Several years ago I was asked to teach a course on construction accounting and finance. The course was to cover the fundamental principles needed by construction managers to successfully manage the finances of construction companies. In preparing to teach this course I found that these principles were scattered among many disciplines, including business management, engineering economics, accounting, estimating, project management, and scheduling. After I reviewed the available textbooks, two things were apparent. First, the material was often presented in a generic fashion and failed to address how the principles applied to the construction industry. For example, in most accounting textbooks only a few pages were devoted to the accounting procedures for long-term contracts, which comprise a bulk of the projects for general construction companies. Second, with the topics scattered among many disciplines and textbooks, the topic of how the different components of construction financial management were interrelated and interacted was being ignored.

Financial management may be defined as the use of a company’s financial resources and encompasses all decisions that affect a company’s financial health. Many everyday decisions affect a company’s financial health. The difference between a marginally profitable and a very profitable company is good financial management. Business schools teach the fundamental principles of financial management; however, because of the many unique characteristics of the construction industry, the usefulness of these financial principles as taught by business schools is limited. To be useful, these principles must be adapted specifically to the construction industry. For example, in the construction industry equipment is mobile and may be needed for multiple jobs during a single month. Traditional accounting methods and financial statements do not allow a company to properly manage and account for its equipment.

This book was written to help construction professionals—both those who are working in the construction industry and those seeking a degree in construction management—learn how the principles of financial management can be adapted to and used in the management of construction companies. This book will be most useful for general managers and owners of companies who are responsible for managing the finances of the entire company; however, many of these principles are useful to project managers and superintendents. For the project manager or superintendent who desires to stand out in a company, there is no better way than to improve the profitability of projects through the principles of sound financial management. The book also discusses how owners and general managers can manage construction projects by sound management of their project managers, superintendents, and crew forepersons.

This book explains common financial principles, demonstrating how these principles may be applied to a construction situation and how these principles affect the financial performance of a company. Many of the examples included in this book are based on actual situations encountered by the author.

This book is organized in five parts: introduction to construction financial management, accounting for financial resources, managing costs and profits, managing cash flows, and making financial decisions.

The first part—comprising Chapter 1—introduces the reader to construction financial management, explains why construction financial management is different from financial management in other industries, and defines the role of a construction financial manager.

The second part—comprising Chapters 2 through 6—describes how to account for a company’s financial resources. Accounting for these resources is built around a company’s accounting system.

The third part—comprising Chapters 7 through 11—examines how to manage the costs and profits of a construction company. This must be done at the project level as well as at the company level.

The fourth part—comprising Chapters 12 through 16—looks at how to manage a company’s cash flows and how to evaluate different sources of funding cash needs.

The fifth part—comprising Chapters 17 and 18—explores ways to quantitatively analyze financial decisions.

After reading this book, you should have a better understanding of the following:

- The basic financial principles that are widely used in the business world and how to modify them so that they work for the construction industry. Application of these principles will help you better manage your business.
- Construction accounting systems, which will help you manage the accounting systems and use accounting information to manage a company. The accounting system is the heart and soul of financial management.
- Financial and accounting principles, so that you may interact with accountants and bankers at a professional level.

What’s new in this edition:

- The business failure rate for construction companies in Chapter 1 has been updated.
- Sections on cost segregation and bonus depreciation have been added to Chapter 5.
- The discussion of typical median ratios in Chapter 6 has been updated.
- A section on the monitoring and controlling process has been added to Chapter 7.
- A section on managing design-build costs has been added to Chapter 7.
- The wages, social security, and Medicare costs have been updated in Chapters 8, 9, and 14.
Preface

- A weekly cash flow problem has been added to Chapter 12.
- The income tax regulations in Chapter 13 have been updated to incorporate provisions of The Tax Cuts and Jobs Act passed in December 2017.
- The project cash flows used to develop an annual cash flow for a construction company have been expanded to cover the entire project (including work done in the prior year) and the calculation of the underbillings/overbillings has been included in Chapter 14.
- The effects of taxes on decision has been updated in Chapter 18 to incorporate the Tax Cuts and Jobs Act.

