



Finance & Wealth Management

Course n°3

Equity Valuations, and the Cost of Capital.

Why an accounting value isn't a transaction value

Equity valuations methods

Cost of Capital : theory and practice

Questions

- What is equity ? It was explained on course 1
- Why ones should need to valuate it ? It appears on BS. There is a price for listed compagnies stocks.
- The idea is that valuation isn't a science : different methods will provide different results.
- What is a fair rate of return on equity ? What is your opinion.

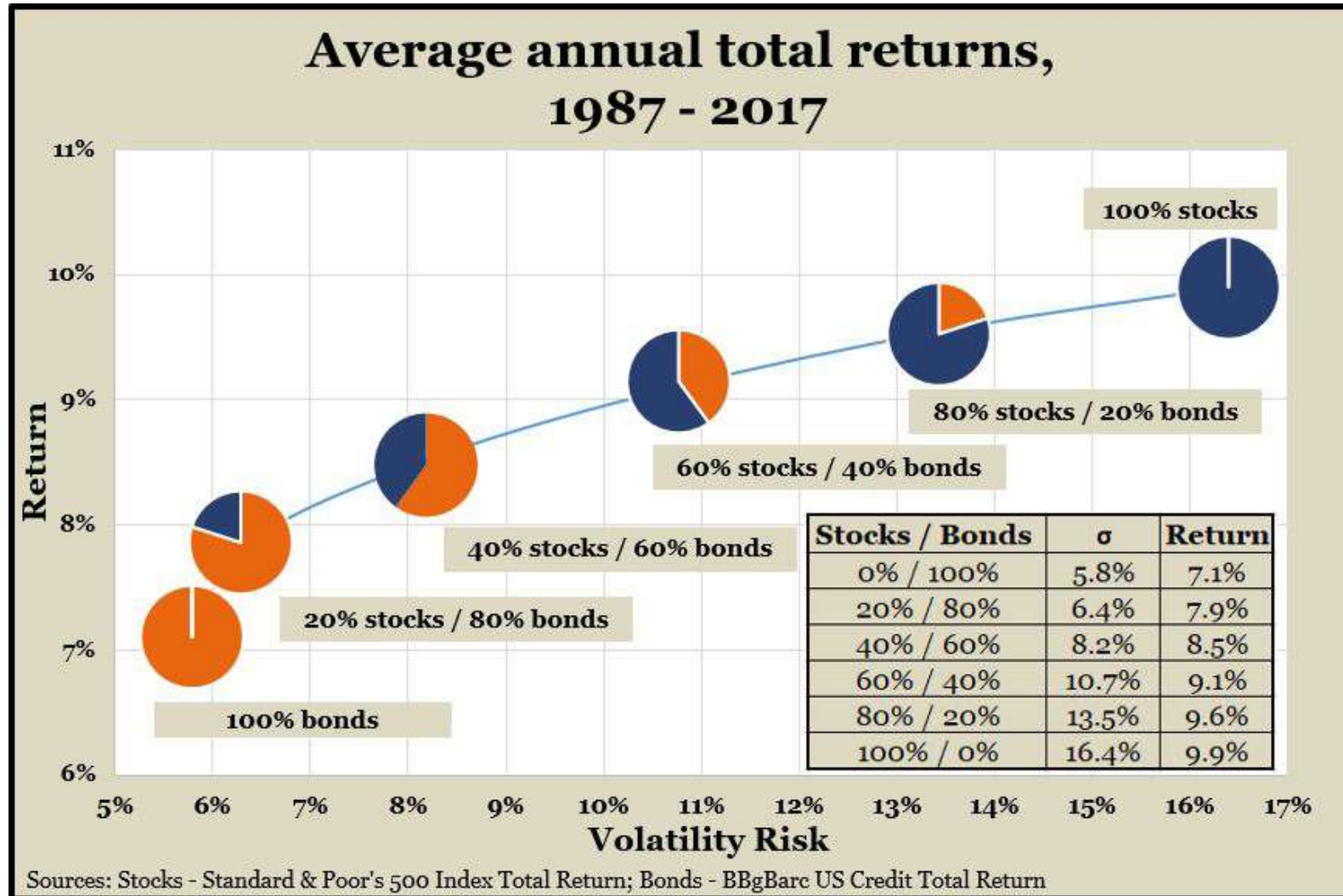
Risk and return relationship



More questions

- How do you measure risk ?
- What is the unit of risk ?
- Does a small company should have an higher return on equity than a big one ?

