

Financial Statement Analysis and Security Valuation

Fifth Edition

Stephen H. Penman
Columbia University



Brief Contents

List of Cases xxv

List of Accounting Clinics xxvi

- 1 Introduction to Investing and Valuation 2
- 2 Introduction to the Financial Statements 32

PART ONE

Financial Statements and Valuation 72

- 3 How Financial Statements Are Used in Valuation 74
- 4 Cash Accounting, Accrual Accounting, and Discounted Cash Flow Valuation 110
- 5 Accrual Accounting and Valuation: Pricing Book Values 140
- 6 Accrual Accounting and Valuation: Pricing Earnings 178
- 7 Valuation and Active Investing 210

PART TWO

The Analysis of Financial Statements 232

- 8 Viewing the Business Through the Financial Statements 234
- 9 The Analysis of the Statement of Shareholders' Equity 258
- 10 The Analysis of the Balance Sheet and Income Statement 292
- 11 The Analysis of the Cash Flow Statement 342
- 12 The Analysis of Profitability 364
- 13 The Analysis of Growth and Sustainable Earnings 392

PART THREE

Forecasting and Valuation Analysis 434

- 14 The Value of Operations and the Evaluation of Enterprise Price-to-Book Ratios and Price-Earnings Ratios 436
- 15 Anchoring on the Financial Statements: Simple Forecasting and Simple Valuation 480
- 16 Full-Information Forecasting, Valuation, and Business Strategy Analysis 504

PART FOUR

Accounting Analysis and Valuation 552

- 17 Creating Accounting Value and Economic Value 554
- 18 Analysis of the Quality of Financial Statements 590

PART FIVE

The Analysis of Risk and Return 640

- 19 The Analysis of Equity Risk and Return for Active Investing 642
- 20 The Analysis of Credit Risk and Return 680

APPENDIX

A Summary of Formulas 709

INDEX 725

Contents

List of Cases xxv

List of Accounting Clinics xxvi

Chapter 1

Introduction to Investing and Valuation 2

Investment Styles and Fundamental Analysis 3

Bubble, Bubble, Toil, and Trouble 6

How Bubbles Work 7

Analysts During the Bubble 8

More Toil and Trouble 8

Fundamental Analysis Anchors Investors 9

The Setting: Investors, Firms, Securities,
and Capital Markets 10

The Business of Analysis:

The Professional Analyst 12

Investing in Firms: The Outside Analyst 12

Investing Within Firms: The Inside Analyst 13

The Analysis of Business 14

Strategy and Valuation 15

Mastering the Details 16

*The Key Question: Sustainability
of Competitive Advantage* 17

*Financial Statements: The Lens on
the Business* 17

Choosing a Valuation Technology 18

Guiding Principles 18

Anchoring Value on the Financial Statements 20

How to Use This Book 21

An Outline of the Book 21

The Web Connection 22

Key Concepts 22

A Continuing Case: *Kimberly-Clark Corporation* 24

Concept Questions 27

Exercises 28

Minicase 30

Chapter 2

Introduction to the Financial Statements 32

The Analyst's Checklist 33

The Form of the Financial Statements 34

Introducing Nike, Inc. 34

The Balance Sheet 34

The Income Statement 36

The Cash Flow Statement 40

The Statement of Shareholders' Equity 40

The Footnotes and Supplementary

Information to Financial Statements 41

The Articulation of the Financial Statements:

How the Statements Tell a Story 42

Measurement in the Financial Statements 44

The Price-to-Book Ratio 44

Measurement in the Balance Sheet 46

Measurement in the Income Statement 46

The Price-Earnings Ratio 50

Accounting as an Anchor: Don't Mix

What You Know with Speculation 51

Tension in Accounting 53

Accounting Quality 54

Summary 55

The Web Connection 55

Key Concepts 56

The Analyst's Toolkit 57

A Continuing Case: *Kimberly-Clark Corporation* 57

Concept Questions 63

Exercises 63

Minicase 69

PART ONE

FINANCIAL STATEMENTS AND VALUATION 72

Chapter 3

How Financial Statements Are Used in Valuation 74

The Analyst's Checklist 75

Multiple Analysis 76

The Method of Comparables 76

Screening on Multiples 79

Asset-Based Valuation 82

Fundamental Analysis 84

The Process of Fundamental Analysis 85

Financial Statement Analysis, Pro Forma

Analysis, and Fundamental Analysis 86

The Architecture of Fundamental Analysis:

