Relative Valuation in Financial Markets

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Contents

1 Introduction to market valuation

Relative valuation: Using market information about comparable assets to estimate values.

Theoretical basis: The law of one price: In a competitive market, if two assets are equivalent, they have the same price.

Exercise 1.

You are given the following prices P_t today for receiving risk free payments t periods from now.

t	=	1	2	3
P_t	=	0.95	0.9	0.95

There are traded securities that offer $1 at any future date, available at these prices.

1. How would you make a lot of money?

1.1 Valuation using comparables

The law of one price leads to a simple way of doing valuation: Can we find assets which are comparable to those we want to value?

Exercise 2.

Sarah Fluggel is considering the purchase of a home located at 2121 Tarter Circle in Frisco, Texas. The home has 3,000 square feet of heated and cooled living area, and the current owerns are asking a price of $375,000 for it.

You have collected the following information about other house sales in the area

	Comp # 1	Comp # 2
Sale Price	$240,000	$265,000
Square footage	2,240	2,145
Selling price/sq.ft.	$107.14	$123.54
Time on the market	61 days	32 days

- What is your initial estimate of the value of the home Sarah is considering?
- After making her initial estimate of the value of the home, Sarah decided to investigate whether the owner's asking price of $375,000 might be justified based on unique attributes of the home. What types of details might you recommend Sarah look for trying to justify the price of the home?
- What if the house Sarah is considering had an asking price of $315,000? What would you recommend Sarah do then?

1.2 Pricing stocks using comparables

A simplistic valuation of stocks is the *P/E multiple method*:

Stock Price = Earnings per Share (EPS) × Industry average P/E multiple.

Let us first illustrate how this method works

Exercise 3.

We want to find the stock price of a firm in the software industry.

Currently, the P/E ratio for the industry is 24.

We are valuing a firm that projects earnings of 10 per share next year.

1. Estimate the value of one share.

1.3 Theoretical justification of valuation using ratios

Exercise 4.

In valuation of companies one often uses the so called "P/E method" which says that the value can be found as an estimate of next year's net earnings multiplied by a "P/E multiple", ie

$$\text{Value}_t = E_t[X_{t+1}] \times \text{P/E multiple}$$

where X_{t+1} is the expected earnings of the firm. The "P/E multiple" is usually found by looking at industry averages.

1. How can such a procedure be reconciled with the standard stock valuation formula

$$P_t = \frac{E_t[D_{t+1}]}{r-g}?$$

2. Within this framework, is the application of industry standard "P/E factors" sensible?

2 ExxonMobil Chemical Division

ExxonMobil is a large energy company, with oil production its main line of business. From the 2004 annual report, you can find the earnings for the whole company, and also broken down on its divisions

Net Income for Exxon	25.3 billion
Earnings in	
Upstream	16.7 billion
Downstream	5.7 billion
Chemical Division	3.4 billion

How could one put a value on the Chemical Division?

3 Company Valuation by multiples

Exercise 5.

Valuate the equity of a non-listed company with earnings \$2.3 mill, using the following set of comparable companies.

	Earnings per share	Stock price	PE
Firm A	\$1.00	\$10	10.0
Firm B	\$1.50	\$14	9.3
Firm C	\$1.25	\$13	10.4

Exercise 6.

You want to value company C, and find two comparable firms A and B.

Firm	Debt	Equity	Sales	Earnings	PS	PE
A	600	600	200	51	3	11.76
B	0	1200	200	100	6	12.00
Average					4.5	11.88
C	300	$\boxed{300}$	100	25	$\boxed{3}$	$\boxed{12.0}$

1. Value C using PS
2. Value C using PE

4 Summarizing

Key message: Prices in financial markets convey information.

One need more information than public information to say that market prices are incorrect.

Law of one price: "Same Cashflows = Same value"

Implication of law of one price: Valuation can be done by looking at comparable assets.

References

Sheridan Titman and John D Martin. *Valuation. The art and science of corporate investment decisions.* Pearson, third edition, 2016.