

ANALYZING FINANCIAL STATEMENTS

Seventh Edition



This publication is designed to provide accurate and authoritative information in regard to the subject matter covered. It is sold with the understanding that the publisher is not engaged in rendering legal, accounting, or other professional service. If legal advice or other expert assistance is required, the services of a competent professional person should be sought.

From a Declaration of Principles jointly adopted by a Committee of the American Bar Association and a Committee of Publishers and Associations.

The American Bankers Association is committed to providing innovative, high-quality products and services that are responsive to its members' critical needs.

To comment about this product, or to learn more about the American Bankers Association and the many products and services it offers, please call **1-800-BANKERS** or visit our Web site: www.aba.com.

This textbook has been approved by the American Institute of Banking for use in courses for which AIB certificates or diplomas are granted. The American Institute of Banking is the professional development and training affiliate of the American Bankers Association. Instructional materials endorsed by AIB have been developed by bankers, for bankers.



© Copyright 2007 by the American Bankers Association, Washington, D.C.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means—electronic, mechanical, photocopying, recording, or otherwise—without prior written permission from the American Bankers Association.

Printed in the United States of America
10 9 8 7 6 5 4 3 2 1

CONTENTS

EXHIBITS	X
ACKNOWLEDGMENTS	XIV
PREFACE	xv
CHAPTER 1: FINANCIAL STATEMENT ANALYSIS: AN OVERVIEW	1
Learning Objectives	1
Introduction	2
A Brief History of Financial Reporting	3
Financial Statement Analysis: A Definition	5
Technical Versus Interpretive Analysis	5
Focus of Financial Statement Analysis	5
Sequential Steps	6
Cash Accounting Versus Accrual Accounting	11
Types of Financial Statements	13
Internally Prepared Financial Statements	13
External Financial Statements	16
Types of Externally Prepared Financial Statements	17
Other Component Analysis	23
Management Plans and Reports	24
Income Statement Analysis	24
Balance Sheet Analysis	25
Statement of Cash Flow Analysis	25
Ratio Analysis	26
Preparing Forecasts	26
Limitations of Analysis	26
Summary	27
Questions for Discussion	28
Exercise 1	28
Exercise 2	29
CHAPTER 2: BUSINESS STRUCTURE AND ORGANIZATION	31
Learning Objectives	31
Introduction	32
Legal Structures	33
Sole Proprietorships	33
General Partnerships	33
C Corporations	34

S Corporations	35
Limited Liability Companies	35
Types of Business Operating Structures	35
Operating Cycle	37
Manufacturers	38
Wholesalers	41
Retailers	43
Service Industry	44
Other Service-Related Companies	47
Construction Companies	48
Agriculture	51
Cash Flow Cycles	52
Uses of Cash	53
Sources of Cash	55
Long-term Uses of Cash	59
Long-term Sources of Cash	61
Types of Borrowing Arrangements	63
Competing and Complementing Companies	65
Trade Creditors	65
Commercial Finance Companies	66
Commercial Sales Finance Companies	66
Leasing Companies	66
Insurance Companies	66
Brokerage Firms	66
SBA Loan Program	67
Credit Unions	67
Credit Card Issuers	67
Participations	68
Summary	68
Questions for Discussion	68
Exercise 1	69
Exercise 2	69
CHAPTER 3: INCOME STATEMENT ANALYSIS	71
Learning Objectives	71
Introduction	72
Concept of the Spreadsheet	72
Rules	73
Types of Business and Management Objectives	74
External Factors	74
Method of Accruing Revenue and Period of Income Statement	74
Method of Accruing Revenue	75
Period of Income Statement	75
Sales Analysis	75
Discounts, Allowances, and Returns	76
Net Sales	76