The Valuation Model 87

<i>Terminal Investments and Going-Concern Investments</i>	88
<i>Valuation Models for Terminal Investments</i>	89
<i>Valuation Models for Going-Concern Investments</i>	91
<i>Criteria for a Practical Valuation Model</i>	91
<i>What Generates Value?</i>	92
<i>Valuation Models, the Required Return, and Asset Pricing Models</i>	96
Summary	97
The Web Connection	97
Key Concepts	98
The Analyst's Toolkit	99
A Continuing Case: <i>Kimberly-Clark Corporation</i>	99
Concept Questions	100
Exercises	101
Minicases	104
Appendix The Required Return and Asset Pricing Models	106

Chapter 4

Cash Accounting, Accrual Accounting, and Discounted Cash Flow Valuation 110

The Analyst's Checklist	111
The Dividend Discount Model	111
The Discounted Cash Flow Model	114
<i>Free Cash Flow and Value Added</i>	117
The Statement of Cash Flows	119
<i>The Cash Flow Statement under IFRS</i>	122
<i>Forecasting Free Cash Flows</i>	123
Cash Flow, Earnings, and Accrual Accounting	124
<i>Earnings and Cash Flows</i>	124
<i>Accruals, Investments, and the Balance Sheet</i>	127
Summary	129
The Web Connection	129
Key Concepts	130
The Analyst's Toolkit	130
A Continuing Case: <i>Kimberly-Clark Corporation</i>	131
Concept Questions	131
Exercises	132
Minicase	138

Chapter 5

Accrual Accounting and Valuation: Pricing Book Values 140

The Analyst's Checklist	141
The Concept Behind the Price-to-Book Ratio	141
<i>Beware of Paying Too Much for Earnings</i>	141

Prototype Valuations 142

<i>Valuing a Project</i>	142
<i>Valuing a Savings Account</i>	143
<i>The Normal Price-to-Book Ratio</i>	144
A Model for Anchoring Value on Book Value	145
<i>Residual Earnings Drivers and Value Creation</i>	147
<i>A Simple Demonstration and a Simple Valuation Model</i>	150
Applying the Model to Equities	151
<i>The Forecast Horizon and the Continuing Value Calculation</i>	152
<i>Beware of Paying Too Much for Growth</i>	155
<i>Converting Analysts' Forecasts to a Valuation</i>	156
Build Your Own Valuation Engine	157
Applying the Model to Projects and Strategies	159
Features of the Residual Earnings Valuation	161
<i>Book Value Captures Value and Residual Earnings Captures Value Added to Book Value</i>	161
<i>Protection from Paying Too Much for Earnings Generated by Investment</i>	162
<i>Protection from Paying Too Much for Earnings Created by the Accounting</i>	163
<i>Capturing Value Not on the Balance Sheet—for All Accounting Methods</i>	164
<i>Residual Earnings Are Not Affected by Dividends, Share Issues, or Share Repurchases</i>	165
<i>What the Residual Earnings Model Misses</i>	165
The Web Connection	165
Summary	165
Key Concepts	166
The Analyst's Toolkit	166
A Continuing Case: <i>Kimberly-Clark Corporation</i>	167
Concept Questions	167
Exercises	168
Minicases	173

Chapter 6

Accrual Accounting and Valuation: Pricing Earnings 178

The Analyst's Checklist	179
The Concept Behind the Price-Earnings Ratio	179
<i>Beware of Paying Too Much for Earnings Growth</i>	180
<i>From Price-to-Book Valuation to P/E Valuation</i>	180

