CFA INSTITUTE INVESTMENT SERIES

EQUITY ASSET VALUATION

Third Edition

Jerald E. Pinto, CFA ▪ Elaine Henry, CFA
Thomas R. Robinson, CFA ▪ John D. Stowe, CFA

Foreword by Paul F. Miller, Jr., CFA

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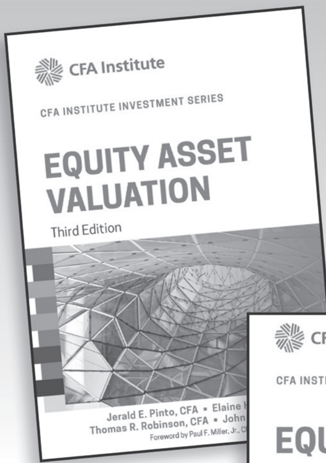

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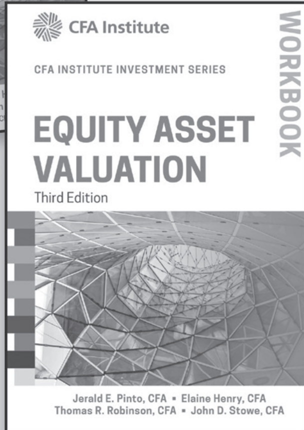

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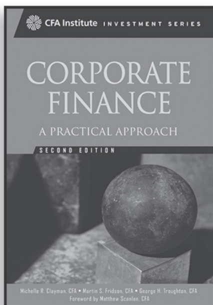

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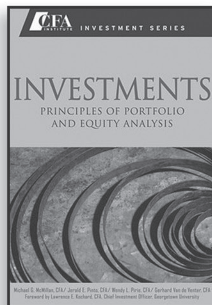

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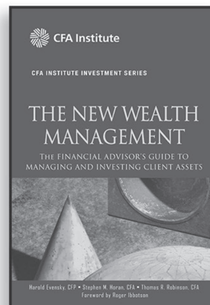

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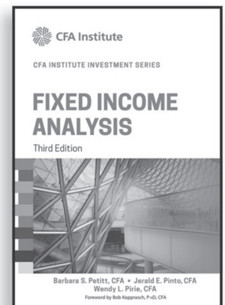

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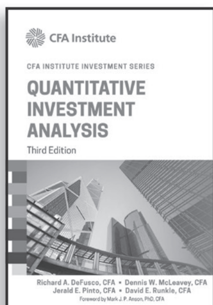

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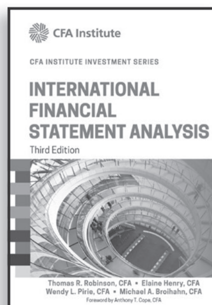

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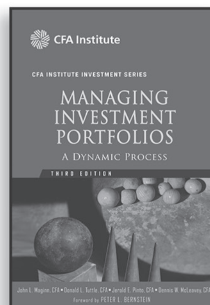

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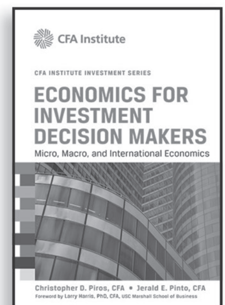

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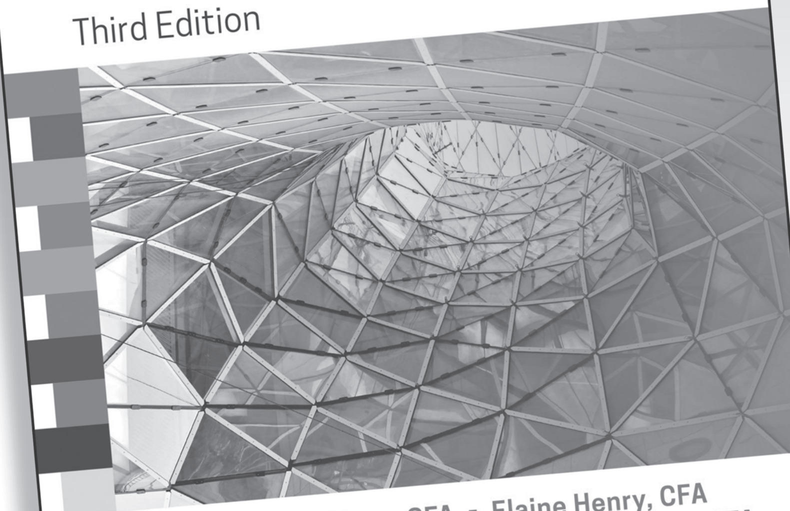

