Exit Multiples

The method we used to calculate the intrinsic value of Apple is accurate but it has some limitations. We didn't take into consideration that Apple is buying back shares and paying dividends. We could do that by altering the discount rate to account for these. Apple has been buying 5% of its shares back per year over the last 5 years and has a dividend yield of about 1%. How do we adjust the discount rate for that? That's a hard thing to do. Finding a right discount rate is already hard, let's not make it harder. Besides, changing the discount rate by only 1% makes a big difference. Let's say someone else thinks that the discount rate should be 9% instead of 10%.

Year	Owner's Earnings	Discounted OE
2020	$ 53,000	$ 48,182
2021	$ 55,650	$ 45,992
2022	$ 58,433	$ 43,901
2023	$ 61,354	$ 41,906
2024	$ 64,422	$ 40,001
2025	$ 66,354	$ 37,455
2026	$ 68,345	$ 35,072
2027	$ 70,395	$ 32,840
2028	$ 72,507	$ 30,750
2029	$ 74,683	$ 28,793
Terminal Value	2% growth/year	$ 359,917
Intrinsic Value		**$ 744,809**

Year	Owner's Earnings	Discounted OE
2020	$ 53,000	$ 48,624
2021	$ 55,650	$ 46,839
2022	$ 58,433	$ 45,121
2023	$ 61,354	$ 43,465
2024	$ 64,422	$ 41,870
2025	$ 66,354	$ 39,565
2026	$ 68,345	$ 37,387
2027	$ 70,395	$ 35,329
2028	$ 72,507	$ 33,384
2029	$ 74,683	$ 31,547
Terminal Value	2% growth/year	$ 450,667
Intrinsic Value		**$ 853,798**

This 1% adjustment changed the intrinsic value by more than $100 billion or about 15%.

Now, if someone else thinks that Apple will grow by 3% in perpetuity, this further complicates things.

Year	Owner's Earnings	Discounted OE
2020	$ 53,000	$ 48,182
2021	$ 55,650	$ 45,992
2022	$ 58,433	$ 43,901
2023	$ 61,354	$ 41,906
2024	$ 64,422	$ 40,001
2025	$ 66,354	$ 37,455
2026	$ 68,345	$ 35,072
2027	$ 70,395	$ 32,840
2028	$ 72,507	$ 30,750
2029	$ 74,683	$ 28,793
Terminal Value	2% growth/year	$ 359,917
Intrinsic Value		**$ 744,809**

Year	Owner's Earnings	Discounted OE
2020	$ 53,000	$ 48,624
2021	$ 55,650	$ 46,839
2022	$ 58,433	$ 45,121
2023	$ 61,354	$ 43,465
2024	$ 64,422	$ 41,870
2025	$ 66,354	$ 39,565
2026	$ 68,345	$ 37,387
2027	$ 70,395	$ 35,329
2028	$ 72,507	$ 33,384
2029	$ 74,683	$ 31,547
Terminal Value	3% growth/year	$ 525,779
Intrinsic Value		**$ 928,910**

We now have a 25% difference from the original intrinsic value.

Another limitation of this method is that we may not hold the company forever. If we're holding it for only 5 years (because let's say we want to invest in 5G), what's the use of the discounted owner's earnings for the year 2029?

I'm not saying that the discounted owner's earnings method of Warren Buffett is wrong. It is the best way to value a company that you're going to acquire fully and as you get better as an investor, it will be easier to determine the right discount rate and other estimates. But if you want to hold a company for only a few years, it doesn't really show us the whole picture.

Let's say we want to buy Apple stocks today and hold until 2029, is this a good idea?

Since we're buying shares, and not the whole company, let's look at the shares.

Year	2015	2016	2017	2018	2019
Net Income	$ 53,394	$ 45,687	$ 48,351	$ 59,531	$ 55,256
D,A, D	$ 11,257	$ 10,505	$ 10,157	$ 10,903	$ 12,547
others	$ 5,000	$ 5,000	$ 1,000	$ (4,000)	$ (4,480)
Maintainance CapEx	$ 11,000	$ 12,000	$ 12,000	$ 13,000	$ 10,000
Owner's Earnings	$ 58,651	$ 49,192	$ 47,508	$ 53,434	$ 53,323
Shares Outstanding	5793.1	5500.3	5251.7	5000.1	4648.9
OE/Share	$ 10.12	$ 8.94	$ 9.05	$ 10.69	$ 11.47
Price	$ 110.30	$ 113.05	$ 154.12	$ 225.74	$ 223.97
P/OE	10.9	12.6	17.0	21.1	19.5

We calculated the Owner's Earnings per share and the Price to Owner's Earnings Ratio of Apple.

