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SECOND EDITION

FINANCIAL MODELING AND VALUATION

A Practical Guide to Investment Banking and Private Equity

PAUL PIGNATARO

WILEY

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To my wife, Carmen, for her love and support, enabling me to find the time to write this book and to juggle a multitude of ventures, I am ever grateful.

Preface

The markets are vast and complex—not only the United States but also the global markets. Stocks, bonds, mutual funds, derivatives, options—yes, choices are endless, literally. Everyone wants to make money. Yet, throughout the past years we have faced tremendous market swings, leaving investors (and their money) floundering in a sea of lost hopes and few investors with a plethora of wealth. Many of these market anomalies and swings are dependent on, and in a sense dictated by, the investor – you. The investor plays a part in setting the current stock price. The reaction of the investor can aid in determining the success of an initial public offering (IPO). Yes, the collective psychology of the market as a whole plays a major role, but if the everyday investor were better equipped with the proper tools to understand the underlying fundamentals of a rational investment, smarter investment decisions could be made, more rational investments would be made, and the markets would be a more efficient environment.

This book sets out to give any investor the fundamental tools to help determine if a stock investment is a rational one, and if a stock price is undervalued, overvalued, or appropriately valued. These fundamental tools are used by investment banks, private equity firms, and Wall Street analysts.

We will evaluate Amazon, determining its current financial standing, projecting its future performance, and estimating a target stock price. We will further assess if this is a viable investment, but more importantly, give you the tools and concepts to make your own rational investment decisions. We will have you step into the role of an analyst on Wall Street to give you a first-hand perspective and understanding of how the modeling and valuation process works with the tools you need to create your own analyses.

This is a guide designed for investment banking and private equity professionals to be used as a refresher or handbook, or for individuals looking to enter into the investment banking or private equity field. Whether you are valuing a potential investment or business, the tools demonstrated in this book are extremely valuable in the process.

THE AMAZON CASE STUDY

We will analyze Amazon throughout this book. Amazon is an American multinational technology company headquartered in Seattle, Washington. It is currently the second-largest retailer in the world.[1] Through its online and physical stores, Amazon provides hundreds of millions of products sold either directly or via third-party sellers, and manufactures and sells various electronic devices including Kindle, Fire tablet, Fire TV, Echo, Ring, and other devices. Amazon is also involved in a host of technology and internet-focused ventures and initiatives, including Amazon Web Services, intelligent virtual assistance, cloud computing, and live-streaming via Amazon Prime. Amazon also develops and produces media content, and the list of Amazon's offerings continues to expand. If we want to invest in Amazon, how do we determine the viability of such an investment? In order to ensure profitability from a stock investment, we need to understand what the future stock price of Amazon could be. Obviously, stock price fluctuations are largely based on public opinion. However, there is a technical analysis used by Wall Street analysts to help determine and predict the stock price of a business.

This technical analysis is based on three methods:

1. Comparable company analysis

2. Discounted cash flow analysis
3. Precedent transaction analysis

Each of these methods view Amazon from three very different technical perspectives. Individually, these methods could present major flaws. However, it is the common belief that looking at all of these methods together will help us understand the technical drivers supporting Amazon's current stock price. Using Amazon as the example, we will construct all three of the listed analyses and all the supporting analyses exactly as a Wall Street analyst would. We will then have the ability to interpret from the analysis if Amazon is undervalued, overvalued, or appropriately valued. If the company is determined to be undervalued, that may suggest the stock price is lower than expected. We can potentially invest in the business and hope the stock price in time will increase. If the company is determined to be overvalued, that may suggest the stock price is higher than expected. In this case it may not make sense to invest in the business, as the stock price in time could potentially decrease. We are assuming in these cases there has been no unusual or unpredictable activity or announcements in Amazon's business or in the stock market. Such activity or announcements would affect the stock price above and beyond what the technical analysis predicts.

