

CHAPTER ONE

Introduction to Investing and Valuation

Concept Questions

C1.1. Yes. Stocks would be efficiently priced at the agreed fundamental value and the market price would impound all the information that investors are using. Stock prices would change as new information arrived that revised the fundamental value. But that new information would be unpredictable beforehand. So changes in prices would also be unpredictable: stock prices would follow a “random walk.”

C1.2. Index investors buy a market index--the S&P 500, say--at its current price. With no one doing fundamental analysis, no one would have any idea of the real worth of stocks. Prices would wander aimlessly, like a “random walk.” A lone fundamental investor might have difficulty making money. He might discover that stocks are mispriced, but could not be sure that the price will ultimately return to “fundamental value.”

C1.3. Fundamental risk arises from the inherent risk in the business – from sales revenue falling or expenses rising unexpectedly, for example. Price risk is the risk of prices deviating from fundamental value. Prices are subject to fundamental risk, but can move away from fundamental value, irrespective of outcomes in the fundamentals. When an investor buys a stock, he takes on fundamental risk – the stock price could drop because the firm’s operations don’t meet expectations – but he also runs the (price) risk of buying a stock that is overpriced or selling a stock that is underpriced. See Box 1.1. Chapter 18 elaborates.

C1.4. A beta technology measures the risk of an investment and the required return that the risk requires. The capital asset pricing model (CAPM) is a beta technology; it measures risk

(beta) and the required return for the beta. An alpha technology involves techniques that identify mispriced stocks than can earn a return in excess of the required return (an alpha return). See Box 1.1. The appendix to Chapter 3 elaborates of beta technologies.

C1.5. This statement is based on a statistical average from the historical data: The return on stocks in the U.S. and many other countries during the twentieth century was higher than that for bonds, even though there were periods when bonds performed better than stocks. So, the argument goes, if one holds stocks long enough, one earns the higher return. However, it is dangerous making predictions from historical averages when risky investment is involved. Those averages from the past are not guaranteed in the future. Stocks are more risky than bonds – they can yield much lower returns than past averages. The investor who holds stocks (for retirement, for example) may well find that her stocks have fallen when she comes to liquidate them. Waiting for the “long-run” may take a lot of time (and “in the long run we are all dead”).

The historical average return for equities is based on buying stocks at different times, and averages out “buying high” and “buying low” (and selling high and selling low). An investor who buys when prices are high (or is forced to sell when prices are low) may not receive the typical average return. Consider investors who purchased shares during the stock market bubble in the 1990s and a lost considerable amount of their retirement “nest egg.”

C1.6. A passive investor does not investigate the price at which he buys an investment. He assumes that the investment is fairly (efficiently) priced and that he will be earn the normal return investigates if this is so. He looks for mispriced investments that can earn a return in excess of the normal return. See Box 1.1.

C1.7. This is not an easy question at this stage. It will be answered in full as the book proceeds. But one way to think about it is as follows: If an investor expects to earn 10% on her investment in a stock, then earnings/price should be 10% and price/earnings should be 10. But we would have to also consider how accounting rules measure earnings: If accounting measures result in lower earnings (through high depreciation charges or the expensing of research and development expenditure, for example) then a normal P/E ratio might be higher than 10.

C1.8. The firm has to repurchase the stock at the market price, so the shareholder will get the same price from the firm as from another investor. But one should be wary of trading with insiders (the management) who might have more information about the firm's prospects than outsiders (and might make stock repurchases when they consider the stock to be underpriced). (Some argue that stock repurchases are indicative of good prospects for the firm, not poor prospects, and firms make them to signal these prospects.)

C1.9. a. If the market price, P , is efficient (in pricing intrinsic value) and V is a good measure of intrinsic value, the P/V ratio should be 1.0. The graph does show that the P/V ratio oscillates around 1.0 (at least up to the bubble years). However, there are deviations from 1.0. These deviations must either be mispricing (in P) that ultimately gets corrected so the ratio returns to 1.0, or a poor measure of V .

b. Yes, you would have done well up to 1995 if P/V is an indication of mispricing. When the P/V ratio drops below 1.0, prices increase (as the market returns to fundamental value), and when the P/V ratio rises above 1.0, prices decrease (as the market returns to fundamental value). A long position in the first case and a short position in the latter case

would earned positive returns. Of course, this strategy is only as good as the V measure used to estimate intrinsic value.