Historical return of US markets



Source : <https://www.landaas.com/landaas-university/the-efficient-frontier-balancing-risk-and-return/>

30 years of S&P 500



Equity Valuation

We will see various methods : DCF, Comparables : companies & transactions and asset-based.

Discounted cash flows

DCF is the net present value (NPV) of cash flows projected by the company. DCF is based on the principle that the value of a business or asset is intrinsically based on its capability to generate cash flows.

Hence, DCF relies more on the fundamental expectations of the business than on public market factors or historical model. It is more theoretical approach which relies on various assumptions.

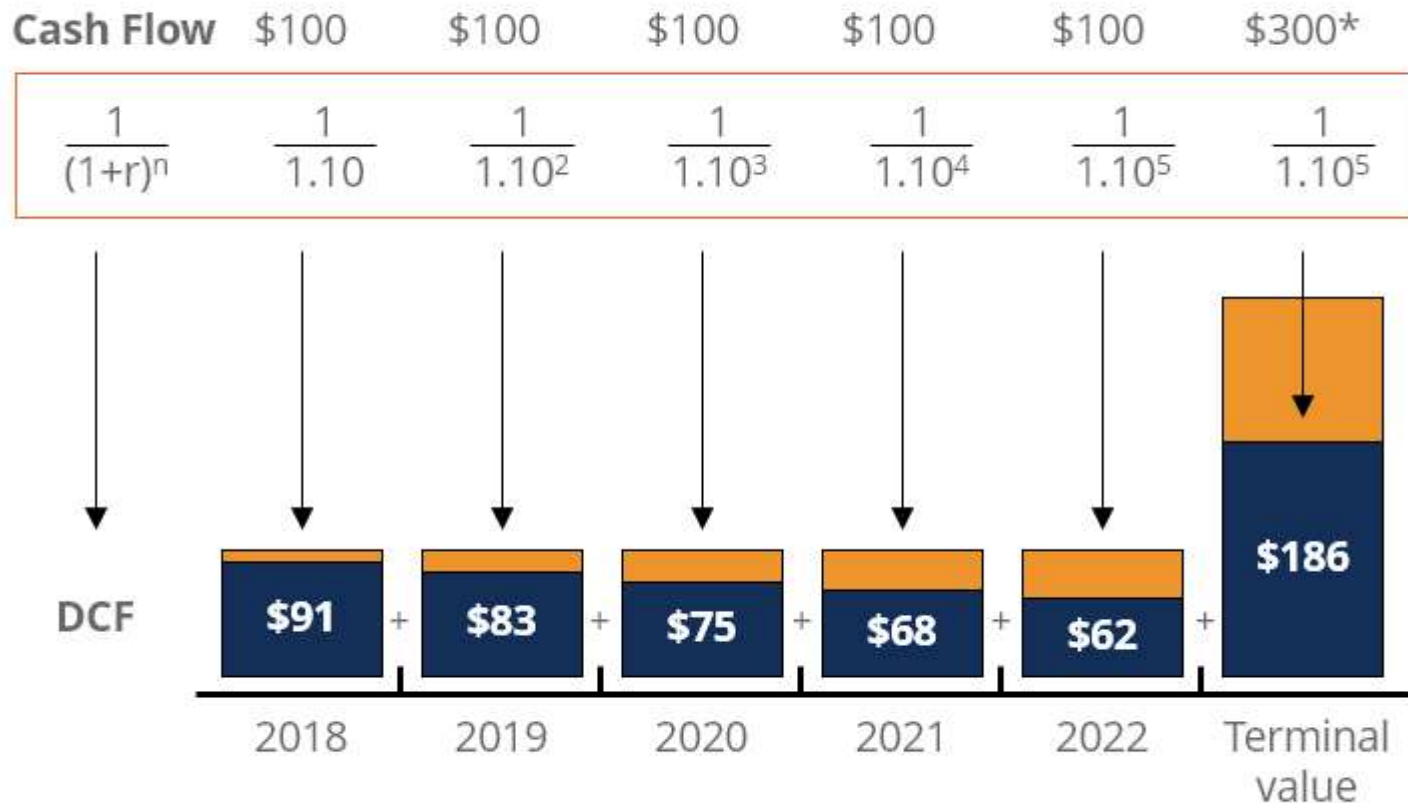
A DCF analysis helps in yielding the overall value of a business (i.e. enterprise value), including both debt and equity.

While calculating this, the present value (PV) of expected future cash flows is calculated. The disadvantage of this technique is an estimation of future cash flow & terminal value along with appropriate risk-adjusted discount rate.

