien/140226/dq140226a-eng.htm, accessed February 10, 2015.

⁶ National Research Council Canada – Construction, www.nrc-cnrc.gc.ca/eng/rd/construction/index.html, accessed February 10, 2015.

⁷ "Zoning" is the process of planning for land use by a municipality to allocate certain kinds of structures in certain areas (i.e., retail, residential and commercial).

transportation and labour cost savings were often associated with shorter travel routes. Reliability and convenience were also essential because land development companies had to co-ordinate numerous contractors and were always looking for ways to simplify operations.

THE COMPETITION

There were many hauling competitors located within the Greater Toronto Area. Most of these competitors were smaller companies, usually family owned and operated, with fewer than 10 employees. These companies focused mainly on hauling, but some offered other site preparation services, such as trenching or excavating. Exhibit 2 identifies major competitors within the region northeast of Toronto.

PHIL'S HAULAGE

History

Phil's Haulage, founded in 1985, was family owned and operated until 2012, when it was bought by Rice Commercial Group. PH was located in Mount Albert, a small town with a population of 2,700 people, located northeast of Toronto. Mount Albert, which was primarily a farming community, was home to approximately 30 locally owned shops, restaurants and businesses. PH's headquarters in Mount Albert was a 15-minute drive from Highway 404.

PH had started as a one-man operation with a single dump truck. By the end of fiscal 2012, the operation had grown into a company with 15 employees and a fleet of 11 tri-axle dump trucks (see Exhibit 3). In recent years, PH had launched a successful topsoil manufacturing division, which sold to nurseries and garden centres in and around Mount Albert.

Current Operations

Approximately 85 per cent of PH's business came from its hauling operations (see Exhibits 4, 5 and 6). Over the years, PH had established a strong reputation and had completed many contracts for large land development companies and other construction companies within the area, including Aecon, Lafarge Construction and R.B. Somerville.

The majority of PH's contracts were held with land development companies, where PH was contracted for the hauling needs on development sites. The contracts included moving any unwanted materials (trees, man-made structures, topsoil, etc.) to selected dumpsites and then hauling any purchased earth back to the development site. When contracted, PH would provide the machinery required for hauling, usually a fleet of dump trucks, and the skilled operators required to drive the machinery.

The balance of PH's business came from the sale of topsoil that PH produced in-house. When topsoil was removed from development sites, PH usually offered a reduced price on its hauling services so it could keep the topsoil to return to its facility. Most land development companies were more than willing to accept this arrangement because they had no use for the excess topsoil. As well, the raw topsoil that was collected from the development sites was not useful as a gardening product because it often included rocks and metals. To create a product it could sell, PH removed all metals from the soil, ground the soil and rocks down to a finer consistency and then added loam⁸ and manure to make a gardening topsoil that could be sold to local nurseries and gardening centres.

⁸ "Loam" is a type of soil that is ideal for gardening and agriculture as it retains nutrients and water.

2013 Projections

After speaking with the previous owners, Rice projected that fiscal 2013 haulage revenue would increase 2 per cent, and fiscal 2013 topsoil revenue would increase 5 per cent. Rice believed that most expenses would remain the same percentage of sales as those in fiscal 2012, except for the following: rent, gain on disposal of trucks, bad debt expense, depreciation and taxes. Rent would remain the same dollar value from the previous year. Rice did not expect any sales/disposals of equipment in fiscal 2013, and all equipment would continue to be depreciated using the straight-line method. Now that PH had the support of Rice Commercial Group to help tighten credit terms, Rice expected bad debt expense to be negligible for fiscal 2013. He projected an income tax rate of 15 per cent for fiscal 2013. In addition, Rice was concerned about PH's cash position at the end of fiscal 2012. He wanted to project a cash balance of \$50,000 at the end of fiscal 2013.

EXPANSION INTO EXCAVATION

Rice was considering expanding PH's operations into excavation. Adding excavating capabilities would allow PH to complete the entire grading process when preparing a site.

Excavation was the process of moving earth, rock or other materials with tools, equipment or explosives. Excavation had a wide range of important applications, including mining and exploration, environmental restoration and construction. If Rice were to proceed with the excavating opportunity, PH would focus solely on the construction-related excavating.

If the excavating opportunity were pursued, Rice estimated that PH would be awarded between seven and 15 excavating contracts in fiscal 2013. Contracts varied drastically in size: smaller contracts earned \$100,000, while larger contracts earned upwards of \$700,000. Rice estimated that the average excavating contract would generate revenue of \$350,000 and would take 16 weeks to complete. Since the majority of these excavating contracts would come from existing hauling clients, no additional marketing expenditures would be incurred.