To access supplementary materials online, instructors need to request an instructor access code. Go to www.pearsonhighered.com/irc to register for an instructor access code. Within 48 hours of registering, you will receive a confirming e-mail including an instructor access code. Once you have received your code, locate your text in the online catalog and click on the Instructor Resources button on the left side of the catalog product page. Select a supplement, and a login page will appear. Once you have logged in, you can access instructor material for all Prentice Hall textbooks. If you have any difficulties accessing the site or downloading a supplement, please contact Customer Service at http://247pearsoned.custhelp.com/. The materials available to instructors include: instructor's manual, PowerPoint slides, Excel spreadsheet solutions to the Excel-based homework problems, electronic copies of the figures and tables, and an equation list.

This textbook brings all of the key financial management principles needed by construction managers under one cover, addressing how they are applied in the construction industry and how they interact. Many of the examples in this book are based on my fourteen years of experience in construction financial management. Join me on a journey of discovery as we discuss the fundamental principles of financial management that are needed to make a construction company a financial success.

Feedback on this book can be submitted at stevenjpeterson9@gmail.com.

Best Wishes,

Steven J. Peterson, MBA, PE
PART I
INTRODUCTION TO CONSTRUCTION FINANCIAL MANAGEMENT 1

CHAPTER 1 Construction Financial Management 2
What Is Financial Management? 3
Why Is Construction Financial Management Different? 3
  Project Oriented 3
  Decentralized Production 4
  Payment Terms 4
  Heavy Use of Subcontractors 4
Who Is Responsible for Construction Management? 4
What Does a Financial Manager Do? 5
  Accounting for Financial Resources 5
  Managing Costs and Profits 6
  Managing Cash Flows 6
Choosing among Financial Alternatives 7
  Conclusion 7  Discussion Questions 7

PART II
ACCOUNTING FOR FINANCIAL RESOURCES 9

CHAPTER 2 Construction Accounting Systems 10
Cost Reporting versus Cost Control 10
The General Ledger 11
Method of Accounting 11
  Cash 12
  Accrual 13
  Percentage of Completion 13
  Completed Contract 13
The Balance Sheet 14
  Assets 15
  Liabilities 16
  Owners’ Equity 17
The Income Statement 17
  Revenues 18
  Construction Costs 18

CHAPTER 3 Accounting Transactions 28
  Invoice Charged to a Job without Retention 29
  Invoice Charged to a Job with Retention 29
  Paying Invoices 30
  Labor Charged to a Job 31
  Labor Charged to General Overhead 32
  Paying an Employee’s Wages 33
  Paying Payroll Taxes 33
  Paying for Benefits 34
  Vacation Time for Jobsite Employees 34
  Recording Office Rent 35
  Recording Office Depreciation 36
  Recording General Overhead Invoices 36
  Billing a Client 37
  Billing for Retention 38
  Receiving Payment from a Client 38
  Purchase of Equipment with a Loan 39
  Loan Payment 39
  Equipment Depreciation 40
  Leased Equipment with an Operating Lease 40
  Leased Equipment with a Capital Lease 40
  Lease Payments for a Capital Lease 41
  Amortization of a Capital Lease 42
  Invoice for Equipment Repairs 42
  Equipment Charged to a Job 43
  Equipment Charged to an Employee 43
  Sale of Equipment 44
  Purchase of Inventory 45
  Charging Inventory to a Job 45
  Signing a Construction or Development Loan 46
  Drawing Funds from a Construction or Development Loan 46
  Recording Changes in Costs and Profits in Excess of Billings 47
## Contents

Recording Changes in Billings in Excess of Costs and Profits 48
- Conclusion 49
- Discussion Questions 49
- Problems 49

**CHAPTER 4 More Construction Accounting** 52
Committed Costs and Estimated Cost at Completion 52
Overbillings and Underbillings 54
Internal Controls 58
Computerized Accounting Systems 59
- Conclusion 60
- Discussion Questions 60
- Problems 60

**CHAPTER 5 Depreciation** 63
Straight-Line Method 64
Sum-of-the-Years Method 64
Declining-Balance Method 66
MACRS 69
Placing in Service and Disposing of an Asset 69
IRS Standard Recovery Periods and Depreciation Methods 70
Cost Segregation 74
Tax Cuts and Jobs Act 75
Section 179 Deduction 75
Depreciation for Non Tax Purposes 76
- Conclusion 77
- Discussion Questions 77
- Problems 77
- Suggested Readings 79