All these inputs are subject to substantial subjective judgment. Any small change in input changes the equity valuation significantly. If the value is higher than cost then the investment opportunity needs to be considered.

DCF : example 1

Discounted Cash Flow Formula



DCF Value = \$565 million

* Value of FCF beyond 2022

DCF : example 2

	A	B	C	D	E	F	G	H	I	J
151										
152	DCF Model									
153										
154	Assumptions									
155	Tax Rate		25%							
156	Discount Rate		12%							
157	Perpetual Growth Rate		4%							
158	EV/EBITDA Multiple		8.0x							
159	Current Price		\$17.30							
160	Shares Outstanding		25,000							
161										
162	Discounted Cash Flow	Entry	2017	2018	2019	2020	2021	2022	Exit	
163	Date	9/30/2017	12/31/2017	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022	12/31/2022	
164	Year Fraction		0.25	1.00	1.00	1.00	1.00	1.00	1.00	
165										
166	EBIT		29,581	36,506	43,271	48,576	53,260	57,056		
167	Less: Cash Taxes		7,395	9,126	10,818	12,144	13,315	14,264		
168	NOPAT		22,186	27,379	32,453	36,432	39,945	42,792		
169	Plus: D&A		4,203	4,512	4,760	4,958	5,116	5,243		
170	EBITDA		33,783	41,018	48,030	53,533	58,376	62,299		
171	Less: Capex		5,750	5,750	5,750	5,750	5,750	5,750		
172	Less: Changes in NWC		2,477	147	1,079	1,077	1,010	791		
173	Unlevered FCF		18,161	25,994	30,383	34,563	38,301	41,493	467,009	
174										
175	Transaction FCFF		-	4,540	25,994	30,383	34,563	38,301	41,493	467,009
176										
177										
178										
179	Intrinsic Value									
180	Enterprise Value		378,381							
181	Plus: Cash		61,889							
182	Less: Debt		16,801							
183	Equity Value		423,469							
184										
185	Equity Value/Share		16.94							
186										

Cost of capital

The DCF methods raise the question of which actualisation rate / discount rate / required rate of return is appropriate.

This rate should cover the level of risk.

Comparable Company Analysis Valuation Method

This equity valuation method involves comparing the operating metrics and valuation models of public companies with that of target companies.

Using equity valuation multiple is the quickest way of valuing a company. Apart from that, it is useful in comparing companies that doing a comparable company analysis. The focus is to capture firm's operating & financial characteristics such as future expected growth in a single number. This number is then multiplied by a financial metric to yield enterprise value.

This equity valuation method is used for a target business that has an identifiable stream of earnings or revenue which can be maintained by the business. For businesses that are still at development stage then projected revenue or earnings are used as the basis of valuation models.



Company	Price	MarketCap	EV	Multiples			
				EV/Revenue		P/FCF	EV/EBITDA
				2014	2015	2014	2014
Athenahealth	\$175.50	\$7,095	\$7,254	9.8x	7.9x	NM	54.4x
Bazaarvoice	\$8.49	\$653	\$596	3.0x	2.6x	NM	NM
Benefitfocus	\$56.97	\$1,551	\$1,473	11.3x	9.0x	NM	NM
BroadSoft	\$27.85	\$842	\$770	3.8x	3.3x	16.7x	15.8x
Concur Technologies	\$105.82	\$6,352	\$6,161	8.5x	6.8x	NM	53.0x
Constant Contact	\$26.81	\$878	\$755	2.3x	2.1x	30.8x	15.2x
Cornerstone OnDemand	\$56.12	\$3,244	\$3,154	12.0x	8.6x	NM	NM
Cvent	\$40.55	\$1,892	\$1,734	12.7x	10.1x	NA	NA
Dealertrack Technologies	\$52.90	\$2,978	\$3,016	5.4x	4.7x	39.5x	22.1x
Demandware	\$73.89	\$2,913	\$2,637	19.1x	14.2x	NM	NM
E2open	\$25.63	\$784	\$776	3.4x	2.8x	28.8x	11.2x
Fleetmatics Group	\$35.57	\$1,416	\$1,303	5.7x	4.6x	52.0x	20.2x
RealPage	\$18.77	\$1,520	\$1,487	3.2x	2.8x	21.1x	13.1x
RingCentral	\$20.60	\$1,489	\$1,408	7.1x	5.5x	NM	NM
Salesforce	\$58.16	\$37,603	\$39,273	7.5x	6.1x	48.1x	43.8x
ServiceNow	\$66.18	\$10,824	\$10,604	17.3x	12.0x	NM	NM
SPS Commerce	\$64.51	\$1,100	\$969	7.7x	6.3x	NM	64.0x
Texture	\$27.10	\$733	\$658	9.8x	6.5x	NM	NM
The Ultimate Software Group	\$154.72	\$4,664	\$4,583	9.1x	7.4x	NM	40.8x
Veeva	\$32.26	\$4,768	\$4,480	17.2x	13.8x	NM	NM
Vocus	\$14.49	\$327	\$371	2.0x	1.9x	50.0x	12.2x
Wix	\$26.40	\$1,261	\$1,159	9.5x	7.0x	NM	NM
Workday	\$100.91	\$20,789	\$19,384	27.7x	19.1x	NM	NM
Xero	\$35.81	\$4,502	\$4,455	44.1x	23.7x	NM	NM