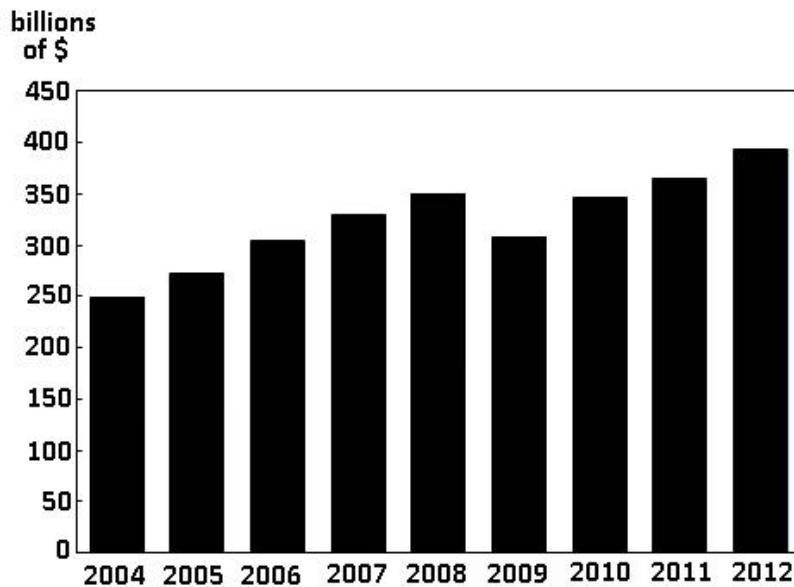
Moving forward with the excavating opportunity would include significant upfront investments and ongoing costs. Excavating would require new heavy machinery, such as excavators (see Exhibit 3), bulldozers, road rollers, water trucks and mobile maintenance vehicles. A complete list of the new machinery and equipment required is given in Exhibit 7. Rice projected that excavating related machinery and equipment expenses, which included fuel, insurance, maintenance and cleaning, would total approximately 25 per cent of revenue from the excavating contracts. All new equipment and trucks would be depreciated using the straight-line method, with an expected useful life of 10 years and no residual value.

New employees would need to be hired if PH proceeded with the excavating work. One skilled operator was required to operate each piece of heavy machinery. On average, Rice expected to hire four skilled operators for each contract. Operators would typically work 10-hour days, six days a week, and would receive \$30 per hour (including benefits) as compensation. Additional full-time site supervisors would also need to be hired at an annual salary of \$90,000 (including benefits). One site supervisor was required for every two contracts acquired by PH. A new administrative assistant would also need to be hired at an annual salary of \$35,000 (including benefits) to handle the additional administrative tasks associated with the new excavating business. All salaried employees required one month of paid training to ensure the quality of their work. For the excavating opportunity, customers would have payment terms of net 30. The change in PH's inventory was expected to be negligible.

If the excavating opportunity was pursued, Rice expected certain benefits to trickle down into PH's existing operations, including topsoil sales and subcontracting. When manufacturing the topsoil sold to nurseries, PH currently had to haul the raw topsoil back to Mount Albert, which added significant transportation costs. If PH were to also be contracted for excavating, a temporary manufacturing facility would be set up on the site to help reduce transportation costs. This temporary manufacturing facility would reduce PH's cost of manufacturing topsoil. These cost savings would be equivalent to 10 per cent of expected topsoil sales. If the excavating equipment and machinery were purchased, PH's production capacity would increase, and thus, fewer subcontractors would be required to complete contracts. For this reason, Rice expected PH's subcontracts expense to decrease by \$700,000 if the excavating equipment and machinery were purchased.