Expense Analysis	80
Costs of Goods Sold	80
Gross Profit and Gross Margin	80
Cost of Goods Sold Comparative Analysis	87
Operating Expenses	89
Operating Profit or Loss	92
Break-even Analysis	93
Fixed Costs	93
Variable Costs	94
Selling Price	94
Simple Break-even Analysis	95
Operating Leverage	98
Other Income, Interest Expense, and Other Expense Analysis	100
Other Income	101
Other Expenses	102
Interest Expense	102
Income Taxes	103
Summary	104
Questions for Discussion	105
Exercise 1	105
Exercise 2	106
Exercise 3	106
 CHAPTER 4: ANALYZING BALANCE SHEETS	 107
Learning Objectives	107
Introduction	108
Analytical Issues	109
Assets	109
Current Assets	109
Noncurrent Assets	118
Liabilities	127
Current Liabilities	128
Long-term Liabilities	131
Leases and Other Off-balance Sheet Liabilities	135
Contingent Liabilities	135
Net Worth or Equity	136
Stock (Common Stock, Par Value, Paid-in Surplus, and Preferred Stock)	137
Retained Earnings	137
Treasury Stock	137
Reconciliation of Net Worth	137
Tangible Net Worth	138
Summary	138
Questions for Discussion	139
Exercise 1	140
Exercise 2	140

CHAPTER 5: USING RATIOS TO ANALYZE FINANCIAL STATEMENTS	141
Learning Objectives	141
Introduction	142
Uses and Limitations of Ratios	142
Relationship	142
Comparability	143
Industry Sources and Limitations	144
Selection and Interpretation of Ratios	144
Liquidity Ratios	145
Working Capital	146
Working Investment	146
Working Investment Application for Turner	149
Current Ratio	150
Quick Ratio	151
Days Ratios	152
Dollar Impact on Financing from Liquidity Ratios	157
Financial Leverage Ratios	157
Debt-to-Worth Ratio	158
Debt-to-Capitalization Ratio	158
Coverage Ratios	159
Debt Service Coverage Ratio	160
Times-Interest-Earned and Dividend Payout Ratios	161
Profit or Operating Ratios	162
Return-on-Sales Ratio	162
Return-on-Assets Ratio	163
Net Sales to Assets Ratio	164
Return-on-Equity Ratio	165
Technology Ratios	166
Z-Score	167
Calculating the Z-Score	167
Ratio definitions	168
The Risk Management Association Annual Statement Studies	168
RMA Ratio Categories	168
The Risk Management Association Common-Sizes	170
RMA Ratios	170
Example of Ratio analysis	171
Liquidity and Current Asset Management Analysis	171
Leverage and Debt Management Analysis	172
Profit Analysis	174
Summary	175
Questions for Discussion	176
Exercise	177
CHAPTER 6: CALCULATING AND INTERPRETING CASH FLOW	179
Learning Objectives	179
Introduction	180

Summary and Purpose of the Cash Flow Statement	180
Sources and Uses of Cash	182
SFAS No. 95 Statement of Cash Flows—Direct Method	183
Cash Flow from Operating Activities	184
Cash Flows from Investing Activities	189
Cash Flows from Financing Activities	191
SFAS No. 95 Statement of Cash Flows—Indirect Method	193
Internally Prepared Direct Method Cash Flow Analysis	193
Cash from Sales	195
Gross Cash Trading	195
Cash after Operations	197
Net Cash after Operations	197
Net Cash Income	199
Cash after Debt Amortization	200
Cash after Fixed Assets	200
Related Party Cash Flow	201
Financing Surplus	201
Total External Financing	201
Cash after Financing	201
Abbreviated Cash Flow Statement	202
Traditional Cash Flow	203
Turner Electronic Corporation Traditional Cash Flow Analysis	206
Traditional Cash Flow with Rent	206
Traditional Cash Flow with Maintenance Cap Ex	207
Industry Comparison Analysis	208
Cash from Trading	208
Cash after Operations	208
Net Cash after Operations	209
Cash after Debt Amortization	209
Summary	210
Questions for Discussion	211
Exercise	211

CHAPTER 7: ANALYZING PERSONAL FINANCIAL STATEMENTS

AND CASH FLOW	215
Learning Objectives	215
Introduction	216
Personal Financial Statement Overview	216
Personal Financial Statement Analysis	217
Personal Information	217
Income Analysis	222
Annual Expenditures Analysis	223
Balance Sheet and Contingent Liabilities	224
Questions, Representations, and Warranties	232
Personal Tax Returns	233
Initial Review	234