In 2029, according to our prediction, Apple will have an owner's earnings of $74.7 billion. Let's assume Apple keeps lowering buying back their shares at a rate of 5% per year. In 2029, Apple will have 2800 shares.

Let's estimate the OE/Share for 2029

Year		2015		2016		2017		2018		2019	2029 E
Net Income	$	53,394	$	45,687	$	48,351	$	59,531	$	55,256	
D,A, D	$	11,257	$	10,505	$	10,157	$	10,903	$	12,547	
others	$	5,000	$	5,000	$	1,000	$	(4,000)	$	(4,480)	
Maintainance CapEx	$	11,000	$	12,000	$	12,000	$	13,000	$	10,000	
Owner's Earnings	$	58,651	$	49,192	$	47,508	$	53,434	$	53,323	$74,683
Shares Outstanding		5793.1		5500.3		5251.7		5000.1		4648.9	2800
OE/Share	$	10.12	$	8.94	$	9.05	$	10.69	$	11.47	$ 26.67
Price	$	110.30	$	113.05	$	154.12	$	225.74	$	223.97	
P/OE		10.9		12.6		17.0		21.1		19.5	

The owner's earnings per share in 2029 is estimated to be $26.67.

Over the past 5 years, Apple had exit multiples ranging from 10.9 to 21.1. What is this exit multiple?

It really depends on the company. For Apple we can use the Price to Owner's Earnings Ratio. For a bank, the PB Ratio might be better.

How much will investors pay for Apple in 2029? P/OE of 10? 15? 20?

Right now, the P/OE of Apple is 35. That's a record high for the company.

We will need to look at three cases, the bear, base and bull case.

In the bear case, we use a multiple of 10, for the base case, we use a multiple of 20 and for the bull case, we use a multiple of 30.

	Bear	Base	Bull
P/OE Multiples	10	20	30
Price	$267	$533	$800

We now estimate the probabilities of each scenario happening and calculate the expected price of each.

Currently, the price of Apple is $459.63. Let's calculate the returns of Apple for the next 10 years and the Compounded Annual Growth Rate (CAGR).

	Bear	Base	Bull
P/OE Multiples	10	20	30
Price	$267	$533	$800
Returns	-42%	16%	74%
CAGR	-5.30%	1.50%	5.70%

We also estimate that Apple will always be paying a 1% dividend yield.

	Bear	Base	Bull
P/OE Multiples	10	20	30
Price	$267	$533	$800
Returns	-42%	16%	74%
CAGR	-5.30%	1.50%	5.70%
Dividends	1.00%	1.00%	1.00%
CAGR + Div	-4.30%	2.50%	6.70%

Next, we will estimate the probabilities of the bear, base and bull cases and then calculate the expected return.

Expectation is calculated by summing the products of the probability and the (CAGR + Div)

	Bear	Base	Bull	
P/OE Multiples	10	20	30	
Price	$267	$533	$800	
Returns	-42%	16%	74%	
CAGR	-5.30%	1.50%	5.70%	
Dividends	1.00%	1.00%	1.00%	
CAGR + Div	-4.30%	2.50%	6.70%	
Probability	20%	50%	30%	
Expectation	-0.01	0.01	0.02	2.40%

The Expected annual returns on Apple stock is 2.40% including dividends. This doesn't like a good investment right now. Normally, one would be expecting higher returns than that.

We can see the big gains of Apple in recent weeks.

In the middle of the Early 2020 crash, Apple stock price crashed to $224.37 and since then has already doubled. Let's look at that price if Apple would be a good investment.

	Bear	**Base**	**Bull**	
P/OE Multiples	10	20	30	
Price	$267	$533	$800	
Returns	19%	138%	257%	
CAGR	1.74%	9.05%	13.56%	
Dividends	1.00%	1.00%	1.00%	
CAGR + Div	2.74%	10.05%	14.56%	
Probability	20%	50%	30%	
Expectation	0.01	0.05	0.04	9.94%

At that price, the expected annual return would be 9.94%, which makes it a much attractive investment.

At the price of $224.37, the market cap of Apple would be around $1 trillion and much nearer to the intrinsic value that we calculated.

