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Investment Banking

Valuation, Leveraged Buyouts, and Mergers & Acquisitions

JOSHUA ROSENBAUM
JOSHUA PEARL

FOREWORD BY JOSEPH R. PERELLA

Investment Banking

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To my wife, Margo, for her unwavering love and support.

—J.R.

To the memory of my grandfather, Joseph Pearl, a Holocaust survivor, for his inspiration to persevere and succeed.

—J.P.

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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.

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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

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Supplemental Materials

VALUATION MODELS

The model templates (and completed versions) for the valuation methodologies discussed in this book are available in Microsoft Excel format at **www.wiley.com/go/investmentbanking—**password:wiley09. They will be updated for new accounting standards, as appropriate. The completed models match the input and output pages for the respective valuation methodologies. The company names and financial data in the models are completely illustrative. The website contains the following files:

Model Templates

- Comparable Companies_Template.xls
- Precedent Transactions_Template.xls
- DCF Analysis_Template.xls
- LBO Analysis_Template.xls

Completed Models

- Comparable Companies_Completed.xls
- Precedent Transactions_Completed.xls
- DCF Analysis_Completed.xls
- LBO Analysis_Completed.xls

Note: When opening the models in Microsoft Excel, please ensure that you perform the following procedure: in the main toolbar select Tools, select Options, select the "Calculation" tab, select Manual, select Iteration, and set "Maximum iterations:" to 1000 (also see Chapter 3, Exhibit 3.30). The model templates on the website are formatted with yellow shading and blue font to denote manual input cells. Black font denotes formula cells. In the text, however, gray shading is used to denote manual input cells, where possible. For Chapter 5: LBO Analysis, please reference the electronic version to view manual input and formula cells.

INSTRUCTOR TEACHING AIDS

To accompany the chapters, we have included a test bank of over 300 questions and answers for classroom and other instructional use. The test bank can be accessed by instructors in Microsoft Word format at **www.wiley.com/go/investmentbanking**. The test bank is also available in interactive format to facilitate online testing. The website includes the following files:

- Chapter 1_Comparable Companies Analysis_Q&A.doc
- Chapter 2_Precedent Transactions Analysis_Q&A.doc
- Chapter 3_Discounted Cash Flow Analysis_Q&A.doc
- Chapter 4_Leveraged Buyouts_Q&A.doc
- Chapter 5_Leveraged Buyout Analysis_Q&A.doc
- Chapter 6_M&A Sale Process_Q&A.doc

Investment Banking

Introduction

In the constantly evolving world of finance, a solid technical foundation is an essential tool for success. Due to the fast-paced nature of this world, however, no one has been able to take the time to properly codify the lifeblood of the corporate financier's work—namely, valuation. We have responded to this need by writing the book that we wish had existed when we were trying to break into Wall Street. *Investment Banking: Valuation, Leveraged Buyouts, and Mergers & Acquisitions* is a highly accessible and authoritative book written by investment bankers that explains how to perform the valuation work at the core of the financial world. This book fills a noticeable gap in contemporary finance literature, which tends to focus on theory rather than practical application.

In the aftermath of the subprime mortgage crisis and ensuing credit crunch, the world of finance is returning to the fundamentals of valuation and critical due diligence for mergers & acquisitions (M&A), capital markets, and investment opportunities. This involves the use of more realistic assumptions governing approach to risk as well as a wide range of valuation drivers, such as expected financial performance, discount rates, multiples, leverage levels, and financing terms. While valuation has always involved a great deal of "art" in addition to time-tested "science," the artistry is perpetually evolving in accordance with market developments and conditions. In this sense, our book is particularly topical—in addition to detailing the technical fundamentals behind valuation, we infuse practical judgment skills and perspective to help guide the science.

The genesis for this book stemmed from our personal experiences as students seeking to break into Wall Street. As we both independently went through the rigorous process of interviewing for associate and analyst positions at investment banks and other financial firms, we realized that our classroom experience was a step removed from how valuation and financial analysis is performed in real world situations. This was particularly evident during the technical portion of the interviews, which is often the differentiator for recruiters trying to select among dozens of qualified candidates.

