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Security Analysis and Business Valuation on Wall Street

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A Comprehensive Guide to Today's Valuation Methods

JEFFREY C. HOOKE

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Preface

When one hears the term *security analyst*, the impression that comes to mind is a green-eye-shaded number cruncher, hunched over a desk piled high with financial reports and computer screens. Sifting through reams of data, the analyst looks endlessly for undervalued stocks trading on the public exchanges. In a narrow sense that stereotype holds true, but the security analysis profession has spawned a deliberate business valuation process that is copied by many disciplines, including private equity, mergers and acquisitions, corporate appraisals, and government regulators. As a result, the users of the principles of security analysis represent a broad cross section of individuals, such as:

- Equity analysts at mutual funds, pension funds, commercial banks, endowments, insurance companies, hedge funds, and sovereign wealth funds.
- Private equity professionals at buyout funds, venture capital funds, and hedge funds.
- Corporate financial executives.
- Investment bankers involved with mergers and acquisitions (M&A).
- Institutional loan officers working with M&A and buyout transactions.
- Business students at college and MBA schools.
- Investor relations professionals at corporations and public relations firms.
- Business appraisers, including those at appraisal firms, accounting firms, and consultancies.
- Lawyers who work with corporate clients on financial and tax matters.
- Independent public accounting firms that must review securities pricing estimates, business appraisals, and corporate valuation reports.
- Government regulators at the IRS, SEC, FDIC, PCAOB, Comptroller of the Currency, and Federal Reserve (and their international counterparts).
- Bank trust and private wealth advisers.
- Sophisticated individual investors.

Fortunes are made and lost on Wall Street based on advice from security analysts and business valuation experts. They evaluate the prospects of companies issuing common stock, borrowing money, or selling out in M&A transactions. For the serious investor, financial executive, or corporate manager, knowing how professionals price companies is important. After all, an ownership in a business is only worth what someone will pay for it. Since that someone is typically a full-time portfolio manager, private equity firm, hedge fund, or corporate acquirer, understanding the evaluative framework of such practitioners is a prerequisite for optimizing investment results.

The need for this book is more critical now than at any time since the depression-ridden 1930s. Over the past 10 years, we have witnessed two global stock market collapses and a financial crisis that required massive government intervention. A

major contributing factor was the failure of investors, lenders, and regulators to adhere to the basic principles of security analysis. The tactics of in-house due diligence, contrary thinking, cross-checking, and recession-tested forecasting were sacrificed at the altars of expediency, cost-cutting, and short-term profit. Hopefully, one result of this trillion-dollar calamity is a renewed emphasis on the fundamentals that withstand the test of time and are outlined in this book.

WHAT IS SECURITY ANALYSIS?

Security analysis is the body of knowledge directed toward the valuation of a company (or its securities) in a rational, systematic way. It has a key principle: Over a long period, such as two to three years, the price of a common stock reflects the business prospects of the issuing firm and its economic environment. Over the short term, however, powerful trading and emotional forces impact share values, so the pricing of an equity (or the overlying business) is often a tug-of-war between the "long-term" and "short-term" groups. Full-time practitioners are well versed in the principles and methods of assessing equity interests in public and private companies. The results of their research are aimed at providing superior investment performance.

Equity Values Reflect Uncertainty

The value of a security (or a company) depends upon so many highly variable factors—and hence, is subject to such rapid changes—that pinpointing the validity of one analyst's reasoning *a priori* is difficult. Furthermore, predictions are confounded by, among other matters, unexpected changes in macroeconomic indicators such as interest rates, unforeseen developments in company-specific matters such as new competitors, and unusual shocks to an industry such as technology advances. All three factors can sharply alter corporate pricing. At other times, an equity value changes for reasons totally unrelated to the general economy, a company's industry, or its underlying business. For example, distinctive patterns in a public stock's trading activity prompt people to buy and sell, strictly on the notion that past trading trends are predictive of future values.