CONCLUSION

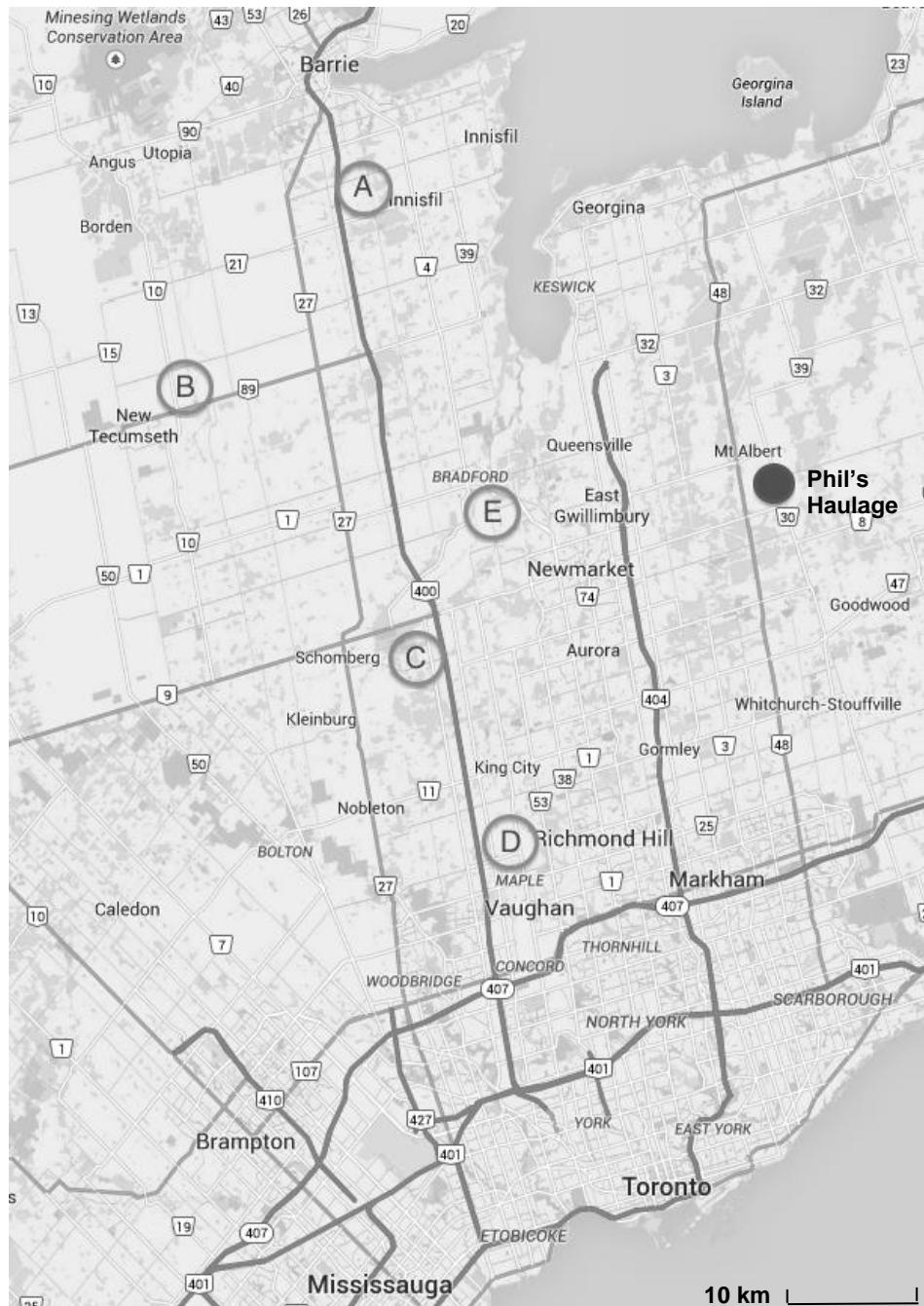
Rice was excited at the prospect of transforming PH into a larger and more dominant player in the site preparation industry. Before making a decision about expanding into excavating, Rice wanted to evaluate the health of PH's current operations from a profitability and cash-flow standpoint. If the expansion into excavating were to be pursued, Rice needed to decide how it would be financed. In spite of Rice Commercial Group's backing, Rice wanted PH to remain financially self-sufficient. Rice sat down to perform a thorough analysis. He planned to make the necessary decisions and project a statement of earnings and a statement of financial position for fiscal 2013.

EXHIBIT 1: ANNUAL CONSTRUCTION INVESTMENT IN CANADA

Note: Actual from 2004 to 2012.

Source: www.statcan.gc.ca/daily-quotidien/140226/dq140226a-eng.htm, accessed February 10, 2015.

EXHIBIT 2: MAP OF PHIL'S HAULAGE AND ITS REGIONAL COMPETITORS



A: Barrie Hauling; **B:** JP Hauling; **C:** Borsa Brothers Hauling & Trenching;
D: Sherway Excavating & Hauling; **E:** Cortale Contracting¹

Source: Google Maps — My Google.

¹ Offered hauling and excavating services.

EXHIBIT 3: TRI-AXLE DUMP TRUCK (AND EXCAVATOR)



Source: Company files.