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Master the distinct methods of **equity asset valuation** with the companion Workbook

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EQUITY ASSET VALUATION

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EQUITY ASSET VALUATION

Third Edition

Jerald E. Pinto, CFA

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Thomas R. Robinson, CFA

John D. Stowe, CFA

with

Stephen E. Wilcox, CFA

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FOREWORD

Security analysis, for whatever purpose, is incomplete without a valuation of the asset being analyzed. So, studying the economics and finances of a business is simply preparation for that valuation.

When I entered the investment business in 1952, I was handed the task of analyzing and valuing about a dozen common stocks. My business school education had prepared me to analyze the economics and finances of a business, but it came up short on the elements of valuation techniques.

In those days, valuation thinking was still influenced by the Great Depression. Ridiculous as it may sound today, we tried to estimate what a company's earnings might be in the event of a recession in GDP in the range of 10 to 15 percent, with the next step being placing a multiplier on those depressed earnings. The result was what we called "sound value." Of course, the resulting values did not materialize in the bull market of the following years.

The art of security analysis has evolved significantly since then. What fascinates me is how and why the valuation techniques have evolved. The main cause, in my opinion, lies in the accumulating evidence that U.S. and world economies have become significantly more resilient to major declines. Today, for economically sensitive businesses, valuations tend to use normalizing techniques rather than attempting to estimate cyclical peaks and troughs.

The valuation methods explored in this book can be applied by different types of investors, in different market environments, and for different types of transactions. When reading Wall Street research reports or listening to financial TV programs, it is rare to see or hear a well-designed valuation. Usually, the valuation process consists of attaching an earnings multiple to an estimated earnings growth rate. This book provides an excellent review of the fundamentals and techniques used to value equity assets.

No single valuation technique suits all investors in all types of transactions, and this book adequately recognizes that fact. No matter your level of financial sophistication, you can benefit from reading it.

Paul F. Miller, Jr., CFA

PREFACE

We are pleased to bring you *Equity Asset Valuation, Third Edition*. We believe this book serves as a particularly important resource for anyone involved in estimating the value of securities and understanding security pricing.

The content was developed in partnership by a team of distinguished academics and practitioners, chosen for their acknowledged expertise in the field, and guided by CFA Institute. It is written specifically with the investment practitioner in mind and is replete with examples and practice problems that reinforce the learning outcomes and demonstrate real-world applicability.

The CFA Program Curriculum, from which the content of this book was drawn, is subjected to a rigorous review process to assure that it is:

- Faithful to the findings of our ongoing industry practice analysis
- Valuable to members, employers, and investors
- Globally relevant
- Generalist (as opposed to specialist) in nature
- Replete with sufficient examples and practice opportunities
- Pedagogically sound

The accompanying workbook is a useful reference that provides Learning Outcome Statements, which describe exactly what readers will learn and be able to demonstrate after mastering the accompanying material. Additionally, the workbook has summary overviews and practice problems for each chapter.

We hope you will find this and other books in the CFA Institute Investment Series helpful in your efforts to grow your investment knowledge, whether you are a relatively new entrant or an experienced veteran striving to keep up to date in the ever-changing market environment. CFA Institute, as a long-term committed participant in the investment profession and a not-for-profit global membership association, is pleased to provide you with this opportunity.