**CHAPTER 6 Analysis of Financial Statements** 80
Depreciation and Financial Analysis 81
Quick Ratio 81
Current Ratio 81
Current Liabilities to Net Worth Ratio 82
Debt to Equity Ratio 82
Fixed Assets to Net Worth Ratio 83
Current Assets to Total Assets Ratio 83
Collection Period 84
Average Age of Accounts Payable 85
Assets to Revenues Ratio 86
Working Capital Turns 86
Accounts Payable to Revenues Ratio 87
Gross Profit Margin 87
General Overhead Ratio 88
Profit Margin 88
Return on Assets 88
Return on Equity 89

Degree of Fixed Asset Newness 89
Months in Backlog 90
- Conclusion 90
- Discussion Questions 90
- Problems 90
- Case Study 95

**PART III MANAGING COSTS AND PROFITS** 99

**CHAPTER 7 Managing Costs** 100
The Monitoring and Controlling Process 100
Monitoring and Controlling Construction Costs 101
- Material Purchases 101
- Labor 102
- Subcontracts 102
- Equipment 103
- Other 103
- Monitoring and Controlling General Overhead Costs 104
- Monitoring Job Profitability 104
- Cost-Loaded Schedule 105
- Schedule Performance Index 106
- Cost Performance Index 106
- Target Levels for CPI and SPI 108
- Project Closeout Audit 109
Managing Design-Build Costs 110
- Conclusion 111
- Discussion Questions 111
- Problems 112

**CHAPTER 8 Determining Labor Burden** 114
Cash Equivalents and Allowances 119
Payroll Taxes 120
Unemployment Insurance 120
Workers’ Compensation Insurance 121
General Liability Insurance 122
Insurance Benefits 122
Retirement 122
Union Payments 123
Other Benefits 123
- Conclusion 124
- Discussion Questions 124
- Problems 124

**CHAPTER 9 Managing General Overhead Costs** 125
General Overhead Defined 125
The General Overhead Budget 125
Items to Include in the General Overhead Budget 126
Contents

Nondeductible Expenses/Costs 191
Tax Credits 191
Section 199A 191
Alternate Minimum Tax 191
Projecting Taxable Income 191

CHAPTER 10 Setting Profit Margins for Bidding 142
The Profit Equation 142
Contribution Margin 143
Projecting Break-Even Volume of Work 143
Projecting Break-Even Contribution Margin Ratio 144
Adjusting the Financial Mix 145
Profit and Overhead Markup 146

CHAPTER 11 Profit Center Analysis 151
Sources of Profit 151
Allocation of General Overhead 153
Profit Center Analysis 154
Crews as Profit Centers 155
Project Management as Profit Centers 156
Estimators as Profit Centers 156
Types of Jobs as Profit Centers 156
Customers as Profit Centers 158
Equipment as Profit Centers 159

CHAPTER 12 Cash Flows for Construction Projects 164
Cash Flow for Projects with Progress Payments 164
Cash Flow for Projects with a Single Payment 179

CHAPTER 13 Projecting Income Taxes 185
Corporate versus Personal Income Tax 185
Taxable Income 185
Payment of Income Taxes 186
Income Tax Rates 186
Marginal or Incremental Tax Rate 187
Capital Gains and Losses 187
Tax Consequences of Depreciation 189

CHAPTER 14 Cash Flows for Construction Companies 194
Incorporating Construction Operations 194
Incorporating General Overhead 201
Income Taxes, Interest, Loan Payments, and Cash Balance 204
Determining the Minimum Monthly Balance 208
Fine-Tuning, What-If, and Sensitivity Analysis 208

CHAPTER 15 Time Value of Money 214
Equivalence 214
Single-Payment Compound-Amount Factor 215
Single-Payment Present-Worth Factor 217
Uniform-Series Compound-Amount Factor 218
Uniform-Series Sinking-Fund Factor 220
Uniform-Series Present-Worth Factor 221
Uniform-Series Capital-Recovery Factor 222
Cash Flow Diagrams 223
Complex Cash Flows 223
Find Unknown Periodic Interest Rates 227
Inflation and Constant Dollars 229
Taxes on Interest 230

