# **Investment Banking**

Valuation, Leveraged Buyouts, and Mergers & Acquisitions

# JOSHUA ROSENBAUM JOSHUA PEARL



## Contents

About the Authors	Xiii
Foreword	XV
Acknowledgments	xvii
Supplemental Materials	xxi
INTRODUCTION	1
Structure of the Book	2
Part One: Valuation (Chapters 1–3)	3
Part Two: Leveraged Buyouts (Chapters 4 & 5)	5
Part Three: Mergers & Acquisitions (Chapter 6)	6
ValueCo Summary Financial Information	6

#### PART ONE

#### Valuation

CHAPTER 1	
Comparable Companies Analysis	11
Summary of Comparable Companies Analysis Steps	12
Step I. Select the Universe of Comparable Companies	15
Study the Target	15
Identify Key Characteristics of the Target for Comparison	
Purposes	16
Screen for Comparable Companies	20
Step II. Locate the Necessary Financial Information	21
SEC Filings: 10-K, 10-Q, 8-K, and Proxy Statements	21
Equity Research	23
Press Releases and News Runs	24
Financial Information Services	24
Summary of Financial Data Primary Sources	24
Step III. Spread Key Statistics, Ratios, and Trading Multiples	25
Calculation of Key Financial Statistics and Ratios	27
Supplemental Financial Concepts and Calculations	39
Calculation of Key Trading Multiples	44
Step IV. Benchmark the Comparable Companies	48
Benchmark the Financial Statistics and Ratios	48
Benchmark the Trading Multiples	48

49
50
50
52
53
53
54
55
65
69

#### **CHAPTER 2**

Precedent Transactions Analysis	71
Summary of Precedent Transactions Analysis Steps	72
Step I. Select the Universe of Comparable Acquisitions	75
Screen for Comparable Acquisitions	75
Examine Other Considerations	75
Step II. Locate the Necessary Deal-Related and Financial Information	77
Public Targets	78
Private Targets	80
Summary of Primary SEC Filings in M&A Transactions	81
Step III. Spread Key Statistics, Ratios, and Transaction Multiples	81
Calculation of Key Financial Statistics and Ratios	81
Calculation of Key Transaction Multiples	89
Step IV. Benchmark the Comparable Acquisitions	92
Step V. Determine Valuation	93
Key Pros and Cons	94
Illustrative Precedent Transaction Analysis for ValueCo	95
Step I. Select the Universe of Comparable Acquisitions	95
Step II. Locate the Necessary Deal-Related and Financial	
Information	95
Step III. Spread Key Statistics, Ratios, and Transaction Multiples	98
Step IV. Benchmark the Comparable Acquisitions	105
Step V. Determine Valuation	106

### CHAPTER 3

Discounted Cash Flow Analysis	109
Summary of Discounted Cash Flow Analysis Steps	110
Step I. Study the Target and Determine Key Performance Drivers	114
Study the Target	114
Determine Key Performance Drivers	114
Step II. Project Free Cash Flow	115
Considerations for Projecting Free Cash Flow	115
Projection of Sales, EBITDA, and EBIT	116
Projection of Free Cash Flow	118
Step III. Calculate Weighted Average Cost of Capital	124
Step III(a): Determine Target Capital Structure	125
Step III(b): Estimate Cost of Debt $(r_d)$	126

Step III(c): Estimate Cost of Equity $(r_e)$	127
Step III(d): Calculate WACC	131
Step IV. Determine Terminal Value	131
Exit Multiple Method	132
Perpetuity Growth Method	132
Step V. Calculate Present Value and Determine Valuation	134
Calculate Present Value	134
Determine Valuation	135
Perform Sensitivity Analysis	137
Key Pros and Cons	139
Illustrative Discounted Cash Flow Analysis for ValueCo	140
Step I. Study the Target and Determine Key Performance Drivers	140
Step II. Project Free Cash Flow	140
Step III. Calculate Weighted Average Cost of Capital	146
Step IV. Determine Terminal Value	151
Step V. Calculate Present Value and Determine Valuation	153