Prototype Valuation 181
 The Normal Forward P/E Ratio 183
 The Normal Trailing P/E Ratio 184
 A Poor P/E Model 185
 A Model for Anchoring Value on Earnings 185
 Measuring Abnormal Earnings Growth 187
 A Simple Demonstration and a Simple Valuation Model 188
 Anchoring Valuation on Current Earnings 189
 Applying the Model to Equities 190
 Converting Analysts' Forecasts to a Valuation 191
 Build Your Own Valuation Engine 192
 Features of the Abnormal Earnings Growth Model 194
 Buy Earnings 195
 Abnormal Earnings Growth Valuation and Residual Earnings Valuation 195
 Abnormal Earnings Growth Is Not Affected by Dividends, Share Issues, or Share Repurchases 196
 Accounting Methods and Valuation 196
 The Fed Model 197
 PEG Ratios 199
 Summary 200
 The Web Connection 201
 Key Concepts 201
 The Analyst's Toolkit 201
 A Continuing Case: *Kimberly-Clark Corporation* 202
 Concept Questions 202
 Exercises 203
 Minicase 208

**Chapter 7
Valuation and Active Investing 210**

The Analyst's Checklist 211
 How the Fundamental Investor Operates 211
 Common Misconceptions About Valuation 211
 Applying Fundamental Principles 213
 Challenging Speculation in the Market Price 213
 Reverse Engineering the S&P 500 215
 Challenging the Price of a Stock 218
 Reverse Engineering with the Abnormal Earnings Growth Model 221
 Build Your Own Active Investing Tool 222
 The Web Connection 222
 Summary 222
 Key Concepts 223
 The Analyst's Toolkit 223

A Continuing Case: *Kimberly-Clark Corporation* 223
 Concept Questions 224
 Exercises 225
 Minicases 229

**PART TWO
THE ANALYSIS OF FINANCIAL STATEMENTS 232**

**Chapter 8
Viewing the Business Through the Financial Statements 234**

The Analyst's Checklist 235
 Business Activities: The Cash Flows 236
 The Reformulated Cash Flow Statement 240
 The Reformulated Balance Sheet 241
 Business Activities: All Stocks and Flows 242
 The Reformulated Income Statement 243
 Accounting Relations That Govern Reformulated Statements 243
 The Sources of Free Cash Flow and the Disposition of Free Cash Flow 244
 The Drivers of Dividends 244
 The Drivers of Net Operating Assets and Net Indebtedness 245
 Tying It Together for Shareholders: What Generates Value? 246
 Build Your Own Analysis Engine 248
 Summary 250
 The Web Connection 250
 Key Concepts 251
 The Analyst's Toolkit 251
 A Continuing Case: *Kimberly-Clark Corporation* 252
 Concept Questions 252
 Exercises 253

**Chapter 9
The Analysis of the Statement of Shareholders' Equity 258**

The Analyst's Checklist 259
 Reformulating the Statement of Owners' Equity 259
 Running with Nike 260
 Reformulation Procedures 260
 Dirty-Surplus Accounting 263
 Comprehensive Income Reporting Under U.S. GAAP and IFRS 265

Ratio Analysis	266
<i>Payout and Retention Ratios</i>	266
<i>Shareholder Profitability</i>	267
<i>Growth Ratios</i>	267
Hidden Dirty Surplus	268
<i>Issue of Shares in Operations</i>	268
<i>Issue of Shares in Financing Activities</i>	272
<i>Handling Diluted Earnings per Share</i>	272
<i>Share Transactions in Inefficient Markets</i>	274
The Eye of the Shareholder	275
Build Your Own Analysis Engine	276
Accounting Quality Watch	276
The Web Connection	278
Summary	278
Key Concepts	278
The Analyst's Toolkit	279
A Continuing Case: <i>Kimberly-Clark Corporation</i>	280
Concept Questions	281
Exercises	282
Minicase	288