Faced with this reality, we searched in vain for a practical how-to guide on the primary valuation methodologies used on Wall Street. At a loss, we resorted to compiling bits and pieces from various sources and ad hoc conversations with friends and contacts already working in investment banking. Needless to say, we didn't feel as prepared as we would have liked. While we were fortunate enough to secure job offers, the process left a deep impression on us. In fact, we continued to refine the comprehensive preparatory materials we had created as students, which served as the foundation for this book.

Once on Wall Street, we both went through mandatory training consisting of crash courses on finance and accounting, which sought to teach us the skill set necessary to become effective investment bankers. Months into the job, however, even the limitations of this training were revealed. Actual client situations and deal complexities, combined with evolving market conditions, accounting guidelines, and technologies stretched our knowledge base and skills. In these situations, we were forced to consult with senior colleagues for guidance, but often the demands of the job left no one accessible in a timely manner. Given these realities, it is difficult to overstate how helpful a reliable handbook based on years of "best practices" and deal experience would have been.

Consequently, we believe this book will prove invaluable to those individuals seeking or beginning careers on Wall Street—from students at undergraduate universities and graduate schools to "career changers" looking to break into finance. For working professionals, this book is also designed to serve as an important reference material. Our experience has demonstrated that given the highly specialized nature of many finance jobs, there are noticeable gaps in skill sets that need to be addressed. Furthermore, many professionals seek to continuously brush up on their skills as well as broaden and refine their knowledge base. This book will also be highly beneficial for trainers and trainees at Wall Street firms, both within the context of formal training programs and informal on-the-job training.

Our editorial contributors from private equity firms and hedge funds have also identified the need for a practical valuation handbook for their investment professionals and key portfolio company executives. Many of these professionals come from a consulting or operational background and do not have a finance pedigree. Furthermore, the vast majority of buy-side investment firms do not have in-house training programs and rely heavily upon on-the-job training. This book will serve as a helpful reference guide for individuals joining, or seeking jobs at, these institutions.

This book also provides essential tools for professionals at corporations, including members of business development, finance, and treasury departments. These specialists are responsible for corporate finance, valuation, and transaction-related deliverables on a daily basis. They also work with investment bankers on various M&A transactions (including leveraged buyouts (LBOs) and related financings), as well as initial public offerings (IPOs), restructurings, and other capital markets transactions. Similarly, this book is intended to provide greater context for the legions of attorneys, consultants, and accountants focused on M&A, corporate finance, and other transaction advisory services.

Given the increasing globalization of the financial world, this book is designed to be sufficiently universal for use outside of North America. Our work on cross-border transactions—including in rapidly developing markets such as Asia, Latin America, Russia, and India—has revealed a tremendous appetite for skilled resources throughout the globe. Therefore, this book fulfills an important need as a valuable training material and reliable handbook for finance professionals in these markets.

STRUCTURE OF THE BOOK

This book focuses on the primary valuation methodologies currently used on Wall Street, namely comparable companies analysis, precedent transactions analysis, discounted cash flow analysis, and leveraged buyout analysis. These methodologies are used to determine valuation for public and private companies within the context of M&A transactions, LBOs, IPOs, restructurings, and investment decisions. They also form the cornerstone for valuing companies on a standalone basis, including an assessment of whether a given public company is overvalued or undervalued. Using a step-by-step, how-to approach for each methodology, we build a chronological knowledge base and define key terms, financial concepts, and processes throughout the book. We also provide context for the various valuation methodologies through a comprehensive overview of the fundamentals of LBOs and an organized M&A sale process, including key participants, financing sources and terms, strategies, milestones, and legal and marketing documentation.

This body of work builds on our combined experience on a multitude of transactions, as well as input received from numerous investment bankers, investment professionals at private equity firms and hedge funds, attorneys, corporate executives, peer authors, and university professors. By drawing upon our own transaction and classroom experience, as well as that of a broad network of professional and professorial sources, we bridge the gap between academia and industry as it relates to the practical application of finance theory. The resulting product is accessible to a wide audience—including those with a limited finance background—as well as sufficiently detailed and comprehensive to serve as a primary reference tool and training guide for finance professionals.