#### PART TWO

#### **Leveraged Buyouts**

CHAPTER 4	
Leveraged Buyouts	161
Key Participants	163
Financial Sponsors	163
Investment Banks	164
Bank and Institutional Lenders	165
Bond Investors	166
Target Management	167
Characteristics of a Strong LBO Candidate	168
Strong Cash Flow Generation	169
Leading and Defensible Market Positions	169
Growth Opportunities	169
Efficiency Enhancement Opportunities	170
Low Capex Requirements	170
Strong Asset Base	171
Proven Management Team	171
Economics of LBOs	171
Returns Analysis – Internal Rate of Return	171
Returns Analysis – Cash Return	172
How LBOs Generate Returns	173
How Leverage is Used to Enhance Returns	174
Primary Exit/Monetization Strategies	176
Sale of Business	177
Initial Public Offering	177
Dividend Recapitalization	177
LBO Financing: Structure	178
LBO Financing: Primary Sources	180
Bank Debt	180

#### İX

High Yield Bonds	184
Mezzanine Debt	186
Equity Contribution	187
LBO Financing: Selected Key Terms	188
Security	188
Seniority	189
Maturity	190
Coupon	190
Call Protection	191
Covenants	192

#### CHAPTER 5 LBO Anal

30 Analysis	195
Financing Structure	195
Valuation	195
Step I. Locate and Analyze the Necessary Information	198
Step II. Build the Pre-LBO Model	198
Step II(a): Build Historical and Projected Income Statement	
through EBIT	199
Step II(b): Input Opening Balance Sheet and Project Balance	
Sheet Items	201
Step II(c): Build Cash Flow Statement through Investing Activities	203
Step III. Input Transaction Structure	206
Step III(a): Enter Purchase Price Assumptions	206
Step III(b): Enter Financing Structure into Sources and Uses	208
Step III(c): Link Sources and Uses to Balance Sheet	
Adjustments Columns	209
Step IV. Complete the Post-LBO Model	215
Step IV(a): Build Debt Schedule	215
Step IV(b): Complete Pro Forma Income Statement from	
EBIT to Net Income	222
Step IV(c): Complete Pro Forma Balance Sheet	224
Step IV(d): Complete Pro Forma Cash Flow Statement	226
Step V. Perform LBO Analysis	230
Step V(a): Analyze Financing Structure	230
Step V(b): Perform Returns Analysis	232
Step V(c): Determine Valuation	235
Step V(d): Create Transaction Summary Page	236
Illustrative LBO Analysis for ValueCo	238
Transaction Summary	238
Income Statement	238
Balance Sheet	238
Cash Flow Statement	238
Debt Schedule	238
Returns Analysis	238
Assumptions Page 1—Income Statement and Cash Flow Statement	238
Assumptions Page 2—Balance Sheet	238
Assumptions Page 3—Financing Structures and Fees	238

#### PART THREE

#### **Mergers & Acquisitions**

CHAPTER 6	051
M&A Sale Process	<b>251</b>
Auctions	252
Auction Structure	255 257
Organization and Preparation	257 257
Identify Seller Objectives and Determine Appropriate Sale Process Perform Sell-Side Advisor Due Diligence and Preliminary	
Valuation Analysis	257
Select Buyer Universe	258
Prepare Marketing Materials	259
Prepare Confidentiality Agreement	261
First Round	262
Contact Prospective Buyers	262
Negotiate and Execute Confidentiality Agreement with Interested Parties	263
Distribute Confidential Information Memorandum and	200
Initial Bid Procedures Letter	263
Prepare Management Presentation	263
Set up Data Room	264
Prepare Stapled Financing Package	265
Receive Initial Bids and Select Buyers to Proceed to Second Round	267
Second Round	270
Conduct Management Presentations	270
Facilitate Site Visits	271
Provide Data Room Access	271
Distribute Final Bid Procedures Letter and Draft Definitive	2/1
	272
Agreement Receive Final Bids	272
	276
Negotiations	
Evaluate Final Bids	277
Negotiate with Preferred Buyer(s)	277
Select Winning Bidder	277
Render Fairness Opinion	277
Receive Board Approval and Execute Definitive Agreement	278
Closing	278
Obtain Necessary Approvals	278
Financing and Closing	280
Negotiated Sale	281
Bibliography and Recommended Reading	283
Index	289

# **About the Authors**



JOSHUA ROSENBAUM is an Executive Director at UBS Investment Bank in the Global Industrial Group. He advises on, structures, and originates M&A, corporate finance, and capital markets transactions. Previously, he worked at the International Finance Corporation, the direct investment division of the World Bank. He received his AB from Harvard and his MBA with Baker Scholar honors from Harvard Business School. Rosenbaum is the coauthor of the HBS case study "OAO YUKOS Oil Company."