Chapter 10

The Analysis of the Balance Sheet and Income Statement 292

The Analyst's Checklist	293
Reformulation of the Balance Sheet	293
<i>Issues in Reformulating Balance Sheets</i>	294
<i>Strategic Balance Sheets</i>	301
Reformulation of the Income Statement	303
<i>Tax Allocation</i>	304
<i>Issues in Reformulating Income Statements</i>	308
<i>Value Added to Strategic Balance Sheets</i>	312
<i>Residual Income from Operations</i>	312
Comparative Analysis of the Balance Sheet and Income Statement	314
<i>Common-Size Analysis</i>	315
<i>Trend Analysis</i>	316
Ratio Analysis	318
Build Your Own Analysis Engine	321
Summary	321
The Web Connection	322
Key Concepts	322
The Analyst's Toolkit	323
A Continuing Case: <i>Kimberly-Clark Corporation</i>	324
Concept Questions	325
Exercises	325
Minicases	334

Chapter 11

The Analysis of the Cash Flow Statement 342

The Analyst's Checklist	343
The Calculation of Free Cash Flow	343
GAAP Statement of Cash Flows and Reformulated Cash Flow Statements	345
<i>Reclassifying Cash Transactions</i>	346
<i>Tying It Together</i>	351
Cash Flow from Operations	353
Summary	355
The Web Connection	355
Key Concepts	356
The Analyst's Toolkit	356
A Continuing Case: <i>Kimberly-Clark Corporation</i>	356
Concept Questions	357
Exercises	357
Minicase	362

Chapter 12

The Analysis of Profitability 364

The Analyst's Checklist	365
The Analysis of Return on Common Equity	365
First-Level Breakdown: Distinguishing Financing and Operating Activities and the Effect of Leverage	366
<i>Financial Leverage</i>	366
<i>Operating Liability Leverage</i>	368
<i>Summing Financial Leverage and Operating Liability Leverage Effects on Shareholder Profitability</i>	370
<i>Return on Net Operating Assets and Return on Assets</i>	371
<i>Financial Leverage and Debt-to-Equity Ratios</i>	373
Second-Level Breakdown: Drivers of Operating Profitability	373
Third-Level Breakdown	376
<i>Profit Margin Drivers</i>	376
<i>Turnover Drivers</i>	376
<i>Key Drivers</i>	379
<i>Borrowing Cost Drivers</i>	380
Build Your Own Analysis Engine	381
The Web Connection	382
Summary	382
Key Concepts	382
The Analyst's Toolkit	383
A Continuing Case: <i>Kimberly-Clark Corporation</i>	383
Concept Questions	384

Exercises 385
Minicase 391

Chapter 13 The Analysis of Growth and Sustainable Earnings 392

The Analyst's Checklist 393
What Is Growth? 393
 Warnings About Growth 394
Cutting to the Core: Sustainable Earnings 396
 Core Operating Income 396
 Issues in Identifying Core Operating Income 397
 Core Operating Profitability 404
 Core Borrowing Cost 406
Analysis of Growth 407
 Growth Through Profitability 407
 Operating Leverage 408
 Analysis of Changes in Financing 409
 Analysis of Growth in Shareholders' Equity 409
Growth, Sustainable Earnings, and the Evaluation of P/B Ratios and P/E Ratios 411
 How Price-to-Book Ratios and Trailing P/E Ratios Articulate 411
 Trailing Price-Earnings Ratios and Transitory Earnings 414
 P/E Ratios and the Analysis of Sustainable Earnings 416
 Price-to-Book and Growth 416
Summary 417
The Web Connection 417
Key Concepts 418
The Analyst's Toolkit 419
A Continuing Case: *Kimberly-Clark Corporation* 419
Concept Questions 420
Exercises 421
Minicases 425

PART THREE FORECASTING AND VALUATION ANALYSIS 434

Chapter 14 The Value of Operations and the Evaluation of Enterprise Price-to-Book Ratios and Price-Earnings Ratios 436