Median		\$1,551	\$1,487	7.7x	6.3x	39.5x	29.6x
Mean		\$4,545	\$4,402	9.5x	7.1x	38.3x	32.0x
Low		\$327	\$266	2.0x	1.9x	16.5x	11.2x
High		\$37,603	\$39,273	44.1x	23.7x	69.4x	64.0x

Comparable Transaction Valuation Model

Value of company using this equity valuation method is estimated by analyzing price that was paid for similar companies in similar circumstances. This kind of valuation method helps in understanding the multiples and premiums paid in a specific industry and how private market valuations were assessed by other parties.

This equity valuation method requires familiarity with industry & other assets. When choosing companies for this type of analysis, one needs to keep in mind that there are similarities between factors such as financial characteristics, same industry, and size of the transaction, type of transaction and characteristics of the buyer.

Comparables example

Date	Target	Acquirer	Deal Size (\$ bn)	EV/Sales
Dec-13	Responsys	Oracle	1.5	8.0x
Jul-13	ExactTarget	Salesforce	2.5	8.6x
Dec-12	Eloqua	Oracle	1.0	9.7x
Aug-12	Kenexa	IBM	1.3	4.1x
May-12	Ariba	SAP	4.3	8.2x
Feb-12	Taleo	Oracle	1.8	6.0x
Mean				7.4x
Highest				9.7x
Lowest				4.1x

Asset-Based Valuation Model

The asset-based valuation method takes into account the value of the assets and liabilities of a business. Under this approach, the value of a business is equal to the difference between the value of all its relevant assets and the value of all its relevant liabilities.

This may appear at the simplest method and most intuitive for people non familiar with finance but is rarely used.

Put it simply : book value of equity reflect past, not present market value

Why an accounting value isn't a transaction value

Who cares about the past ?

The different between market value and book value is computed via a ratio called price to book ratio and can be very significant.

Practical work : compute B/P ratio for L'Oréal

Cost of capital

Capital can be either equity or debt.

For debt the cost of debt is merely the interest rate paid by the company on its debt. However, since interest expense is tax-deductible, the debt is calculated on an after-tax basis as follows:

$$\text{Cost of debt} = \frac{\text{Interest expense}}{\text{Total debt}} \times (1 - T)$$

where:

Interest expense = Int. paid on the firm's current debt

T = The company's marginal tax rate

Cost of capital

The cost of equity is more complicated since the rate of return demanded by equity investors is not as clearly defined as it is by lenders. The cost of equity is approximated by the capital asset pricing model as follows:

$$CAPM(\text{Cost of equity}) = R_f + \beta(R_m - R_f)$$

where:

R_f = risk-free rate of return

R_m = market rate of return

Beta

Beta (β or beta coefficient) of an investment is a measure of the risk arising from exposure to general market movements as opposed to idiosyncratic factors.

The market portfolio of all investable assets has a beta of exactly 1.

$$\beta = \frac{\text{Cov}(r_p, r_m)}{\text{Var}(r_m)}$$

WACC

The firm's overall cost of capital is based on the weighted average of these costs. For example, consider an enterprise with a capital structure consisting of 70% equity and 30% debt; its cost of equity is 10% and after-tax cost of debt is 7%.

Therefore, its WACC would be:

$$(0.7 \times 10\%) + (0.3 \times 7\%) = 9.1\% \quad (0.7 \times 10\%) + (0.3 \times 7\%) = 9.1\% \quad (0.7 \times 10\%) + (0.3 \times 7\%) = 9.1\%$$