JOSHUA PEARL has structured and executed numerous leveraged loan and high yield bond financings, as well as LBOs and restructurings, for Deutsche Bank's Leveraged Finance Group. Previously, he worked at A.G. Edwards in the Investment Banking Division. Pearl has also designed and taught corporate finance training courses. He received his BS in Business from Indiana University's Kelley School of Business.

#### **CONTACT THE AUTHORS**

Please feel free to contact Joshua Rosenbaum and Joshua Pearl with any questions, comments, or suggestions for future editions at josh@investmentbankingbook.com.

### Foreword

Mark Twain, long known for his critical views of formal education, once wisely noted: "I never let my schooling interfere with my education."

Twain's one-liner strikes at the core of investment banking, where deals must be lived before proper knowledge and understanding can be obtained. Hard time must be spent doing deals, with complexities in valuation, terms, and negotiations unique to every situation. The truly great firms and dealmakers have become so by developing cultures of apprenticeship that transfer knowledge and creativity from one generation to the next. The task of teaching aspiring investment bankers and finance professionals has been further complicated by the all-consuming nature of the trade, as well as its constantly evolving art and science.

Therefore, for me personally, it's exciting to see Joshua Rosenbaum and Joshua Pearl take the lead in training a new generation of investment bankers. Their work in documenting valuation and deal process in an accessible manner is a particularly important contribution as many aspects of investment banking cannot be taught, even in the world's greatest universities and business schools. Rosenbaum and Pearl provide aspiring—and even the most seasoned—investment bankers with a unique real-world education inside Wall Street's less formal classroom, where deals come together at real-time speed.

The school of hard knocks and of learning-by-doing, which was Twain's classroom, demands strong discipline and sound acumen in the core fundamentals of valuation. It requires applying these techniques to improve the quality of deals for all parties, so that dealmakers can avoid critical and costly mistakes, as well as unnecessary risks. My own 35 plus years of Wall Street education has clearly demonstrated that valuation is at the core of investment banking. Any banker worth his salt must possess the ability to properly value a business in a structured and defensible manner. This logic and rationale must inspire clients and counterparties alike, while spurring strategic momentum and comprehension into the art of doing the deal.

Rosenbaum and Pearl succeed in providing a systematic approach to addressing a critical issue in any M&A, IPO, or investment situation—namely, how much is a business or transaction worth. They also put forth the framework for helping approach more nuanced questions such as how much to pay for the business and how to get the deal done. Due to the lack of a comprehensive written reference material on valuation, the fundamentals and subtlety of the trade are often passed on orally from banker-to-banker on a case-by-case basis. In codifying the art and science of investment banking, the authors convert this oral history into an accessible framework by bridging the theoretical to the practical with user-friendly, step-by-step approaches to performing primary valuation methodologies.

Many seasoned investment bankers commonly lament the absence of relevant and practical "how-to" materials for newcomers to the field. The reality is that most financial texts on valuation and M&A are written by academics. The few books written by practitioners tend to focus on dramatic war stories and hijinks, rather than the nuts-and-bolts of the techniques used to get deals done. Rosenbaum and Pearl fill this heretofore void for practicing and aspiring investment bankers and finance professionals. Their book is designed to prove sufficiently accessible to a wide audience, including those with a limited finance background.

It is true that we live in uncertain and volatile times—times that have destroyed or consumed more than a few of the most legendary Wall Street institutions. However, one thing will remain a constant in the long-term—the need for skilled finance professionals with strong technical expertise. Companies will always seek counsel from experienced and independent professionals to analyze, structure, negotiate, and close deals as they navigate the market and take advantage of value-creating opportunities. Rosenbaum and Pearl promulgate a return to the fundamentals of due diligence and the use of well-founded realistic assumptions governing growth, profitability, and approach to risk. Their work toward instilling the proper skill set and mindset in aspiring generations of Wall Street professionals will help establish a firm foundation for driving a brighter economic future.

> JOSEPH R. PERELLA Chairman and CEO, Perella Weinberg Partners

### **Acknowledgments**

We are deeply indebted to the numerous colleagues and peers who provided invaluable guidance, input, and hard work to help make this book possible.

Our book could not have been completed without the sage advice and enthusiasm of **Steve Momper**, Director of Darden Business Publishing at the University of Virginia. Steve believed in our book from the beginning and supported throughout the entire process. Most importantly, he introduced us to our publisher, John Wiley & Sons, Inc.