This book is organized into three primary parts, as summarized below.

Part One: Valuation (Chapters 1–3)

Part One focuses on the three most commonly used methodologies that serve as the core of a comprehensive valuation toolset—comparable companies analysis (Chapter 1), precedent transactions analysis (Chapter 2), and discounted cash flow analysis (Chapter 3). Each of these chapters employs a user-friendly, how-to approach to performing the given valuation methodology while defining key terms, detailing various calculations, and explaining advanced financial concepts.

At the end of each chapter, we use our step-by-step approach to determine a valuation range for an illustrative target company, ValueCo Corporation ("ValueCo"), in accordance with the given methodology. The Base Case set of financials for ValueCo that forms the basis for our valuation work throughout the book is provided in Exhibits I.I to I.III. In addition, all of the valuation models and output pages used in this book are accessible in electronic format on our website, **www.wiley.com/go/investmentbanking**.

Chapter 1: Comparable Companies Analysis Chapter 1 provides an overview of comparable companies analysis ("comparable companies" or "trading comps"), one of the primary methodologies used for valuing a given focus company, division, business, or collection of assets ("target"). Comparable companies provides a market benchmark against which a banker can establish valuation for a private company or analyze the value of a public company at a given point in time. It has a broad range of applications, most notably for various M&A situations, IPOs, restructurings, and investment decisions.

The foundation for trading comps is built upon the premise that similar companies provide a highly relevant reference point for valuing a given target as they share key business and financial characteristics, performance drivers, and risks. Therefore, valuation parameters can be established for the target by determining its relative positioning among peer companies. The core of this analysis involves selecting a universe of comparable companies for the target. These peer companies are benchmarked against one another and the target based on various financial statistics and ratios. Trading multiples—which utilize a measure of value in the numerator and an operating metric in the denominator—are then calculated for the universe. These multiples provide a basis for extrapolating a valuation range for the target.

Chapter 2: Precedent Transactions Analysis Chapter 2 focuses on precedent transactions analysis ("precedent transactions" or "transaction comps") which, like comparable companies, employs a multiples-based approach to derive an implied valuation range for a target. Precedent transactions is premised on multiples paid for comparable companies in prior transactions. It has a broad range of applications, most notably to help determine a potential sale price range for a company, or part thereof, in an M&A or restructuring transaction.

The selection of an appropriate universe of comparable acquisitions is the foundation for performing precedent transactions. The best comparable acquisitions typically involve companies similar to the target on a fundamental level. As a general rule, the most recent transactions (i.e., those that have occurred within the previous two to three years) are the most relevant as they likely took place under similar market conditions to the contemplated transaction. Potential buyers and sellers look closely at the multiples that have been paid for comparable acquisitions. As a result, bankers and investment professionals are expected to know the transaction multiples for their sector focus areas.

Chapter 3: Discounted Cash Flow Analysis Chapter 3 discusses discounted cash flow analysis ("DCF analysis" or the "DCF"), a fundamental valuation methodology broadly used by investment bankers, corporate officers, academics, investors, and other finance professionals. The DCF has a wide range of applications, including valuation for various M&A situations, IPOs, restructurings, and investment decisions. It is premised on the principle that a target's value can be derived from the present value of its projected *free cash flow* (FCF). A company's projected FCF is derived from a variety of assumptions and judgments about its expected future financial performance, including sales growth rates, profit margins, capital expenditures, and net working capital requirements.

The valuation implied for a target by a DCF is also known as its *intrinsic value*, as opposed to its market value, which is the value ascribed by the market at a given point in time. Therefore, a DCF serves as an important alternative to market-based valuation techniques such as comparable companies and precedent transactions, which can be distorted by a number of factors, including market aberrations (e.g., the post-subprime credit crunch). As such, a DCF plays a valuable role as a check on the prevailing market valuation for a publicly traded company. A DCF is also critical when there are limited (or no) "pure play" peer companies or comparable acquisitions.