The market price of any business thus represents a jumble of contradictory expectations and hypotheses, influenced constantly by investors processing new data and evaluating changing circumstances. If this analytical process isn't difficult enough, the careful public investor, private equity fund, or corporate acquirer must also consider the human factors that affect financial asset values and react accordingly. From time to time, the emotional sentiments of investors envelop either an individual firm, a specific industry, or the broad market. A herd psychology takes over the pricing, defying rational explanation. Investors seeking an economic justification for the resultant values are best advised to step out of the way of the ensuing stampede.

Since disparate investment styles and unpredictable future events both exercise a major influence on equity prices, it is not surprising that many public and private equity managers cannot consistently select securities that outperform the general market indexes. Indeed, according to a large body of academic theory, beating the market on a regular basis is impossible. Public share prices reflect all available information,

and private deals are widely shopped. As a result, no amount of study can achieve above-average investment results, and those managers with superior investment records are simply beneficiaries of the laws of chance. Sooner or later, the odds catch up with them, and their performance returns to norm. The growth of equity index funds and exchange-traded funds is evidence of the acceptance of this theory.

The Rationality Concept

As a field of study, security analysis rejects the idea that public equity investors are doomed to earn the market return over time and nothing more. Rather, it dictates that the selection of specific stocks for purchase or sale should be based upon a rational analysis of investment values. Applying this philosophy in a disciplined manner over the long term produces superior results. Advanced in a comprehensive way by Benjamin Graham and David Dodd in their seminal work, *Security Analysis*, this "rationality concept" has gained a wide following since the book's publication in 1934, and their step-by-step process of corporate valuation has been copied by other disciplines, such as private equity, mergers and acquisitions, and business appraisals.

RECENT TRENDS

When published in 1996, the first edition of *Security Analysis and Business Valuation on Wall Street* was warmly received. *Barron's*, the prestigious financial magazine, called it a "welcome successor to Graham & Dodd," and the CFA Institute, which awards the chartered financial analyst designation, adopted a portion of the book as required reading for the global CFA exam. At the suggestion of several business professors, the first edition was modified into a textbook for MBA students, a rare occurrence for a finance book written by a practitioner. And the book's real-world approach drew international interest: The Chinese translation, for example, had a print run nearing the English version. Nevertheless, since 1996, the landscape for evaluating investments has changed dramatically. These shifts include:

Expansion of the Internet. The expanded use of the Internet and the heightened availability of broadband connections means that new public information is transported instantaneously to market participants. With major investors tied electronically to stock exchanges, trading in the affected securities takes place milliseconds after the information is provided.

Increase in computing power, coupled with a decline in its cost. Immediately upon its arrival, the new information is sliced and diced in innumerable ways by sizable players with massive computing power. Employing sophisticated software that incorporates the principles of security analysis, the computers sift for pricing discrepancies in real time and execute trades accordingly, essentially replacing, for short periods anyway, the humans who programmed them. Once an investor's initial responses are processed, the computers help practitioners consider long-term decisions by processing vast amounts of numerical and related data.

Impact of two market crashes. The market crashes of 2000–2001 and 2008–2009 showed that investors face a more hazardous environment than was apparent at the time of the first edition. The failure of regulators, accounting firms, and credit rating agencies—the market's most important referees—to stem the abuses leading to booms and busts brings new concerns to the practitioner.

Extreme growth in derivatives. Derivative products, such as forwards, futures, options, and swaps, have grown extremely quickly, quintupling in volume over the past 10 years. This is due to improved technology in the structuring and trading of such instruments and the fact that the size of the derivatives market is not limited by the physical supply of the underlying securities. The notional value of U.S. corporate bond swaps, for example, is several times greater than all corporate bonds outstanding, and the notional value of equity derivatives roughly equals the total value of publicly traded U.S. common shares. Derivatives are used for both hedging and speculation.

Heightened use of independent experts. At the time of the first edition, the study of a publicly traded business was heavily dependent on information provided by management. Access to independent sources was limited due to the practical considerations involving the time and cost of developing such contacts. The Internet has reduced much of that dependence. Furthermore, multiple companies now offer investors the opportunity to consult with thousands of experts who offer insights on hundreds of companies and industries, usually at modest fees of a few hundred dollars per hour. Analysts thus gain alternate views regarding corporate tactics and industry trends.