EXHIBIT 4: STATEMENT OF EARNINGS
Year ended December 31

	2012	2011
REVENUE		
Sales	\$7,263,015	100.0%
EXPENSES		
Truck expense ¹	1,985,426	27.3%
Subcontracts ²	1,822,497	25.1%
Salaries and benefits	1,359,260	18.7%
Purchases	570,022	7.8%
Management wages	107,408	1.5%
Office and general	78,761	1.1%
Interest and bank charges	59,426	0.8%
Professional fees	31,850	0.4%
Advertising and promotion	30,182	0.4%
Telephone	18,263	0.3%
Rent	15,000	0.2%
Meals and entertainment	5,350	0.1%
Bad debt expense ³	(94,545)	(1.3%)
Gain on sale of trucks	(149,050)	(2.1%)
Depreciation	724,718	10.0%
Total expenses	6,564,568	90.4%
Net income before taxes	698,447	9.6%
Income tax	102,493	1.4%
Net income after taxes	\$595,954	8.2%

Source: Company files.

¹ Included fuel, maintenance, insurance, etc.

² Represented any extra contracts PH required to complete a project (i.e., additional dump trucks).

³ A bad debt, previously written off, was reinstated and paid in fiscal 2012.

EXHIBIT 5: STATEMENT OF FINANCIAL POSITION
As at December 31

ASSETS	2012	2011
Current assets:		
Cash	\$—	\$651,484
Accounts receivable	1,381,497	975,932
Advances to shareholder	216,004	—
Total current assets	<u>1,597,501</u>	<u>1,627,416</u>
Fixed assets:		
Trucks	6,955,434	6,339,655
Furniture and equipment	160,715	144,365
Less: Accumulated depreciation	(4,922,770)	(4,559,198)
Total capital assets	<u>2,193,379</u>	<u>1,924,822</u>
Total assets	<u><u>\$3,790,880</u></u>	<u><u>\$3,552,238</u></u>
LIABILITIES & SHAREHOLDERS' EQUITY		
Liabilities		
Current liabilities:		
Bank indebtedness ¹	\$9,086	\$—
Income taxes payable	62,525	1,917
Accounts payable ²	316,386	734,674
Current portion of loans payable	526,885	414,291
Shareholder loan	—	52,343
Total current liabilities	<u>914,882</u>	<u>1,203,225</u>
Long-term liabilities:		
Loans payable	<u>507,012</u>	<u>575,981</u>
Total long-term liabilities	<u><u>507,012</u></u>	<u><u>575,981</u></u>
Total liabilities	<u><u>1,421,894</u></u>	<u><u>1,779,206</u></u>
Shareholders' equity		
Common stock (100,000 authorized; 100 issued)	100	100
Retained earnings	<u>2,368,886</u>	<u>1,772,932</u>
Total shareholders' equity	<u><u>2,368,986</u></u>	<u><u>1,773,032</u></u>
Total liabilities and shareholders' equity	<u><u>\$3,790,880</u></u>	<u><u>\$3,552,238</u></u>

Source: Company files.

¹ Represented a line of credit with a limit of \$40,000.

² Accounts payable are only related to subcontracts.

EXHIBIT 6: SITE PREPARATION CONTRACTORS SELECTED INDUSTRY RATIOS

Quick ratio (Acid test)	1.97
Current ratio	2.31
Days of accounts receivable	65 days
Inventory turnover	87.8×
Return on assets	5.3%
Net income to sales	10.9%
Interest coverage	10.3×

Source: www.ic.gc.ca/app/sme-pme/bnchmrkngtl/rprt-flw.pub?execution=e1s1, accessed February 10, 2015.

EXHIBIT 7: EQUIPMENT LIST

EQUIPMENT¹	COST
Volvo EC360 Excavator	\$312,000
D6R Series III CAT Bulldozer	225,000
345CL CAT Excavator 2007	220,000
750J John Deere Bulldozer	129,500
48 in. Komatsu Ditching Bucket	14,575
330 CAT Excavator	139,000
CP-563E Padfoot Soil Compactor ($\times 2$)	190,000
Grapple for 330 Excavator	14,575
740 Champion Grader 1984	8,000
2013 CAT Tractor	133,195
	\$1,385,845
 TRUCKS¹	
Float 2011 JCTR 51TN Trailer	70,000
2008 Peterbilt Tractor	75,000
Float 2012 Small Black	16,000
2012 Trout River Live Bottom Trailer SC 39 S2	94,300
2013 Peterbilt Tractor ($\times 2$)	277,460
2012 Trout River Live Bottom Trailer ($\times 3$)	273,000
2013 Peterbilt Tractor	144,430
2006 Peterbilt Tractor	30,000
1999 Red Mack Truck	25,000
2010 International Tri-axle Dump Truck	160,671
2001 Water Truck Tandem Axle	62,360
Service Cube Van	15,500
2014 CAT Tri-axle Dump Truck	133,000
2009 GMC Sierra Pick-up Truck	20,000
	1,396,721
Total equipment and truck cost	\$2,782,566

Source: Company files.

¹ All new equipment and trucks would satisfy requirements for up to 20 contracts per year.