Analysis of Income	234
S Corporation Tax Analysis	237
Personal Cash Flow Analysis	256
Calculating Personal Cash Flow	257
Net Wages Received	257
Net Other Personal Income	257
Net Business and Investment Activity	259
Personal Expenses	259
Net Personal Cash Flow	260
Global Personal Cash Flow and Debt-to-Income Ratio	261
Summary	263
Questions for Discussion	264
Exercise	264
CHAPTER 8: CONSTRUCTING AND ANALYZING CASH BUDGETS	265
Learning Objectives	265
Introduction	266
Cash Budget Overview	266
Use of Cash Budgets	268
Cash Budget Format	268
Basic Subtotals of the Cash Budget—Service, Inc., Example	269
Cash Budget for a Growing Company	274
Beginning Cash	274
Receipts	274
Total Cash Available	275
Total Cash Paid Out	276
Net Cash Position	279
Loan Required	279
Cash Budget Analysis	279
Interrelationship Between the Operating Cycle and Cash Needs	280
Interrelationship Between Working Capital and Capital Expenditures	280
Summary	280
Questions for Discussion	281
Exercise	281
Chapter 9: Calculating and Interpreting	
Pro Forma Financial Statements	283
Learning Objectives	283
Introduction	284
Reviewing the Assumptions	284
Pro Forma Framework	285
Realistic Assumptions	285
Financial Statement Background	285
Dependability of Performance	285

Time Intervals	285
External Factors	286
Internal Factors	287
Case Introduction—Designs by Dezine, Inc.	287
External Factors	287
Internal Factors	287
Pro Forma Forecasting Analysis	288
Past Performance	290
Forecasting an Income Statement	291
Sales	291
Cost of Goods Sold	292
Operating Expenses	294
Operating Profit	294
Other Income and Expenses	294
Income Taxes	294
Forecasting the Balance Sheet	295
Assets	296
Liabilities and Net Worth	300
The Plug Accounts	302
Analyzing Each Scenario	302
Uncertainties in Forecasts	304
Summary	305
Questions for Discussion	305
 GLOSSARY	 307
INDEX	321

LIST OF EXHIBITS

CHAPTER 1

1.1	Financial Analysis Process	7
1.2	Income Statement and Balance Sheet Spreadsheet	8
1.3	Cash-Basis Income Statement	12
1.4	Accrual-Basis Income Statement	13
1.5	Compilation Statement Requirements	18
1.6	Compilation Opinion	18
1.7	Review Statement Requirements	18
1.8	Review Opinion	19
1.9	Management Letter	20
1.10	Unqualified Audit Opinion	21
1.11	Qualified Audit Opinion	22
1.12	Disclaimer Opinion	22
1.13	Adverse Audit Opinion	23

CHAPTER 2

2.1	Business Legal Structures	36
2.2	Operating Cycle of a Manufacturer	39
2.3	Manufacturers—Fruit and Vegetable Canning (Composition of 2002–2003 Assets and Liabilities)	40
2.4	Operating Cycle of a Wholesaler	41
2.5	Wholesalers—Groceries and Related Products— Composition of 2000–2001 Assets and Liabilities	42
2.6	Operating Cycle of a Retailer	44
2.7	Retailers—Supermarkets and Other Grocery (Except Convenience) Stores—Composition of 2006–2007 Assets and Liabilities	45
2.8	Operating Cycle of a Service Company	46
2.9	Transportation—General Warehousing and Storage— General Composition of 2000–2001 Assets and Liabilities	47
2.10	Professional Services—Computer Programming Services— General Composition of 2002–2003 Assets and Liabilities	48
2.11	Other Service Industry Summary	49
2.12	Construction Company Operating Cycle	50
2.13	Construction—General, Commercial, and Industrial Building Construction—General Composition of 2006–2007 Assets and Liabilities	52