Globalization of security analysis. As the world's major economies become increasingly interdependent, the proper analysis of equity securities requires an international bent that was unnecessary in the late 1990s. Trends in Western Europe, Japan, Australia, and other developed areas become important to the pricing of domestic equities. The popularity of emerging market stocks, a moribund asset class just eight years ago, provides additional challenges.

Boost in private equity and M&A transactions. The assets controlled by private equity have multiplied exponentially, and these funds have closed huge volumes of transactions worldwide. Their analytical approach is closely allied to security analysis. At the same time, public (and private) corporate M&A deals grew many times over, as firms sought growth through buying, rather than building.

Rise of hedge funds and short-selling. At the time of the first edition's publication, hedge funds were bit players in the financial markets, but not for long. The Internet-stock-driven collapse in equity prices from 2000 to 2001 convinced institutional investors that long-only funds had limitations and that market-neutral returns were desirable. With the supposed ability to profit in down markets by selling short and to make money in up markets by going long, hedge funds offered such possibilities, although the 2008 market crash showed these claims to be illusory. Now accounting for up to 50 percent of trading on the New York Stock Exchange, these funds put a spotlight on the practice of short-selling.

Valuation scandals at brokerage firms, accountants, and business appraisers. The great bull market of the late 1990s was fueled in part by equity analysts at the Wall Street brokerages, who issued overly optimistic reports on speculative Internet firms and shaky technology companies. The analysts compromised their research in order to curry favor with their supervisors and to win advisory business for their banking colleagues. In 2003, the brokerages paid $1.4 billion to settle charges that such research misled investors. In accordance with the legal settlement, they instituted a number of reforms. The sell-side analyst community was shaken by these events, and its credibility, which was never pristine, will require years of rehabilitation. At the same time, accountants and business appraisers were signing off on lowball option prices for executives at private firms, and thus distorting accounting results and income tax obligations.

Increased requirement for business valuation reports. These abuses prompted the federal government to institute regulations mandating that public companies (and soon-to-be-public companies) obtain third-party valuations (independent of their outside auditors) for executive options, M&A-related intangible assets, and other items. This requirement spilled over to many private firms using outside auditors.

Growth of index funds, exchange-traded funds, and shadow indexing. Index funds and exchange-traded funds (ETFs) offer low fees and, on behalf of investors, buy a preset basket of stocks corresponding to a broad market index, like the S&P 500, or a specific subindex, like the Russell Mid-Cap. Now representing 30 percent of mutual funds' assets, their growth shows investors' lack of faith in the ability of active managers to select stock portfolios with premium returns. At the same time, many of these managers have little confidence in their own skills; they buy stocks that mimic a given index, cutting their risk of underperformance, but also reducing their likelihood of overperformance. The practice is called *shadow indexing* or *hugging an index*. The dual trends of index funds and shadow indexing provide opportunities for analysts who do their homework, go against passive selection, and take the long view.

WHY STUDY SECURITY ANALYSIS AND BUSINESS VALUATION?

The stock market has a strong impact on economic policy, corporate decision making, retirement planning, and employment, and yet many investors, businesspeople, government officials, and students fail to understand business valuation, which is the conceptual underpinning for stock prices. Indeed, a sizable number consider the exchanges to be floating crap games. Speculative elements play a large role in the equity markets, but the discipline of security analysis warrants the sustained interest of many people.

On the international side, as more large developing countries, like China and India, increasingly rely on equity markets to allocate capital to local businesses, they must build a domestic capacity for business valuation.

OVERVIEW OF THE CONTENTS

To facilitate the reader's understanding of the subject material, *Security Analysis and Business Valuation on Wall Street* is divided into five parts.

Part One: The Investing Environment. Part One provides an overview of the environment in which common stocks are issued, researched, bought, and sold. In addition to examining why investors analyze companies in the first place, we look at the roles of the players, rules and regulations of the equity markets, activities surrounding an initial public offering, and sources of investment information. The prices of publicly traded common stocks are highly influential in setting values for private corporations, which are critical for nonpublic investments, tax and accounting calculations, and a host of other purposes.

