

# Contents

## Preface ix

### Purpose of the Book ix

Target Audience x

A Note to Students x

### Organization of the Book xi

### Outstanding Features xii

Pedagogical Features xii

Supplements xiii

### Typography Conventions xiii

### Changes from the 8th Edition xiv

### A Note on the Internet xiv

### Acknowledgments xiv

## CHAPTER 1 INTRODUCTION TO EXCEL 1

Spreadsheet Uses 2

### Starting Microsoft Excel 2

### Parts of the Excel Screen 3

The File Tab and Quick Access Toolbar 3

The Home Tab 4

The Formula Bar 6

The Worksheet Area 6

Sheet Tabs 7

Status Bar 8

### Navigating the Worksheet 8

Selecting a Range of Cells 9

Using Defined Names 10

Entering Text and Numbers 11

Formatting and Alignment Options 12

Formatting Numbers 13

Adding Borders and Shading 15

### Entering Formulas 15

Copying and Moving Formulas 18

Mathematical Operators 19

Parentheses and the Order of Operations 19

### Using Excel's Built-In Functions 21

Using the Insert Function Dialog Box 22

Array Functions 24

"Dot Functions" in Excel 25

Using User-Defined Functions 27

### Creating Graphics 28

Creating Charts in a Chart Sheet 29

Creating Embedded Charts 30

Formatting Charts 31

Changing the Chart Type 32

Creating Sparkline Charts 34

### Printing 35

### Using Excel with Other Applications 36

### Quitting Excel 37

### Best Practices for Spreadsheet Models 38

### Summary 39

### Problems 39

### Internet Exercise 43

## CHAPTER 2 THE BASIC FINANCIAL STATEMENTS 45

### The Income Statement 46

Building an Income Statement in Excel 46

### The Balance Sheet 51

Building a Balance Sheet in Excel 52

### Improving Readability: Custom Number Formats 53

### Common-Size Financial Statements 56

Creating Common-Size Income Statements 56

Creating a Common-Size Balance Sheet 58

### Building a Statement of Cash Flows 59

Using Excel's Outliner 64

Common-Size Statement of Cash Flows 66

### Summary 70

### Problems 71

### Internet Exercise 73

## CHAPTER 3 FINANCIAL STATEMENT ANALYSIS TOOLS 75

### Liquidity Ratios 76

The Current Ratio 77

The Quick Ratio 78

### Efficiency Ratios 79

Inventory Turnover Ratio 79

Accounts Receivable Turnover Ratio 80

Average Collection Period 80

Fixed Asset Turnover Ratio 82

Total Asset Turnover Ratio 82



### Leverage Ratios 83

- The Total Debt Ratio 84
- The Long-Term Debt Ratio 84
- The Long-Term Debt to Total Capitalization Ratio 85
- The Debt to Equity Ratio 85
- The Long-Term Debt to Equity Ratio 86

### Coverage Ratios 87

- The Times Interest Earned Ratio 87
- The Cash Coverage Ratio 88

### Profitability Ratios 88

- The Gross Profit Margin 89
- The Operating Profit Margin 89
- The Net Profit Margin 90
- Return on Total Assets 90
- Return on Equity 91
- Return on Common Equity 91
- DuPont Analysis 92
- Analysis of EPI's Profitability Ratios 94

### Financial Distress Prediction 95

- The Original Z-Score Model 95
- The Z-Score Model for Private Firms 97

### Using Financial Ratios 97

- Trend Analysis 97
- Comparing to Industry Averages 98
- Company Goals and Debt Covenants 100
- Automating Ratio Analysis 100

### Economic Profit Measures of Performance 103

#### Summary 105

#### Problems 108

#### Internet Exercise 110

## CHAPTER 4 THE CASH BUDGET 111

### The Worksheet Area 113

- Using Date Functions 113
- Calculating Text Strings 114
- Sales and Collections 115
- Purchases and Payments 117

### Collections and Disbursements 118

### Calculating the Ending Cash Balance 120

- Repaying Short-Term Borrowing 123
- Using the Cash Budget for What-If Analysis 124
- The Scenario Manager 126

### Adding Interest and Investment of Excess Cash 130

### Calculating Current Borrowing 132

### Using the Formula Auditing Tools to Avoid Errors 133

### Calculating Current Investing 137

### Working Through the Example 139

#### Summary 142

#### Problems 143

## CHAPTER 5 FINANCIAL STATEMENT FORECASTING 149

### The Percent of Sales Method 150

- Forecasting the Income Statement 150
- Forecasting Assets on the Balance Sheet 154
- Forecasting Liabilities on the Balance Sheet 156
- Discretionary Financing Needed 158

### Using Iteration to Eliminate DFN 159

### Other Forecasting Methods 163

- Linear Trend Extrapolation 163
- Regression Analysis 167
- Statistical Significance 171