c. Clearly, shorting Dow stocks during this period would have been very painful, even though the P/V ratio rose to well above 1.0. Up to 1999, the P/V ratio failed to revert back to 1.0 even though it deviated significantly from 1.0. This illustrates price risk in investing (see question C1.3 and Box 1.1). In bubbles or periods of momentum investing, overpriced stocks get more overpriced, so taking a position in the hope that prices will return to fundamental value is risky. Only after the year 2000 did prices finally turn down, and the P/V ratio fell back towards 1.0.

Exercises

E1.1. Finding Information on the Internet: Dell Computer and General Motors

This is an exercise of discovery. The links on the book's web site will help with the search.

E1.2. Enterprise Market Value: General Mills and Hewlett-Packard

(a)

Market value of the equity = \$80 × 150.0 million shares	=	\$ 12.000 billion
Book value of total (short-term and long-term) debt	=	2.317
Enterprise value		<u>\$ 14.317 billion</u>

Note three points:

- (i) Total market value = Price per share × Shares outstanding.
 - (ii) The book value of debt is typically assumed to equal its market value, but financial statement footnotes give market value of debt to confirm this.
 - (iii) The book value of equity is not a good indicator of its market value. The price-to-book ratio for the equity can be calculated from the numbers given: $12,000/164.2=73.1$. (The student might well conjecture why this is so high. Leverage plays a big role: see Chapters 12 and 13).
- (b) This question provokes the issue of whether debt held as assets is part of enterprise value (a part of operations) or effectively a reduction of the net debt claim on the firm. The issue arises in the analysis of financial statements in Part II of the book: are debt assets part of operations or part of financing activities? Debt is part of financing activities if it is held to absorb excess cash: the excess cash could be applied to buying back the firm's debt rather

than buying the debt of others. If so, the net debt claim on enterprise value is what is important. The calculation of enterprise value is as follows:

Market value of equity = $\$100 \times 1,013$ million shares = $\$101.300$ billion

Book value of net debt claims:

Short-term borrowing	\$1.380 billion	
Long-term debt	1.730	
Total debt	\$3.11 billion	
Debt held	5.800	(2.690)
Enterprise value		<u>98.610 billion</u>

E1.3. Identifying Operating, Investing, and Financing Transactions

- (a) Investing
- (b) Operations
- (c) Operations; but advertising might be seen as investment in a brand-name asset
- (d) Financing
- (e) Financing
- (f) Operations
- (g) Investing. R&D is an expense in the income statement, so the student might be inclined to classify it as an operating activity; but it is an investment.
- (h) Operations
- (i) Investing
- (j) Operations

E1.4. Applying Present Value Calculations to Value a Building

This is a straight forward present value problem: the required return--the discount rate--is applied to forecasted net cash receipts to convert the forecast to a valuation:

Present value of net cash receipts of 1.1 million for 5 years at 12% (annuity factor is 3.6048)	\$3.965 million
Present value of \$12 million “terminal payoff” at end of 5 years (present value factor is 0.5674)	6.809
Value of building	<u>\$10.774</u>

E1.5. Calculating Stock Returns: Nike, Inc.

The stock return is the change in price plus the dividend received. So, Nike's stock return for 2002 is

$$\text{Stock return} = \$47 - \$58 + \$0.48 = \$-10.52$$

[The rate of return is the return divided by the beginning-of-period price: $-10.52/58 = -18.14\%$.]

E1.6. Returns and Dividends: Ford Motor Company

$$\text{Stock return} = \frac{\$59 + d - \$48}{48} = 26.5\%$$

$$d = \$1.72 \text{ per share}$$

Minicases

M1.1 Critique of an Equity Analysis: America Online, Inc.

Introduction

This case can be used to outline how the analyst goes about a valuation and, specifically, to introduce pro forma analysis. It can also be used to stress the importance of strategy in

valuation. The case involves suspect analysis, so is the first in an exercise (repeated throughout the book) that asks: What does a credible equity research report look like?

The case anticipates some of the material in Chapter 3. You may wish to introduce that material with this case – by putting Figure 3.3 in front of the students, for example.