2.14	Cash Flow Cycle Comparison	54
2.15	Cash Flow Cycle of Harris Table	55
2.16	Cash Flow Cycle with Accounts Receivable	56
2.17	Cash Flow Cycle with Capital	57
2.18	Cash Flow Cycle—Use of Trade Credit to Fund Shortfall	58
2.19	Cash Flow Cycle—Use of Labor Accrual to Fund Shortfall	59
2.20	Cash Flow Cycle—Reduce Sales Terms	60
2.21	Fixed Asset Cycle	61
2.22	Summary of Business Functions	62
2.23	Summary of Borrowing Arrangements	64
CHAPTER 3		
3.1	Net Sales—Turner Electronic Corporation	77
3.2	Cost of Goods Sold Calculation—Turner Electronic Corporation	83
3.3	LIFO and FIFO Comparison	85
3.4	Gross Profit Analysis—Turner Electronic Corporation	88
3.5	Types of Controllable and Non-controllable Expenses	90
3.6	Operating Expense Analysis—Turner Electronic Corporation	91
3.7	Fixed Costs	93
3.8	Variable Costs	94
3.9	Effects of High and Low Operating Leverage	99
3.10	Other Income and Other Expense Analysis—Turner Electronic Corporation	100
CHAPTER 4		
4.1	Partial Accounts Receivable Aging—Turner Electronic Corporation	113
4.2	Current Assets—Turner Electronic Corporation	119
4.3	Depreciation Calculation	122
4.4	Fixed Asset Summary—Turner Electronic Corporation	123
4.5	Asset Categories	127
4.6	Summary of Current Liabilities—Turner Electronic Corporation	132
4.7	Depreciation and Deferred Taxes	134
4.8	Reconciliation of Net Worth—Turner Electronic Corporation	138
CHAPTER 5		
5.1	RMA Ratio Categories	168
5.2	Manufacturers—Household Audio & Video Equipment	169
5.3	RMA Quartile Positions	173

CHAPTER 6	
6.1	Balance Sheet Sources and Uses 187
6.2	Accountant's Presentation—Direct Method 185
6.3	Statement of Cash Flows—Turner Electronic Corporation 186
6.4	Operating Activities—Turner Electronic Corporation 189
6.5	Investing Activities—Turner Electronic Corporation 191
6.6	Financing Activities—Turner Electronic Corporation 193
6.7	Accountant's Presentation—Indirect Method 194
6.8	Lender Prepared Direct Method—Turner Electronic Corporation 196
6.9	Abbreviated Cash flow Statement Form—Turner Electronic Corporation 203
CHAPTER 7	
7.1	Personal Financial Statement as of June 7, 2002 218
7.2	Debt-to-Income Calculation 224
7.3	Personal and Business Statement Classifications 226
7.4	Adjusted Net Worth for Edward G. and Linda C. Dezine 232
7.5	Tax Returns and Selected Schedules 234
7.6	1040 U.S. Individual Income Tax Return 238
7.7	U.S. Income Tax Return for an S Corporation 248
7.8	Personal Financial Statement Comparison— Edward G. and Linda C. Dezine 256
7.9	Personal Cash Flow Form 258
7.10	Net Wages Received 259
7.11	Net Other Personal Income 259
7.12	Net Business and Investment Activity 260
7.13	Personal Expenses 261
7.14	Completed Personal Cash Flow Form 262
CHAPTER 8	
8.1	Cash Budget 270
8.2	Service, Inc., Cash Budget 271
8.3	Historical and Projected Sales—Designs by Dezine, Inc. 275
8.4	Summary Financial Statements—Designs by Dezine, Inc. 276
8.5	Cash Budget—Designs by Dezine, Inc. 277
CHAPTER 9	
9.1	Company-prepared Forecast Income Statement and Balance Sheet—Designs by Dezine, Inc. 289
9.2	Financial Statement Summary for Year Ending December 31, 2001—Designs by Dezine, Inc. 290
9.3	Historical and Projected Sales—Designs by Dezine, Inc. 292

9.4	Comparison Forecast Income Statement—Designs by Dezine, Inc.	293
9.5	Forecast Cost of Goods Sold—Designs by Dezine, Inc.	293
9.6	Forecast Balance Sheet—Designs by Dezine, Inc.	296
9.7	Summary of Retained Earnings	301
9.8	Abbreviated Cash Flow Statement—Designs by Dezine, Inc., Company Prepared Forecast for 2007	303
9.9	Abbreviated Cash Flow Statement—Designs by Dezine, Inc., Bank Forecast	304



ACKNOWLEDGMENTS

The American Bankers Association wants to acknowledge its appreciation of the many contributions George E. Ruth has made towards the education of bankers. Ruth began his banking career in 1965 and is a graduate of the American Bankers Association's Stonier Graduate School of Banking. Currently, he serves as Senior Vice President and Chief Credit Officer for KleinBank, the largest privately held bank in Minnesota. For the ABA, he has authored *Analyzing Financial Statements and Commercial Lending*, and he is the author of *Lending Principles*, published by the Schools of Banking, Lincoln, Nebraska. In addition to writing, Ruth has taught at ABA's National Commercial Lending School and at various graduate schools and state commercial lending schools.