The Analyst's Checklist 437

A Modification to Residual Earnings Forecasting: Residual Operating Income 438
 The Drivers of Residual Operating Income 441
A Modification to Abnormal Earnings Growth Forecasting: Abnormal Growth in Operating Income 443
 Abnormal Growth in Operating Income and the "Dividend" from Operating Activities 443
 Eye on the Future: Sustainable Income 445
The Cost of Capital and Valuation 445
 The Cost of Capital for Operations 446
 The Cost of Capital for Debt 447
 Operating Risk, Financing Risk, and the Cost of Equity Capital 448
Financing Risk and Return and the Valuation of Equity 450
 Leverage and Residual Earnings Valuation 450
 Leverage and Abnormal Earnings Growth Valuation 451
 Leverage Creates Earnings Growth 456
 Debt and Taxes 459
Mark-to-Market Accounting: A Tool for Incorporating the Liability for Stock Options in Valuation 461
Enterprise Multiples 463
 Enterprise Price-to-Book Ratios 463
 Enterprise Price-Earnings Ratios 465
Summary 468
The Web Connection 468
Key Concepts 469
The Analyst's Toolkit 469
A Continuing Case: *Kimberly-Clark Corporation* 470
Concept Questions 471
Exercises 472
Minicase 477

Chapter 15 Anchoring on the Financial Statements: Simple Forecasting and Simple Valuation 480

The Analyst's Checklist 481
Simple Forecasts and Simple Valuations 482
 Introducing PPE, Inc. 482
 The No-Growth Forecast and Valuation 483
 The Growth Forecast and Valuation 484
Simple Forecasting: Adding information to Financial Statement Information 488
 Weighed-Average Forecasts of Growth 488

<i>Simple Valuations with Short-Term and Long-Term Growth Rates</i>	488
<i>Growth in Sales as a Simple Forecast of Growth</i>	489
<i>Information in Analysts' Forecasts</i>	490
Simple Valuation as an Analysis Tool	491
<i>Sensitivity Analysis</i>	491
<i>Reverse Engineering to Challenge the Market Price</i>	491
Summary	492
The Web Connection	493
Key Concepts	493
The Analyst's Toolkit	493
A Continuing Case: <i>Kimberly-Clark Corporation</i>	494
Concept Questions	494
Exercises	494
Minicases	500

Chapter 16

Full-Information Forecasting, Valuation, and Business Strategy Analysis 504

The Analyst's Checklist	505
Financial Statement Analysis: Focusing the Lens on the Business	505
1. <i>Focus on Residual Operating Income and Its Drivers</i>	506
2. <i>Focus on Change</i>	507
3. <i>Focus on Key Drivers</i>	514
4. <i>Focus on Choices Versus Conditions</i>	515
Full-Information Forecasting and Pro Forma Analysis	515
<i>A Forecasting Template</i>	520
<i>Features of Accounting-Based Valuation</i>	525
Value Generated in Share Transactions	526
<i>Mergers and Acquisitions</i>	527
<i>Share Repurchases and Buyouts</i>	528
Financial Statement Indicators and Red Flags	528
Business Strategy Analysis and Pro Forma Analysis	530
<i>Unarticulated Strategy</i>	530
<i>Scenario Analysis</i>	531
The Web Connection	532
Summary	532
Key Concepts	533
The Analyst's Toolkit	533
A Continuing Case: <i>Kimberly-Clark Corporation</i>	534
Concept Questions	534
Exercises	535
Minicases	542

PART FOUR ACCOUNTING ANALYSIS AND VALUATION 552

Chapter 17

Creating Accounting Value and Economic Value 554

The Analyst's Checklist	555
Value Creation and the Creation of Residual Earnings	555
Accounting Methods, Price-to-Book Ratios, Price-Earnings Ratios, and the Valuation of Going Concerns	558
<i>Accounting Methods with a Constant Level of Investment</i>	558
<i>Accounting Methods with a Changing Level of Investment</i>	561
<i>An Exception: LIFO Accounting</i>	565
Hidden Reserves and the Creation of Earnings	566
Conservative and Liberal Accounting in Practice	570
<i>LIFO Versus FIFO</i>	571
<i>Research and Development in the Pharmaceuticals Industry</i>	572
<i>Expensing Goodwill and Research and Development Expenditures</i>	573
<i>Liberal Accounting: Breweries and Hotels</i>	574
<i>Profitability in the 1990s</i>	574
<i>Economic-Value-Added Measures</i>	575
Accounting Methods and the Forecast Horizon	575
<i>The Quality of Cash Accounting and Discounted Cash Flow Analysis</i>	576
<i>Growth, Risk, and Valuation</i>	577
Summary	578
The Web Connection	579
Key Concepts	579
The Analyst's Toolkit	580
Concept Questions	580
Exercises	581
Minicase	586