THE CFA PROGRAM

If the subject matter of this book interests you and you are not already a CFA Charterholder, we hope you will consider registering for the CFA Program and starting progress toward earning the Chartered Financial Analyst designation. The CFA designation is a globally recognized standard of excellence for measuring the competence and integrity of investment professionals. To earn the CFA charter, candidates must successfully complete the CFA Program, a global graduate-level self-study program that combines a broad curriculum with professional conduct requirements as preparation for a career as an investment professional.

Anchored by a practice-based curriculum, the CFA Program Body of Knowledge reflects the knowledge, skills, and abilities identified by professionals as essential to the investment decision-making process. This body of knowledge maintains its relevance through a regular, extensive survey of practicing CFA charterholders across the globe. The curriculum covers 10 general topic areas, ranging from equity and fixed-income analysis to portfolio management to corporate finance—all with a heavy emphasis on the application of ethics in professional practice. Known for its rigor and breadth, the CFA Program curriculum highlights principles common to every market so that professionals who earn the CFA designation have a thoroughly global investment perspective and a profound understanding of the global marketplace.

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Matthew L. Coffina, CFA
Patrick W. Dorsey, CFA
Anthony M. Fiore, CFA
Ian Rossa O'Reilly, CFA
Raymond D. Rath, CFA
Antonius J. van Ooijen, CFA

We are indebted to Stephen E. Wilcox, CFA, for his work in updating the in-text self-test examples for all but three chapters of this book. His contribution was essential to the fresh look of this third edition.

Wendy L. Pirie, CFA, and Gregory Siegel, CFA, helped in verifying the accuracy of the text. Margaret Hill, Wanda Lauziere, and Julia MacKesson and the production team at CFA Institute provided essential support through the various stages of production. Robert E. Lamy, CFA, and Christopher B. Wiese, CFA, encouraged and oversaw the production of a third edition.

Finally, we are honored that Paul F. Miller, Jr., CFA, agreed to provide this book with a foreword.

ABOUT THE CFA INSTITUTE INVESTMENT SERIES

CFA Institute is pleased to provide you with the CFA Institute Investment Series, which covers major areas in the field of investments. We provide this best-in-class series for the same reason we have been chartering investment professionals for more than 50 years: to lead the investment profession globally by setting the highest standards of ethics, education, and professional excellence.

The books in the CFA Institute Investment Series contain practical, globally relevant material. They are intended both for those contemplating entry into the extremely competitive field of investment management as well as for those seeking a means of keeping their knowledge fresh and up to date. This series was designed to be user friendly and highly relevant.

We hope you find this series helpful in your efforts to grow your investment knowledge, whether you are a relatively new entrant or an experienced veteran ethically bound to keep up to date in the ever-changing market environment. As a long-term, committed participant in the investment profession and a not-for-profit global membership association, CFA Institute is pleased to provide you with this opportunity.

THE TEXTS

Corporate Finance: A Practical Approach is a solid foundation for those looking to achieve lasting business growth. In today's competitive business environment, companies must find innovative ways to enable rapid and sustainable growth. This text equips readers with the foundational knowledge and tools for making smart business decisions and formulating strategies to maximize company value. It covers everything from managing relationships between stakeholders to evaluating merger and acquisition bids, as well as the companies behind them. Through extensive use of real-world examples, readers will gain critical perspective into interpreting corporate financial data, evaluating projects, and allocating funds in ways that increase corporate value. Readers will gain insights into the tools and strategies used in modern corporate financial management.

Fixed Income Analysis has been at the forefront of new concepts in recent years, and this particular text offers some of the most recent material for the seasoned professional who is not a fixed-income specialist. The application of option and derivative technology to the once staid province of fixed income has helped contribute to an explosion of thought in this area. Professionals have been challenged to stay up to speed with credit derivatives, swaptions, collateralized mortgage securities, mortgage-backed securities, and other vehicles, and this explosion of products has strained the world's financial markets and tested central banks to provide

sufficient oversight. Armed with a thorough grasp of the new exposures, the professional investor is much better able to anticipate and understand the challenges our central bankers and markets face.