It is important to note that the modeling methodology presented in this book is just one view. The analysis of Amazon and its results do not directly reflect my belief, but rather, a possible conclusion for instructional purposes only based on limiting the most extreme of variables. There are other possibilities and paths I have chosen not to include in this book but could have also been sufficient. Many ideas presented here are debatable, and I welcome the debate. The point is to understand the methods, and further, the concepts behind the methods to properly equip you with the tools to drive your own analyses.

HOW THIS BOOK IS STRUCTURED

This book is divided into two parts:

1. Financial Statements and Projections
2. Valuation

In Part One, we will build a complete financial model of Amazon. We will analyze the company's historical performance and step through techniques to make accurate projections of the business's future performance. The goal of this section is not only to understand how to build a model of Amazon, but also to extract the modeling techniques used by analysts and to apply those techniques to any investment.

Once we have a good understanding of Amazon's past and future performance, Part Two will help us interpret the company's financials into a valuation analysis using the methods mentioned previously. You may skip directly to Part Two if your needs do not require building a complete financial model.

It is important to note it is not 100 percent necessary to have a full-scale model in order to conduct a valuation analysis, but it is recommended. Valuation techniques are based on a summary of the company's performance. In this case, to be complete, we will use the model of the company built in Part One to extract the necessary summary information and to conduct the valuation analysis. However, you could technically use summary information as well.

The book is designed to have you build your own model on Amazon step-by-step. The model template can be found on the companion website associated with this book and is titled “NYSF—Amazon—Template.xls.” To access the website, go to www.wiley.com/go/pignataro (password: investment).

NOTE

1 David Marcotte, "2021 Top 50 Global Retailers," National Retail Federation (March 24, 2021), https://nrf.com/blog/2021-top-50-global-retailers.

PART One
Financial Statements and Projections

Financial modeling is the fundamental building block of analysis in investment banking. We will take a look at Amazon and analyze its financial standing, building a complete financial model as it would be done by Wall Street analysts.

The goals of this section are:

1. Understanding financial statements
    a. Concepts
    b. Historical analysis
    c. Making projections
    d. Model flow between the statements
2. Developing the ability to build a complete financial model of Amazon

It is recommended that a financial model be built on six major components:

1. Income statement
2. Cash flow statement
3. Balance sheet
4. Depreciation schedule
5. Working capital

6. Debt schedule

The first three are the major statements: income statement, cash flow statement, and balance sheet. The latter three help support the flow and continuity of the first three. It is also not uncommon to have even more supporting schedules, depending on the required analysis. Notice the first six tabs in the model template ("NYSF—Amazon—Template.xls"). Each reflects the six major model components. Please use the template and follow along as we build the model together.

CHAPTER 1
The Income Statement

The income statement measures a company's profit (or loss) over a specific period of time. A business is generally required to report and record the sales it generates for tax purposes. And, of course, taxes on sales made can be reduced by the expenses incurred while generating those sales. Although there are specific rules that govern when and how those expense reductions can be utilized, there is still a general concept:

$$\text{Profit} = \text{Revenue} - \text{Expenses}$$

A company is taxed on profit. So:

$$\text{Net Income} = \text{Profit} - \text{Tax}$$

However, income statements have grown to be quite complex. The multifaceted categories of expenses can vary from company to company. As analysts, we need to identify major categories within the income statement in order to facilitate proper analysis. For this reason, one should always categorize income statement line items into nine major categories:

1. Revenue (sales)
2. Cost of goods sold
3. Operating expenses
4. Other income
5. Depreciation and amortization
6. Interest
7. Taxes
8. Non-recurring and extraordinary items
9. Distributions

No matter how convoluted an income statement is, a good analyst would categorize each reported income statement line item into one of these nine categories. This will allow an analyst to easily understand the major categories that drive profitability in an income statement and can further allow him or her to compare the profitability between several different companies—an analysis very important in determining relative valuation. This book assumes you have some basic understanding of accounting, so we will just briefly recap the line items.

REVENUE

Revenue is the sales or gross income a company has made during a specific operating period. It is important to note that when and how revenue is recognized can vary from company to company and may be different from the actual cash received. Revenue is recognized when “realized and earned,” which is typically when the products sold have been transferred or once the service has been rendered.

COST OF GOODS SOLD