Special thanks to Ryan Drook, Joseph Meisner, Michael Lanzarone, Joseph Bress, Benjamin Hochberg, James Paris, and Peter M. Goodson for their insightful editorial contributions. As top-notch professionals in investment banking and private equity, their expertise and practical guidance proved invaluable. Many thanks to Eric Leicht, Greg Pryor, Steven Sherman, Mark Gordon, Jennifer DiNucci, and Ante Vucic for their exhaustive work in assisting with the legal nuances of our book. As partners at the nation's leading corporate law firms, their oversight helped ensure the accuracy and timeliness of the content.

We'd like to thank the outstanding team at Wiley. **Bill Falloon**, our acquisition editor, was always accessible and the consummate professional. He never wavered in his vision and support, and provided strong leadership throughout the entire process. **Joan O'Neil**, our publisher, impressed upon us the capabilities of the Wiley franchise and championed our book both internally and externally. **Alla Spivak**, our marketing coordinator, helped us realize our vision through her creativity and foresight. **Meg Freeborn**, **Mary Daniello**, and **Brigitte Coulton** (of Aptara), our production team, facilitated a smooth editorial process. **Skyler Balbus**, our associate editor, worked diligently to ensure all the ancillary details were addressed.

We also want to express immeasurable gratitude to our families and friends for their encouragement, support, and sacrifice during the weekends and holidays that ordinarily would have been dedicated to them.

This book could not have been completed without the efforts and reviews of the following individuals:

Mark Adler, Piper Jaffray

Kenneth Ahern, University of Michigan, Ross School of Business Marc Auerbach, Standard & Poor's/Leveraged Commentary & Data Carliss Baldwin, Harvard Business School Kyle Barker, UBS Investment Bank Ronnie Barnes, Royal Bank of Scotland Joshua Becker, Stockwell Capital Joseph Bress, The Carlyle Group Thomas Cole, HSBC Securities Aswath Damodaran, New York University, Stern School of Business Thomas Davidoff, University of California Berkeley, Haas School of Business Victor Delaglio, Deutsche Bank Jennifer Fonner DiNucci, Cooley Godward Kronish LLP Wojciech Domanski, MidOcean Partners Ryan Drook, Deutsche Bank Chris Falk, Florida State University – Panama City Heiko Freitag, GSO Capital Partners Mark Funk, EVP & CFO, Mobile Mini, Inc. Andrew Gladston, UBS Investment Bank Peter D. Goodson, University of California Berkeley, Haas School of Business and Columbia Business School Peter M. Goodson, Fortress Investment Group Mark Gordon, Wachtell, Lipton, Rosen & Katz Gary Gray, Pennsylvania State University, Smeal School of Business David Haeberle, Indiana University, Kelley School of Business John Haynor, UBS Investment Bank Milwood Hobbs, Goldman Sachs Benjamin Hochberg, Lee Equity Partners, LLC Alec Hufnagel, Kelso & Company Jon Hugo, Deutsche Bank Roger Ibbotson, Yale School of Management Cedric Jarrett, Deutsche Bank John Joliet, UBS Investment Bank Tamir Kaloti, Deutsche Bank Michael Kamras, Credit Suisse Kenneth Kim, State University of New York at Buffalo, School of Management Eric Klar, MNC Partners, LLC Kenneth Kloner, UBS Investment Bank Philip Konnikov, UBS Investment Bank Alex Lajoux, National Association of Corporate Directors, Coauthor of "The Art of M&A" Series Ian Lampl Michael Lanzarone, CFA, Barclays Capital Eu-Han Lee, Indus Capital Advisors (HK) Ltd. Franky Lee, Deutsche Bank Eric Leicht, White & Case LLP Jay Lurie, Macquarie Capital

David Mayhew, Deutsche Bank Coley McMenamin, Banc of America Securities Joseph Meisner, UBS Investment Bank Steve Momper, University of Virginia, Darden Business Publishing Kirk Murphy, Benchmark Capital Joshua Neren Paul Pai, Deutsche Bank **James** Paris Dan Park, Deutsche Bank Gregory Pryor, White & Case LLP David Ross, Deutsche Bank Ashish Rughwani, Dominus Capital David Sanford, UBS Investment Bank Arnold Schneider, Georgia Tech College of Management Mustafa Singaporewalla Steven Sherman, Shearman & Sterling LLP Andrew Shogan Emma Smith, Deutsche Bank David Spalding, Dartmouth College Andrew Steinerman, JP Morgan Matthew Thomson Robb Tretter, Bracewell & Giuliani LLP John Tripodoro, Cahill Gordon & Reindel LLP Ante Vucic, Wachtell, Lipton, Rosen & Katz Jack Whalen, Kensico Capital