International Financial Statement Analysis is designed to address the ever-increasing need for investment professionals and students to think about financial statement analysis from a global perspective. The text is a practically oriented introduction to financial statement analysis that is distinguished by its combination of a true international orientation, a structured presentation style, and abundant illustrations and tools covering concepts as they are introduced in the text. The authors cover this discipline comprehensively and with an eye to ensuring the reader's success at all levels in the complex world of financial statement analysis.

Investments: Principles of Portfolio and Equity Analysis provides an accessible yet rigorous introduction to portfolio and equity analysis. Portfolio planning and portfolio management are presented within a context of up-to-date, global coverage of security markets, trading, and market-related concepts and products. The essentials of equity analysis and valuation are explained in detail and profusely illustrated. The book includes coverage of practitioner-important but often neglected topics, such as industry analysis. Throughout, the focus is on the practical application of key concepts with examples drawn from both emerging and developed markets. Each chapter affords the reader many opportunities to self-check his or her understanding of topics.

One of the most prominent texts over the years in the investment management industry has been Maginn and Tuttle's *Managing Investment Portfolios: A Dynamic Process*. The third edition updates key concepts from the 1990 second edition. Some of the more experienced members of our community own the prior two editions and will add the third edition to their libraries. Not only does this seminal work take the concepts from the other readings and put them in a portfolio context, but it also updates the concepts of alternative investments, performance presentation standards, portfolio execution, and, very importantly, individual investor portfolio management. Focusing attention away from institutional portfolios and toward the individual investor makes this edition an important and timely work.

Quantitative Investment Analysis focuses on some key tools that are needed by today's professional investor. In addition to classic time value of money, discounted cash flow applications, and probability material, there are two aspects that can be of value over traditional thinking.

The New Wealth Management: The Financial Advisor's Guide to Managing and Investing Client Assets is an updated version of Harold Evensky's mainstay reference guide for wealth managers. Harold Evensky, Stephen Horan, and Thomas Robinson have updated the core text of the 1997 first edition and added an abundance of new material to fully reflect today's investment challenges. The text provides authoritative coverage across the full spectrum of wealth management and serves as a comprehensive guide for financial advisors. The book expertly blends investment theory and real-world applications and is written in the same thorough but highly accessible style as the first edition. The first involves the chapters dealing with correlation and regression that ultimately figure into the formation of hypotheses for purposes of testing. This gets to a critical skill that challenges many professionals: the ability to distinguish useful information from the overwhelming quantity of available data. Second, the final chapter of Quantitative Investment Analysis covers portfolio concepts and takes the reader beyond the

traditional capital asset pricing model (CAPM) type of tools and into the more practical world of multifactor models and arbitrage pricing theory.

All books in the CFA Institute Investment Series are available through all major booksellers. And, all titles are available on the Wiley Custom Select platform at http://customselect.wiley.com/ where individual chapters for all the books may be mixed and matched to create custom textbooks for the classroom.

EQUITY ASSET VALUATION

CHAPTER 1

EQUITY VALUATION: APPLICATIONS AND PROCESSES

Jerald E. Pinto, PhD, CFA
Elaine Henry, PhD, CFA
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LEARNING OUTCOMES

After completing this chapter, you will be able to do the following:

- define valuation and intrinsic value and explain sources of perceived mispricing;
- explain the going concern assumption and contrast a going concern value to a liquidation value;
- describe definitions of value and justify which definition of value is most relevant to public company valuation;
- describe applications of equity valuation;
- describe questions that should be addressed in conducting an industry and competitive analysis;
- contrast absolute and relative valuation models and describe examples of each type of model;
- describe sum-of-the-parts valuation and conglomerate discounts;
- explain broad criteria for choosing an appropriate approach for valuing a given company.