The Risk Management Association (RMA) has provided important data for this text. We are grateful for its cooperation and help. The information and figures used were from the 2005-2006 editions of *Annual Statement Studies—Financial Ratio Benchmarks and Annual Statement Studies—Industry Default Probabilities and Cash Flow Measures*. The RMA qualifies its data as follows:

- (i) the Data contained in *Analyzing Financial Statements* was compiled from a sample not necessarily statistically representative and that reliance thereon should be limited accordingly;
- (ii) the Data have been obtained from or are based upon sources believed by RMA to be reliable; however, the Data are provided without warranty of any kind, and RMA makes no representations or warranties, express or implied, to licensee (the American Bankers Association) or any other person or entity as to the accuracy, timeliness, completeness, merchantability or fitness for any particular purpose of any of the Data; and
- (iii) the Data are provided without warranty on the understanding that any person or entity that acts upon it or otherwise changes position in reliance thereon does so entirely at such person's or entity's own risk.



PREFACE

As the saying goes, “Numbers talk and banker’s need to listen.” The purpose of *Analyzing Financial Statements* is to provide business bankers with the knowledge and skills they need to analyze and interpret financial information. The goal of this textbook is to emphasize “listening” to the interpretation, not merely calculating the numbers. A number of practical exercises are located at the end of each chapter.

The primary audience of this text includes trainees in credit training programs, small business bankers, loan review staff, and those who need to understand the analysis of business financial statements as part of their job. Although most banks now use computer programs to spread financial information and make calculations, bankers need to understand how the numbers came together and what they mean. To accomplish this, a banker must

- understand the source of the information,
- determine the quality of the financial statement received,
- know the legal structure and type of business organization,
- be able to interpret the data, and
- apply this understanding to make a good credit decision.

Turner Electronic Corporation and Designs by Dezine, Inc., fictitious companies, are used throughout the textbook to help students learn the analysis process. The analysis process begins with an understanding of the types of financial information the business banker may receive, the components of the financial statements, and other management reports. The process continues with an understanding of the various forms of business organization and legal structure, types of loan structures, and competing and complementing sources of financing. Whether a business is a manufacturer, wholesaler, retailer, service company, or agricultural, its business organization and legal structure affect its income statement and balance sheet.

Next in the process is the analysis of the income statement. The income statement is analyzed first because of its impact on the balance sheet. While analyzing an income statement, a business banker must consider sales, cost of goods sold, fixed and variable expenses, and the net profit margin. In addition, a business banker should consider break-even and operating leverage, concepts that are important in income statement analysis.

With an understanding of the income statement, the balance sheet is analyzed next. The various balance sheet accounts are classified as assets, liabilities, or net worth. Accountants and bankers classify these accounts differently. This textbook clarifies how bankers classify each account.

Next ratios are calculated. Ratios are categorized as liquidity, financial leverage, coverage, or profit in nature. The textbook explains how to calculate each ratio and then what the ratio means. Because cash, and only cash, repays loans, several methods of calculating business cash flow are explained: the accountant and bank prepared direct method, the abbreviated method, and the traditional cash flow methods used to analyze business financial statements. One chapter focuses on personal cash flow and financial statements.

The final two chapters explain cash budget and pro forma financial statements. Again, practical application exercises are used to demonstrate these concepts.

The textbook has a companion *Master Case Book* that includes blank forms you may want to use. A summary of business and personal financial statement components, listing accounts as current and noncurrent, is provided to give consistent account classifications. A summary of various ratios, how to calculate them, and what they mean is also provided. Blank forms to calculate a cash budget and personal cash flow are also provided.

Analyzing financial statements is a process in which a systematic procedure must be followed step-by-step in order to assess and monitor credit risk. With this in mind, the seventh edition of *Analyzing Financial Statements* was expanded to include:

- a discussion on lending to construction companies,
- the new cash flow default measures, and
- 2006 income tax forms