You may wish to recover the original *Wall Street Journal* (April 26, 1999) piece on which this case is based and hand it out to students. It is available from Dow Jones News Retrieval. With the piece in front of them, students can see that it has three elements that are important to valuation – scenarios about the future (including the future for the internet, as seen at the time), a pro forma analysis that translates the scenario into numbers, and a valuation that follows from the pro forma analysis. So the idea – emphasized in Chapter 3 -- that pro forma analysis is at the heart of the analysis is introduced, but also the idea that pro forma analysis must be done with an appreciation for strategy and scenarios that can develop under the strategy.

To value a stock, an analyst forecasts (based on a scenario), and then converts the forecast to a valuation. An analysis can thus be criticized on the basis of the forecasts that are made or on the way that value is inferred from the forecast. Students will question Alger's forecasts, but the point of the case is to question the way he inferred the value of AOL from his forecasts.

Working the Case

A. Calculation of price of AOL with a P/E of 24 in 2004

Earnings in 2004 for a profit margin of 26% of sales: $\$16.000 \times 0.26$	\$4.160 billion
Market value in 2004 with a P/E ratio of 24	\$99.840
Present value in 1999 (at a discount rate of 10%, say)	\$61.993
Shares outstanding in 1999	1.100
Value per share, 1999	\$56.36

(Students might quibble about the discount rate; the sensitivity of the value to different discount rates can be looked at.)

B. Market value of equity in 1999: 105×1.10 billion shares	\$115.50 billion
Future value in 2004 (at 10%)	\$186.014
Forecasted earnings, 2004	\$4.160 billion
Forecasted P/E ratio	44.7

So, if AOL is expected to have a P/E of 50 in 2004, it is a BUY.

C. There are two problems with the analysis:

1. The valuation is circular: the current price is based on an assumption about what the future price will be. That future price is justified by an almost arbitrary forecast of a P/E ratio. The valuation cannot be made without a calculation of what the P/E ratio should be. Fundamental analysis is needed to break the circularity.

Alger justified a P/E ratio of 50, based on

- Continuing earnings growth of 30% per year after 2000
- "Consistency" of earnings growth
- An "excitement factor" for the stock.

Is his a good theory of the P/E ratio? Discussion might ask how the P/E ratio is related to earnings growth (Chapter 6) and whether 30% perpetual earnings growth is really possible.

What is "consistency" of earnings growth?

What is an "excitement factor"?

How does one determine an intrinsic P/E ratio?

2. The valuation is done under one business strategy--that of AOL as a stand-alone, internet portal firm. The analysis did not anticipate the Time Warner merger or any other alternative paths for the business. (See the box in the text). To value an internet stock in 1999, one needed a well-articulated story of how the "Internet revolution" would resolve itself, and what sort of company AOL would look like in the end.

Further Discussion Points

- Circular valuations are not uncommon in the press and in equity research reports: the analyst specifies a future P/E ratio without much justification, and this drives the valuation.
- The ability of AOL to make acquisitions like its recent takeover of Netscape will contribute to growth -- and Alger argued this. But, if AOL pays a “fair price” for these acquisitions, it will just earn a normal return. What if it pays too much for an overvalued internet firm? What if it can buy assets (like those of Time Warner) cheaply because its stock is overpriced? This might justify buying AOL at a seemingly high price. Introduce the discussion on creating value by issuing shares in Chapter 3.
- The value of AOL’s brand and its ability to attract and retain subscribers are crucial.
- The competitive landscape must be evaluated. Some argue that entry into internet commerce is easy and that competition will drive prices down. Consumers will benefit tremendously from the internet revolution, but producers will earn just a normal return. A 26% profit margin has to be questioned. The 1999 net profit margin was 16%.
- A thorough analysis would identify the main drivers of profitability and the growth.
 - analysis of the firm’s strategy
 - analysis of brand name attraction
 - analysis of churn rates in subscriptions
 - analysis of potential competition
 - analysis of prospective mergers and takeovers and “synergies” that might be available
 - analysis of margins.

Postscript

David Alger, president of Fred Alger Management Inc., perished in the September 11, 2001 devastation of the World Trade Center in New York, along with many of his staff. The Alger Spectra fund was the top performing diversified stock fund of the 1990s.