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1. INTRODUCTION

Every day, thousands of participants in the investment profession—investors, portfolio managers, regulators, researchers—face a common and often perplexing question: What is the value of a particular asset? The answers to this question usually influence success or failure in achieving investment objectives. For one group of those participants—equity analysts—the question and its potential answers are particularly critical, because determining the value of an ownership stake is at the heart of their professional activities and decisions. **Valuation** is the estimation of an asset's value based on variables perceived to be related to future investment returns, on comparisons with similar assets, or, when relevant, on estimates of immediate liquidation proceeds. Skill in valuation is a very important element of success in investing.

In this introductory reading, we address some basic questions: What is value? Who uses equity valuations? What is the importance of industry knowledge? How can the analyst effectively communicate his analysis? This reading answers these and other questions and lays a foundation for the remaining valuation readings.

The balance of this reading is organized as follows: Section 2 defines value and describes the various uses of equity valuation. Section 3 examines the steps in the valuation process, including a discussion of the analyst's role and responsibilities. Section 4 discusses how valuation results are communicated and provides some guidance on the content and format of an effective research report. The final section summarizes the reading, and practice problems conclude.

2. VALUE DEFINITIONS AND VALUATION APPLICATIONS

Before summarizing the various applications of equity valuation tools, it is helpful to define what is meant by "value" and to understand that the meaning can vary in different contexts. The context of a valuation, including its objective, generally determines the appropriate definition of value and thus affects the analyst's selection of a valuation approach.

2.1. What Is Value?

Several perspectives on value serve as the foundation for the variety of valuation models available to the equity analyst. Intrinsic value is the necessary starting point, but other concepts of value—going-concern value, liquidation value, and fair value—are also important.

2.1.1. Intrinsic Value

A critical assumption in equity valuation, as applied to publicly traded securities, is that the market *price* of a security can differ from its intrinsic *value*. The **intrinsic value** of any asset is the value of the asset given a hypothetically complete understanding of the asset's investment characteristics. For any particular investor, an estimate of intrinsic value reflects his or her view of the "true" or "real" value of an asset. If one assumed that the market price of an equity security perfectly reflected its intrinsic value, "valuation" would simply require looking at the market price. Roughly, it is just such an assumption that underpins traditional efficient market theory, which suggests that an asset's market price is the best available estimate of its intrinsic value.

An important theoretical counter to the notion that market price and intrinsic value are identical can be found in the Grossman–Stiglitz paradox. If market prices, which are essentially freely obtainable, perfectly reflect a security's intrinsic value, then a rational investor would

not incur the costs of obtaining and analyzing information to obtain a second estimate of the security's value. If no investor obtains and analyzes information about a security, however, then how can the market price reflect the security's intrinsic value? The **rational efficient markets formulation** (Grossman and Stiglitz, 1980) recognizes that investors will not rationally incur the expenses of gathering information unless they expect to be rewarded by higher gross returns compared with the free alternative of accepting the market price. Furthermore, modern theorists recognize that when intrinsic value is difficult to determine, as is the case for common stock, and when trading costs exist, even further room exists for price to diverge from value (Lee, Myers, and Swaminathan, 1999).

Thus, analysts often view market prices both with respect and with skepticism. They seek to identify mispricing. At the same time, they often rely on price eventually converging to intrinsic value. They also recognize distinctions among the levels of **market efficiency** in different markets or tiers of markets (for example, stocks heavily followed by analysts and stocks neglected by analysts). Overall, equity valuation, when applied to market-traded securities, admits the possibility of mispricing. Throughout these readings, then, we distinguish between the market price, P, and the intrinsic value ("value" for short), V.

For an active investment manager, valuation is an inherent part of the attempt to produce investment returns that exceed the returns commensurate with the investment's risk; that is, positive excess risk-adjusted returns. An excess risk-adjusted return is also called an **abnormal return** or **alpha**. (Return concepts will be more fully discussed in a later reading.) The active investment manager hopes to capture a positive alpha as a result of his or her efforts to estimate intrinsic value. Any departure of market price from the manager's estimate of intrinsic value is a perceived **mispricing** (a difference between the estimated intrinsic value and the market price of an asset).