Part Two: Performing the Analysis and Writing the Research Report. The investment merits of a particular business are evaluated through a methodical approach. Both the *history* and the *prospects* of the company are considered. The sequence of this study and the format of the evaluation report are discussed in Part Two.

Part Three: Valuation and the Investment Decision. At the conclusion of the report, the equity analyst must answer two questions: (1) Is this company fairly valued? and (2) Based on the previous answer, should I recommend investing in the business? M&A, private equity, and other users have somewhat different actions to consider from their reports. Part Three provides the necessary framework to deliver the answers.

Part Four: Special Cases. The model company for security analysis training is a U.S.-based manufacturer with a history of improving sales and earnings. Most firms don't fit this model. Part Four reviews specific industries, private equity tactics, and international markets.

Part Five: In Conclusion. Part Five looks at how investors are reacting to two major market declines in 10 years. The book closes with some observations and a few maxims.

WHAT'S NEW IN THE SECOND EDITION

The step-by-step methodical process needed to produce a reliable security analysis (or business valuation) has not changed since the first edition, and has remained fundamentally the same over the past 75 years. However, investing environments, valuation techniques, and industry definitions evolve over time, requiring continued modifications to the basic approach.

The second edition contains revisions to add insights and updates on such practical applications. Among them:

- *The investing environment.* Chapters 1 through 4 provide updates on the new environment, such as the dominance of commercial banks on Wall Street, the inability of security analysts to foresee pricing bubbles, the effect of the 2008

crash on the industry, the reliance of institutions on computerized models rather than human analysts, and the continual reluctance of regulators to show initiative in regulating. Chapter 4, "Other Sources of Information," has been revised to capture the use of the Internet and independent data services.

- *Starting the analysis, industry analysis, and company-specific analysis.* Chapters 5, 6, and 7 have been revised and updated. The principal themes remain the same, and the chapters are more concise.
- *Financial statement analysis.* Chapter 8 highlights, once again, the primary elements of this part of the company evaluation process and introduces an entirely new case study from 2008. The chapter reminds practitioners to assume a recession in their forecasts, a necessity ignored by competing books and avoided by many investors in their quest to close transactions. It also points out the use of software to conduct financial statement analysis.
- *The limitations of accounting data.* Chapter 9 includes a discussion on the recent accounting scandals that made the security analyst's job more difficult. The lack of enforcement and punishment ensure that such scandals will repeat themselves in the future.
- *Financial analysis and company classifications.* Chapter 10 explicitly defines pioneer, growth, mature, and declining companies and provides a methodology for placing a subject firm in its category. Despite the wide use of this terminology on Wall Street, many practitioners lack a firm foundation for making such classifications.
- *Valuation methodologies.* These chapters have been updated with new examples and cases. The application of each methodology (discounted cash flow, comparable public companies, comparable M&A transactions, and leveraged buyout) builds the foundation for making a decision, rather than just focusing on the process. Chapter 17 acknowledges changes in leveraged buyout dynamics. Chapter 18 adds commentary on the income tax ramifications of breaking up a conglomerate.
- *The investment recommendation.* Chapter 19 showcases how a proper evaluation report reaches a buy or sell decision by applying the Wall Street approaches explained in the book. The material is updated to 2009.
- *Special industries.* Most companies do not fit the textbook model of a profitable, domestic manufacturer. Chapters 21 to 25 provide new case studies in this regard.
- *International.* Commerce is increasingly global in nature, and the book reviews changes that affect the investment decision process.

In addition, the second edition has four new chapters:

"Intrinsic Value and Discounted Cash Flow" (Chapter 13). Included previously as a part of an earlier chapter, this topic now merits a separate treatment, with added emphasis on the practitioner including a recession scenario in any forecast.