#### Summary 175

#### Problems 175

#### Internet Exercises 177

## CHAPTER 6 FORECASTING SALES WITH TIME SERIES METHODS 179

### Time Series Decomposition 180

- Smoothing a Time Series with Moving Averages 181
- Isolating the Seasonality of a Time Series 183
- Extracting the Irregular Component 185

### Time Series Forecasting Techniques 186

- Measuring Forecast Errors 186
- Exponential Smoothing Methods 187
- Simple Exponential Smoothing 187
- Holt's Linear Trend Exponential Smoothing Model 190
- Forecasting Time Series with Both Trend and Seasonality 192
- Holt-Winters Additive Seasonal Model 193
- Using the Built-in ETS Model 195
- Holt-Winters Multiplicative Seasonal Model 197

### Time Series Forecasting Using Regression Analysis 199

- Forecasting the Trend Using Regression 199



*Using Seasonal Dummy Variables to Account  
for Seasonality* 202

Summary 205

Problems 206

Internet Exercise 207

## CHAPTER 7 BREAK-EVEN AND LEVERAGE ANALYSIS 209

Break-Even Points 210

*Calculating Break-Even Points in Excel* 211

*Other Break-Even Points* 213

Using Goal Seek to Calculate Break-Even Points 215

Leverage Analysis 216

*The Degree of Operating Leverage* 217

*The Degree of Financial Leverage* 219

*The Degree of Combined Leverage* 221

*Extending the Example* 222

Linking Break-Even Points and Leverage Measures 224

Summary 225

Problems 226

Internet Exercise 228

## CHAPTER 8 THE TIME VALUE OF MONEY 229

Future Value 230

*Using Excel to Find Future Values* 231

Present Value 232

Annuities 234

*Present Value of an Annuity* 234

*Future Value of an Annuity* 237

*Solving for the Annuity Payment* 238

*Solving for the Number of Periods in an Annuity* 239

*Solving for the Interest Rate in an Annuity* 241

*Deferred Annuities* 242

Graduated Annuities 245

*Present Value of a Graduated Annuity* 245

*Future Value of a Graduated Annuity* 248

*Solving for the Graduated Annuity Payment* 249

Uneven Cash Flow Streams 249

*Solving for the Yield in an Uneven Cash Flow Stream* 252

Nonannual Compounding Periods 253

*Continuous Compounding* 256

Summary 258

Problems 259

## CHAPTER 9 COMMON STOCK VALUATION 263

What Is Value? 264

Fundamentals of Valuation 265

Determining the Required Rate of Return 266

*A Simple Risk Premium Model* 267

*CAPM: A More Scientific Model* 267

Valuing Common Stocks 270

*The Constant-Growth Dividend Discount Model* 272

*The Two-Stage Growth Model* 277

*Three-Stage Growth Models* 279

Alternative Discounted Cash Flow Models 284

*The Earnings Model* 284

*The Free Cash Flow Model* 288

Relative Value Models 292

Preferred Stock Valuation 293

Summary 295

Problems 297

Internet Exercise 299

## CHAPTER 10 BOND VALUATION 301

Bond Valuation 302

*Valuing Bonds Between Coupon Dates* 304

*Using Excel's Advanced Bond Functions* 307

Bond Return Measures 310

*Current Yield* 310

*Yield to Maturity* 311

*Yield to Call* 313

*Returns on Discounted Debt Securities* 315

The U.S. Treasury Yield Curve 316

Bond Price Sensitivities 318

*Changes in the Required Return* 319

*Changes in Term to Maturity* 321

*Comparing Two Bonds with Different*

*Maturities* 324



Comparing Two Bonds with Different Coupon Rates	326
Duration and Convexity	327
Duration	327
Modified Duration	328
Visualizing the Predicted Price Change	330
Convexity	332
Summary	335
Problems	337
Internet Exercise	339

## CHAPTER 11 THE COST OF CAPITAL 341

The Appropriate "Hurdle" Rate	342
The Weighted Average Cost of Capital	343
Determining the Weights	344
WACC Calculations in Excel	345
Calculating the Component Costs	346
The Cost of Common Equity	347
The Cost of Preferred Equity	348
The Cost of Debt	349
Using Excel to Calculate the Component Costs	350
The After-Tax Cost of Debt	350
The Cost of Preferred Stock	352
The Cost of Common Stock	352
The Role of Flotation Costs	353
Adding Flotation Costs to Our Worksheet	354
The Cost of Retained Earnings	355
The Marginal WACC Curve	356
Finding the Break-Points	356
Creating the Marginal WACC Chart	361
Summary	362
Problems	363
Internet Exercise	365

## CHAPTER 12 CAPITAL BUDGETING 367

Estimating the Cash Flows	368
The Initial Outlay	369
The Annual After-Tax Operating Cash Flows	370
The Terminal Cash Flow	371
Estimating the Cash Flows: An Example	372