Chapter 18

Analysis of the Quality of Financial Statements 590

The Analyst's Checklist	591
What Is Accounting Quality?	591
<i>Accounting Quality Watch</i>	592
<i>Five Questions About Accounting Quality</i>	593

Cutting Through the Accounting:	
Detecting Income Shifting	594
<i>Separating What We Know from Speculation</i>	597
<i>Prelude to a Quality Analysis</i>	598
<i>Quality Diagnostics</i>	600
<i>Diagnostics to Detect Manipulated Sales</i>	603
<i>Diagnostics to Detect Manipulation of Core Expenses</i>	604
<i>Diagnostics to Detect Manipulation of Unusual Items</i>	612
Detecting Transaction Manipulation	614
Core Revenue Timing	614
Core Revenue Structuring	614
Core Expense Timing	615
Releasing Hidden Reserves	615
Other Core Income Timing	616
Unusual Income Timing	616
Organizational Manipulation: Off-Balance-Sheet Operations	616
Justifiable Manipulation?	617
Disclosure Quality	617
Quality Scoring	618
Abnormal Returns to Quality Analysis	620
Summary	621
The Web Connection	621
Key Concepts	621
The Analyst's Toolkit	622
Concept Questions	623
Exercises	624
Minicases	633
PART FIVE	
THE ANALYSIS OF RISK AND RETURN 640	
Chapter 19	
The Analysis of Equity Risk and Return for Active Investing 642	
The Analyst's Checklist	643
The Required Return and the Expected Return	643
The Nature of Risk	644
<i>The Distribution of Returns</i>	644
<i>Diversification and Risk</i>	648
<i>Asset Pricing Models</i>	649
Fundamental Risk	651
<i>Risk to the Return on Common Equity</i>	653
<i>Growth Risk</i>	654
Value-at-Risk Profiling	654
<i>Adaptation Options and Growth Options</i>	659
<i>Strategy and Risk</i>	660
<i>Discounting for Risk</i>	660
Price Risk	661
<i>Market Inefficiency Risk</i>	661
<i>Liquidity Risk</i>	664
Inferring Expected Returns for Active Investing	664
<i>Growth-Return Profiles</i>	666
<i>Finessing the Required Return Problem</i>	667
<i>Evaluating Implied Expected Returns with Value-at-Risk Profiles</i>	667
<i>Investing Within Risk Classes</i>	668
<i>Beware of Paying for Risky Growth</i>	668
<i>Expected Returns in Uncertain Times</i>	670
Summary	670
The Web Connection	671
Key Concepts	671
The Analyst's Toolkit	672
Concept Questions	672
Exercises	672
Minicase	678
Chapter 20	
The Analysis of Credit Risk and Return 680	
The Analyst's Checklist	681
The Suppliers of Credit	681
Financial Statement Analysis for Credit Evaluation	682
<i>Reformulated Financial Statements</i>	682
<i>Short-Term Liquidity Ratios</i>	684
<i>Long-Term Solvency Ratios</i>	686
<i>Operating Ratios</i>	687
Forecasting and Credit Analysis	687
<i>Prelude to Forecasting: The Interpretive Background</i>	687
<i>Ratio Analysis and Credit-Scoring</i>	688
<i>Full-Information Forecasting</i>	692
<i>Required Return, Expected Return, and Active Debt Investing</i>	695
Active Bond Investing	696
Liquidity Planning and Financial Strategy	696
The Web Connection	697
Summary	697
Key Concepts	698
The Analyst's Toolkit	698
Concept Questions	699
Exercises	699
Minicase	704
Appendix	
A Summary of Formulas 709	
Index 725	