"Discounted Cash Flow: Choosing the Right Discount Rate" (Chapter 14). The popular capital asset pricing model (CAPM) has flaws in its application. Chapter 14 reviews the flaws and provides a case study of using both the

CAPM and an alternate approach to figure an appropriate discount rate for a business. Rather than providing complex theories and formulas for what is essentially a straightforward task, the book explains it in only 10 pages.

"Private Equity." Chapter 20 shows how private equity firms and hedge funds consider investments in private corporations, and how their approach differs from an investor buying a security that is traded publicly on the New York Stock Exchange. As a former private equity investor, I provide the inside scoop.

"Asset Booms and Busts." Having witnessed two market crashes within the past decade, public stock investors, private equity firms, corporate acquirers, and government regulators should work within a framework that anticipates a downturn every 7 to 10 years. I discuss this topic in Chapter 28.

To download a valuation spreadsheet for DCF valuation and comparable companies, visit the companion web site at www.wiley.com/go/hooke. Instructors may also visit the Wiley Higher Ed site (www.wiley.com/college) for additional classroom tools.

For convenience, the pronoun *he* has been used throughout this book to refer nonspecifically to capital markets participants. The material herein will be equally useful to both men and women who evaluate security issuers.

This book does not promise to help you obtain superior stock market results, close better private equity deals, make optimal M&A transactions, or write the best corporate appraisal reports. No book can honestly claim such results. *Security Analysis and Business Valuation on Wall Street* provides a practical, well-rounded view of business valuation and investment decision processes. After completing this book, you are better prepared to make sound judgments and to confront the financial markets' numerous intrigues.

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Chevy Chase, Maryland
March 2010

PART

One

The Investing Environment

CHAPTER 1

Why Analyze a Security?

This chapter covers the origin and evolution of security analysis, which focused initially on publicly traded stocks and bonds. The herd psychology and gamesmanship that are endemic to the capital markets are discussed, along with modern valuation approaches.

Some investors analyze securities to reduce the risk and the gambling aspects of investing. They need the confidence supplied by their own work. Other investors seek value where others haven't looked. They're on a treasure hunt. Still others have fiduciary reasons. Without documentation to justify an investment decision, clients can sue them for malpractice should investment performance waver. Many investors analyze shares for the thrill of the game. They enjoy pitting their investment acumen against other professionals.

Security analysis is a field of study that attempts to evaluate businesses and their securities in a rational way. By performing a rigorous analysis of the factors affecting a company's worth, security analysts seek to find equities that present a good value relative to other investments. In doing such work, professional analysts refute the efficient market theory, which suggests that a monkey throwing darts at the *Wall Street Journal* will, over time, have a performance record equal to the most experienced money manager. In fact, the proliferation of business valuation techniques as well as advances in regulation and information flow contributes to the market's transparency. Nevertheless, on a regular basis, pricing inefficiencies occur. An astute observer takes advantage of the discrepancies.

THE ORIGINS OF SECURITY ANALYSIS

Benjamin Graham and David Dodd made the business of analyzing investments into a profession. With the publication of their book, *Security Analysis*, in 1934, they offered investors a logical and systematic way in which to evaluate the many securities competing for their investment dollars and their process was eventually copied by M&A, private equity, and other business valuation professionals. Before then, methodical and reasoned analysis was in short supply on Wall Street. The public markets were dominated by speculation. Stocks were frequently purchased

on the basis of hype and rumor, with little business justification. Even when the company in question was a solid operation with a consistent track record, participants failed to apply quantitative measures to their purchases. Procter & Gamble was a *good company* whether its stock was trading at 10 times or 30 times earnings, but was it a *good investment* at 30 times earnings, relative to other equities? Investors lacked the skills to answer this question. *Security Analysis* endeavored to provide these skills.

The systematic analysis in place at the time tended to be centered in bond rating agencies and legal appraisals. Moody's Investors Service and Standard & Poor's started assigning credit ratings to bonds in the early 1900s. The two agencies based their ratings almost entirely on the bond's collateral protection and the issuer's historical track record; they gave short shrift to qualitative indicators such as the issuer's future prospects and management depth. In a bond market dominated by railroad and utility bonds, the rating agencies' methodology lacked transferability to other industries and the equity markets. On the equity side, in-depth evaluations of corporate shares were found primarily in legal appraisals, typically required for estate tax calculations, complicated reorganization plans, and contested takeover bids. Like credit ratings, the equity appraisals suffered from an overdependence on historical data at the expense of a careful consideration of future prospects.