Calculating the Relevant Cash Flows	378
-------------------------------------	-----

Making the Decision	379
The Payback Method	379
The Discounted Payback Period	383
Net Present Value	384
The Profitability Index	387
The Internal Rate of Return	388
Problems with the IRR	389
The Modified Internal Rate of Return	391

Sensitivity and Scenario Analysis	393
NPV Profile Charts	394
Scenario Analysis	395

The Optimal Capital Budget	398
Optimal Capital Budget Without Capital Rationing	399
Optimal Capital Budget Under Capital Rationing	401
Other Techniques	407

Summary	407
---------	-----

Problems	408
----------	-----

## CHAPTER 13 RISK AND CAPITAL BUDGETING 413

Review of Some Useful Statistical Concepts	414
The Expected Value	414
Measures of Dispersion	416

Using Excel to Measure Risk	419
The Freshly Frozen Fish Company Example	419

Introducing Uncertainty	423
Sensitivity Analysis	423
Scenario Analysis	429
Calculating the Expected NPV from the Scenarios	431
Calculating the Variance and Standard Deviation	431
Calculating the Probability of a Negative NPV	433
Monte Carlo Simulation	435
The Risk-Adjusted Discount Rate Method	442
The Certainty-Equivalent Approach	443

Summary	445
---------	-----

Problems	447
----------	-----

## CHAPTER 14 PORTFOLIO STATISTICS AND DIVERSIFICATION 451

Portfolio Diversification Effects	452
Determining Portfolio Risk and Return	455



Portfolio Standard Deviation	455
Changing the Weights	459
<b>Portfolios with More Than Two Securities</b>	<b>460</b>
Creating a Variance/Covariance Matrix	461
Calculating the Portfolio Standard Deviation	465
<b>The Efficient Frontier</b>	<b>466</b>
Locating Portfolios on the Efficient Frontier in Excel	467
Charting the Efficient Frontier	471
<b>The Capital Market Line</b>	<b>472</b>
Charting the Capital Market Line	476
Identifying the Market Portfolio	477
<b>Utility Functions and the Optimal Portfolio</b>	<b>480</b>
Charting Indifference Curves	481
<b>The Capital Asset Pricing Model</b>	<b>483</b>
The Security Market Line	484
<b>Summary</b>	<b>486</b>
<b>Problems</b>	<b>487</b>
<b>Internet Exercise</b>	<b>490</b>

## CHAPTER 15 WRITING USER-DEFINED FUNCTIONS WITH VBA 491

<b>What Is a Macro?</b>	<b>492</b>
Two Types of Macros	493
<b>The Visual Basic Editor</b>	<b>494</b>
The Project Explorer	495
The Code Window	496
<b>The Parts of a Function</b>	<b>497</b>
<b>Writing Your First User-Defined Function</b>	<b>498</b>
<b>Writing More Complicated Functions</b>	<b>503</b>
Variables and Data Types	503
The If-Then-Else Statement	505
Looping Statements	507
Using Worksheet Functions in VBA	511
Using Optional Arguments	511
Using ParamArray for Unlimited Arguments	513
<b>Debugging VBA Code</b>	<b>514</b>
Breakpoints and Code Stepping	514

The Watch Window	516
The Immediate Window	517
<b>Creating Excel Add-Ins</b>	<b>518</b>
<b>Best Practices for VBA</b>	<b>519</b>
<b>Summary</b>	<b>520</b>
<b>Problems</b>	<b>521</b>

## CHAPTER 16 ANALYZING DATASETS WITH TABLES AND PIVOT TABLES 523

<b>Creating and Using an Excel Table</b>	<b>524</b>
Removing Duplicate Records from the Table	526
Filtering the Table	527
Sorting and Filtering Numeric Fields	529
Structured Referencing for Formulas in Tables	530
<b>Using Get &amp; Transform</b>	<b>532</b>
Cleaning the Dataset	533
An Example Data Query	534
<b>Using Pivot Tables</b>	<b>536</b>
Creating a Pivot Table	536
Formatting the Pivot Table	538
Rearranging the Pivot Table and Adding Fields	540
Transforming the Data Field Presentation	542
Calculations in Pivot Tables	543
<b>Pivot Tables for Financial Statements</b>	<b>545</b>
Grouping Data by Date	546
Using Pivot Charts to Show Trends Over Time	549
Displaying Multiple Subtotals	550
Using Calculated Fields for Financial Ratios	551
Filtering Data with Slicers and Timelines	553
<b>Extracting Data from a Pivot Table</b>	<b>555</b>
<b>Summary</b>	<b>556</b>
<b>Problems</b>	<b>556</b>
<b>Internet Exercise</b>	<b>560</b>

## APPENDIX Directory of User-Defined Functions in FameFncs.xlam 561

## INDEX 565