CHAPTER 16 Financing a Company’s Financial Needs 233
Interest 233
Simple Interest 233
Compound Interest 234
Yield or Annual Percentage Yield 234
Fixed versus Variable Interest Rates 236
Loans and Lines of Credits 236
Loans 237
Long-Term Loans 237
Amortization Schedule 241
Closing Costs 243
Short-Term Loans 247
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lines of Credits</td>
<td>248</td>
</tr>
<tr>
<td>Compensating Balance</td>
<td>249</td>
</tr>
<tr>
<td>Commitment Fee</td>
<td>250</td>
</tr>
<tr>
<td>Leasing</td>
<td>251</td>
</tr>
<tr>
<td>Trade Financing</td>
<td>251</td>
</tr>
<tr>
<td>Credit Cards</td>
<td>252</td>
</tr>
<tr>
<td>Equity Financing</td>
<td>253</td>
</tr>
<tr>
<td>Selecting a Banker</td>
<td>253</td>
</tr>
<tr>
<td>Applying for a Loan</td>
<td>253</td>
</tr>
<tr>
<td>Loan Documents</td>
<td>254</td>
</tr>
<tr>
<td>Conclusion</td>
<td>254</td>
</tr>
<tr>
<td>Discussion Questions</td>
<td>254</td>
</tr>
<tr>
<td>Problems</td>
<td>255</td>
</tr>
</tbody>
</table>

**PART V**

**MAKING FINANCIAL DECISIONS 257**

**CHAPTER 17 Tools for Making Financial Decisions 258**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunk Costs</td>
<td>260</td>
</tr>
<tr>
<td>MARR (Minimum Attractive Rate of Return)</td>
<td>260</td>
</tr>
<tr>
<td>Adjusting Life Spans</td>
<td>261</td>
</tr>
<tr>
<td>Study Period</td>
<td>261</td>
</tr>
<tr>
<td>Shortening an Alternative's Life</td>
<td>261</td>
</tr>
<tr>
<td>Lengthening an Alternative's Life</td>
<td>262</td>
</tr>
<tr>
<td>Repurchasing an Alternative</td>
<td>262</td>
</tr>
<tr>
<td>Net Present Value or Present Worth</td>
<td>263</td>
</tr>
<tr>
<td>Incremental Net Present Value</td>
<td>263</td>
</tr>
<tr>
<td>Future Worth</td>
<td>270</td>
</tr>
<tr>
<td>Annual Equivalent</td>
<td>271</td>
</tr>
</tbody>
</table>

**CHAPTER 18 Income Taxes and Financial Decisions 286**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Losses Carried Forward</td>
<td>286</td>
</tr>
<tr>
<td>Different Tax Rates</td>
<td>287</td>
</tr>
<tr>
<td>Depreciation</td>
<td>288</td>
</tr>
<tr>
<td>Capital Gains</td>
<td>288</td>
</tr>
<tr>
<td>Tax Credits</td>
<td>289</td>
</tr>
<tr>
<td>After-Tax Cash Flows</td>
<td>289</td>
</tr>
<tr>
<td>Conclusion</td>
<td>298</td>
</tr>
<tr>
<td>Discussion Questions</td>
<td>298</td>
</tr>
<tr>
<td>Problems</td>
<td>298</td>
</tr>
</tbody>
</table>

**Appendix A Computerized Accounting Systems 299**

**Appendix B Excel Primer 302**

**Appendix C Trend Analysis 306**

**Appendix D Derivation of Selected Equations 310**

**Appendix E Interest Factors 312**

**Appendix F Glossary 344**

**Appendix G List of Variables 350**

**Index 351**
Construction accounting is a form of project accounting applied to construction projects. See also production accounting. Construction accounting is a vitally necessary form of accounting, especially when multiple contracts come into play. The construction field uses many terms not used in other forms of accounting, such as “draw” and progress billing. Construction accounting may also need to account for vehicles and equipment, which may or may not be owned by the company as a fixed asset. Financial Management and Accounting Fundamentals for Construction will help you better understand and navigate the financial decisions that are part of every construction project. This book is a compact summary of the basic financial skills that a construction professional must have to be successful in the management of a construction company and its projects. Its topics address many of the questions that any construction administrator will face, such as: How to organize and use a company’s financial reports. What amount of cash must be made available to the contractor to complete a project. Construction FINANCIAL MANAGEMENT ASSOCIATION - Albuquerque chapter 24 years of excellence: 1989 - 2013. construction. Presented by: Catherine Blazer - Senior Account Executive Adam Cline - Finance Manager Bryan St. Eve - Director of -The. euseden - . internal audit & assurance services . euseden. our solutions. internal audit. mis. Construction Accounting and Financial Management -. chapter 6 analysis of financial statements. financial ratios. Accounting Equation (Periodic Inventory System) -. hamilton stationery shop. mary low waikato management school the. Worldwide Accounting Diversity &