Graham and Dodd suggested that certain common stocks were prudent investments, if investors took the time to analyze them properly (see Exhibit 1.1). Many finance professors and businesspeople were surprised at this notion, thinking the two academics were brave to make such a recommendation. Only five years earlier, the stock market had suffered a terrible crash, signaling the beginning of a wrenching economic depression causing massive business failures and huge job losses.

The market drop of 1929–1933 outpaced the 2007–2009 crash. On October 28, 1929, the Dow Jones Industrial Average fell 13 percent and an additional 12 percent the next day. The two-day drop of 23 percent followed a decline that began on September 3, when the Industrial Average peaked at 381, and then declined 22 percent in the weeks preceding October 28. The market staged modest recoveries in 1930 and 1931, but the 1929 drop presaged a gut-wrenching descent in stock prices, which wasn't complete until February 1933. Over the three-year period, the Dow dropped by 87 percent. The index didn't return to its 1929 high until 1954, 25 years later. In contrast, the Dow's sizeable decline from 2007 to 2009 was 54 percent, and the 1999–2002 bear market represented a 34 percent drop.

At the time of the publication of *Security Analysis*, equity prices had doubled from 1933's terrible bottom, but they were only one-quarter of the 1929 high. Shaken

EXHIBIT 1.1 Graham and Dodd Approach to Stock Selection

1. Study the available facts.
2. Prepare an organized report.
3. Project earnings and related data.
4. Draw valuation conclusions based on established principles and sound logic.
5. Make a decision.

by the volatile performance of equities, the public considered equity investment quite speculative. Not only was there a dearth of conservative analysis, but the market was still afflicted with unregulated insider trading, unethical sales pitches, and unscrupulous brokers. For two professionals to step into this area with a scholarly approach was radical indeed.

The publication of *Security Analysis* coincided with the formation of the Securities and Exchange Commission (SEC). Designed to prevent a repeat of the 1920s abuses, the SEC was given broad regulatory powers over a wide range of market activities. It required security issuers to disclose all material information and to provide regular public earnings reports. This new information provided a major impetus to the security analysis profession. Previously, issuers were cavalier about what information they provided to the public. Analysts, as a result, operated from half-truths and incomplete data. With the regulators' charge of full disclosure for publicly traded corporations, practitioners had access to more raw material than ever before. Added to this company-specific data was the usual storehouse of economic, market, and industry material available for study. It soon became clear that a successful analyst needed to allocate his time and resources efficiently among sources of information to produce the best results.

NO PROFIT GUARANTEE

It is important to remember that security analysis doesn't presume an absolute value for a given security, nor does it guarantee the investor a profit. After undertaking the effort to study a stock, an analyst derives a range of value, since the many variables involved reduce the element of certainty. After an investigation, assume the analyst concludes that Random Corp. shares are worth $8 to $10 per share. This conclusion isn't worth much if the stock is trading at $9, but it is certainly valuable if the stock is trading at $4, far below the range, or at $20, which is far above. In such cases, the difference between the conclusion and the market prompts an investment decision, either *buy* or *sell* (see Exhibit 1.2).

If the analyst acts on his conclusion and buys Random Corp. stock at $4 per share, he has no assurance that the price will reach the $8 to $10 range. The broad market might decline without warning or Random Corp. might suffer an unexpected business setback. These variables can restrict the stock from reaching appraised value. Over time, however, the analyst believes that betting on such large differences provides superior investment results.