These ideas can be illuminated through the following expression that identifies two possible sources of perceived mispricing:[1]

$$V_E - P = (V - P) + (V_E - V)$$

where

V_E = estimated value

P = market price

V = intrinsic value

This expression states that the difference between a valuation estimate and the prevailing market price is, by definition, equal to the sum of two components. The first component is the true mispricing, that is, the difference between the true but unobservable intrinsic value V and the observed market price P (this difference contributes to the abnormal return). The second component is the difference between the valuation estimate and the true but unobservable intrinsic value, that is, the error in the estimate of the intrinsic value.

To obtain a useful estimate of intrinsic value, an analyst must combine accurate forecasts with an appropriate valuation model. The quality of the analyst's forecasts, in particular the expectational inputs used in valuation models, is a key element in determining investment success. For active security selection to be consistently successful, the manager's expectations must differ from consensus expectations and be, on average, correct as well.

Uncertainty is constantly present in equity valuation. Confidence in one's expectations is always realistically partial. In applying any valuation approach, analysts can never be sure that

[1] Derived as $V_E - P = V_E - P + V - V = (V - P) + (V_E - V)$.

they have accounted for all the sources of risk reflected in an asset's price. Because competing equity risk models will always exist, there is no obvious final resolution to this dilemma. Even if an analyst makes adequate risk adjustments, develops accurate forecasts, and employs appropriate valuation models, success is not assured. Temporal market conditions may prevent the investor from capturing the benefits of any perceived mispricing. Convergence of the market price to perceived intrinsic value may not happen within the investor's investment horizon, if at all. So, besides evidence of mispricing, some active investors look for the presence of a particular market or corporate event (**catalyst**) that will cause the marketplace to re-evaluate a company's prospects.

2.1.2. Going-Concern Value and Liquidation Value

A company generally has one value if it is to be immediately dissolved and another value if it will continue in operation. In estimating value, a **going-concern assumption** is the assumption that the company will continue its business activities into the foreseeable future. In other words, the company will continue to produce and sell its goods and services, use its assets in a value-maximizing way for a relevant economic time frame, and access its optimal sources of financing. The **going-concern value** of a company is its value under a going-concern assumption. Models of going-concern value are the focus of these readings.

Nevertheless, a going-concern assumption may not be appropriate for a company in financial distress. An alternative to a company's going-concern value is its value if it were dissolved and its assets sold individually, known as its **liquidation value**. For many companies, the value added by assets working together and by human capital applied to managing those assets makes estimated going-concern value greater than liquidation value (although a persistently unprofitable business may be worth more "dead" than "alive"). Beyond the value added by assets working together or by applying managerial skill to those assets, the value of a company's assets would likely differ depending on the time frame available for liquidating them. For example, the value of nonperishable inventory that had to be immediately liquidated would typically be lower than the value of inventory that could be sold during a longer period of time, that is, in an "orderly" fashion. Thus, concepts such as **orderly liquidation value** are sometimes distinguished.

2.1.3. Fair Market Value and Investment Value

For an analyst valuing public equities, intrinsic value is typically the relevant concept of value. In other contexts, however, other definitions of value are relevant. For example, a buy–sell agreement among the owners of a private business—specifying how and when the owners (e.g., shareholders or partners) can sell their ownership interest and at what price—might be primarily concerned with equitable treatment of both sellers and buyers. In that context, the relevant definition of value would likely be fair market value. **Fair market value** is the price at which an asset (or liability) would change hands between a willing buyer and a willing seller when the former is not under any compulsion to buy and the latter is not under any compulsion to sell. Furthermore, the concept of fair market value generally includes an assumption that both buyer and seller are informed of all material aspects of the underlying investment. Fair market value has often been used in valuation related to assessing taxes. In a financial reporting context—for example, in valuing an asset for the purpose of impairment testing—financial reporting standards reference **fair value**, a related (but not identical) concept.[2]

[2] Accounting standards provide specific definitions of fair value. Fair value is the amount for which an asset could be exchanged, a liability settled, or an equity instrument granted could be exchanged between knowledgeable, willing parties in an arm's length transaction.