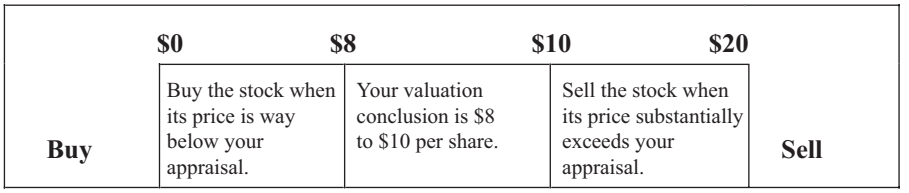

EXHIBIT 1.2 Random Corp. Stock

DAY-TO-DAY TRADING AND SECURITY ANALYSIS

For the most part, participants in the stock market behave rationally. Day-to-day trading in most stocks causes few major price changes, and those large interday differentials can usually be explained by the introduction of new information. A lot of small price discrepancies are attributable to a few professionals having a somewhat different interpretation of the same set of facts available to others. This results in one investor believing a stock's price will change due either to (1) the market conforming to his opinion of the stock's value over time, or (2) the future of the underlying business unfolding as he anticipates.

In the first instance, perhaps the investor's research uncovered a hidden real estate value on the company's balance sheet. The general public is unaware of this fact. As soon as others acknowledge the extra value, the stock price should increase. In the second situation, the investor has more optimistic growth assumptions than the market. Should the investor's predictions come true, the stock price should increase accordingly. Perhaps 300,000 individuals follow the markets full-time, so there are plenty of differing views. Even a small segment of investors with conflicting opinions can cause significant trading activity in a stock.

It is not unusual that investors using similar methods of analysis come up with valuations that differ by 10 to 15 percent. This small percentage is sufficiently large to cause active trading. As we discuss later, the popular valuation techniques require a certain amount of judgment with respect to sifting information and applying quantitative analysis, so reasonable people can easily derive slightly dissimilar values for the same stock. As these differences become more profound, the price of a given stock becomes more volatile, and divergent valuations do battle in the marketplace. Today, this price volatility is evident in many high-tech stocks. The prospects of the underlying businesses are hard to appraise, even for experienced professionals.

HERD PSYCHOLOGY AND SECURITY ANALYSIS

Ideally, a security analyst studies the known facts of a business, considers its prospects, and prepares a careful evaluation. From this effort a buy or sell recommendation is derived for the company's shares. This valuation model, while intrinsically sensible, understates the need to temper a rational study with due regard for the vagaries of the stock market.

At any given time, the price behavior of certain individual stocks and selected market sectors is governed by forces that defy a studied analysis. Key elements influencing equity values in these instances may be the emotions of the investors themselves. Market participants are human beings, after all, and are subject to the same impulses as anyone. Various emotions affect the investor's decision-making process, but two sentiments have the most lasting impact: *fear* and *greed*. Investors in general are scared of losing money, and all are anxious to make more profits. These feelings become accentuated in the professional investor community, whose members are caught up in the treadmill of maintaining good short-term performance.

Of the two emotions, fear is by far the stronger, as evidenced by the fact that stock prices fall faster than they go up. Afraid of losing money, people demonstrate a

classic herd psychology upon hearing bad news, and often rush to sell a stock before the next investor. Many stocks drop 20 to 30 percent in price on a single day, even when the fresh information is less than striking. In the crash of 1987, the Dow Jones Index fell 23 percent in one day on no real news. Buying frenzies, in contrast, take place over longer stretches of time, such as weeks or months. Exceptions include the shares of takeover candidates and initial public offerings.

True takeover stocks are identified by a definitive offer from a respectable bidder. Because the offers typically involve a substantial price premium for control, investors rush in to acquire the takeover candidate's shares at a price slightly below the offer. The size of the discount reflects uncertainties regarding the timing and ultimate completion of the bid, but a seasoned practitioner can make a reasoned decision. Occurring as frequently as real bids are rumored bids. Here, speculators acting on takeover rumors inflate a stock's price in anticipation of a premium-priced control offer. Frequently, the rumors are from questionable sources, such as a promoter trying to sell his own position in the stock, so the price run-up is driven primarily by emotion, game theory, and momentum investing.

All of these factors play a role in the next hard-to-analyze business—the initial public offering (IPO). Many IPOs rise sharply in price during their first few days of trading, such as Chipotle Mexican Grill. It went public in January 2006 at $22 per share, and jumped 100 percent to $44 per share on the first day of trading. Within three months the stock was selling for $63. Unlike existing issues, an IPO has no trading history, so the underwriters setting the offering price make an educated guess on what its value is. At times this guess is conservative and the price rises accordingly. More frequently, the lead underwriters lowball the IPO price in order to ensure that the offering is fully sold, protecting themselves from their moral obligation to buy back shares from unsatisfied investors if the price were to fall steeply.

When underwriters get their publicity machines working and an IPO becomes hot, a herd psychology can infect investors, who then scramble over one another to buy in anticipation of a large price jump. At this point, a dedicated evaluation of the IPO has little merit. For a hot deal, many equity buyers operate by game theory—what's the other guy thinking and what's he going to pay for this issue? Others use momentum investing logic: I must buy the stock because others are buying it.

MOMENTUM INVESTORS

Extremely influential in short-term pricing moves, momentum investors predict individual stock values based on trading patterns that have happened repeatedly, either in the relevant stock or in similar situations. Thus, if they notice the beginning of a downward price trend, they may sell the stock in anticipation of the pattern reaching completion. Naturally, the selling pattern may be a self-fulfilling prophecy as other momentum investors are motivated by the increased selling activity and follow suit.

Often lumped together with emotional investors by the media, momentum players attempt to take advantage of the common belief that stocks move in discernible patterns. Two of Wall Street's oldest expressions, "You can't fight the tape" and "You can't buck the trend," are evidence of the futility of injecting a security

analysis bias into any price move driven by emotional and momentum factors. The herd instinct that is set off by such behavior has contributed to several market crashes in the past, and stock exchanges reserve the right to stop computerized program trading, which activates upon the observance of such trends, if market indexes drop too much in a given day.

GAME THEORY AND SECURITY ANALYSIS

The average portfolio manager does not have a controlling position in his shareholdings. Public corporations are owned by numerous other equity investors, perhaps numbering in the thousands. With this diversity of ownership, the portfolio manager's return in a given stock, or in the general market, is dependent on the behavior of his rival investors. If he holds on to a stock because he thinks it's a good investment, while others are selling because they think the opposite, he loses in the short run. Future results of the company may bear out his original analysis, but in the present he looks bad. This is a dangerous position in the investment industry, which tends to measure results quarter by quarter rather than year by year. For this reason, knowing how others think and react to events is critical to success.

Some investors bring this dynamic into the realm of game theory and attempt to influence the market's thought processes. Several examples are instructive:

- *False takeover.* An investor with a reputation for hostile takeovers acquires a position in a company's shares. He files a public notice or leaks his interest to the rumor mill. As other investors react to a potential takeover, they buy the stock and its price increases. In this case, the takeover artist has no intention of bidding for the company. He sells his shares into the buying activity sparked by his original interest, thus realizing a quick profit from speculative expectations. Equity analyst Clinton Morrison remarked, "It's called a self-fulfilling prophecy. You advertise your position and then you sell into it."
- *Phony promotion.* A key market player, such as a large fund manager, indicates publicly his strong interest in a certain industry sector, such as cable television. As other investors follow the fund manager's direction by purchasing cable TV stocks, the manager busily unloads his own holdings into the trading strength. As an example, one large fund manager was criticized in 2007 for advocating a software stock in public, when his fund was selling it in private.
- *Story stocks.* A professional investor establishes a significant position in a little-known company. Using financial publicists, stock newsletters, and aggressive brokers, he weaves a story behind the scenes about the company's unrecognized earnings potential. Although the analysis is sketchy, the growth story is entertaining. Carlton Lutts, editor of the *Cabot Market Letter*, summarized such game theory dynamics well: "A stock, like love, thrives on romance and dies on statistics." As the drum beating becomes louder and louder, a cross section of investors takes notice. They buy in and the price climbs. When the professional's profit objective is reached, he bails out of his position and winds down the publicity machine. Shortly thereafter the stock price collapses. This strategy is most effective with early stage companies and technology firms. Their