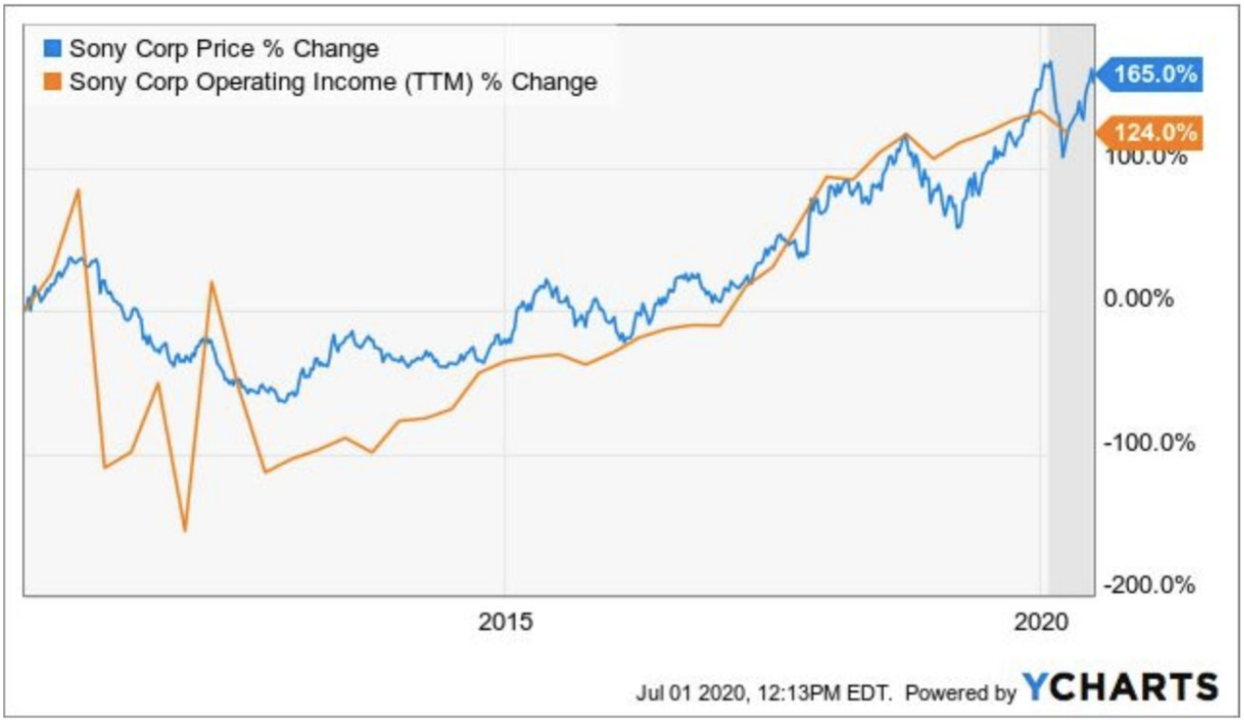
If we wanted to invest in a bank the PB ratio would have been a better exit multiple. Depending on the company, on the sector, you need to figure out which

Let's look at another example, Sony, a company I recently analysed.

				Operating PE Multiples							
Operating EPS in 2025			**X7**		**X10**		**X15**		**X20**		**X25**
Bear	**$**	**9.59**	$	67.13	$	95.90	$	143.85	$	191.80	$ 239.75
Base	**$**	**11.07**	$	77.49	$	110.70	$	166.05	$	221.40	$ 276.75
Bull	**$**	**12.54**	$	87.78	$	125.40	$	188.10	$	250.80	$ 313.50
Returns				-4.63%		57.27%		135.90%		214.53%	345.38%
CAGR				-0.94%		9.48%		18.73%		25.76%	34.82%
Probability				20%		35%		30%		10%	5%
Expected CAGR		13.06%		-0.19		3.32		5.62		2.58	1.74

With this company, I looked at more than just 3 scenarios. That's usually what I do. I looked at 5 exit multiples of the operating PE and then a bear, a base and a bull vase. In total, I looked at 15 different scenarios. The more scenarios you look at the better you will be able to evaluate the company.

I used operating PE since Sony stock price is highly correlated with its operating PE.



Let’s look at Whiting Petroleum, a bankrupt oil company.

Date	Dec 19	Mar 20	Aug 20 (Est)	Aug 25 (Bear -Est)	Aug 25 (Base-Est)	Aug 25 (bull-Est)	
Cash	$ -	$ 566	$ 566	$ 600	$ 600	$ 600	
PP&E	$ 7,265	$ 3,442	$ 3,442	$ 2,400	$ 4,500	$ 9,000	
Total Assets	$ 7,637	$ 4,526	$ 4,526	$ 3,500	$ 5,600	$ 10,000	
Debt	$ 2,800	$ 3,423	$ 1,220	$ 2,000	$ 1,200	$ 1,200	
Other Liabilites	$ 812	$ 709	$ 800	$ 800	$ 800	$ 800	
Total Liabilities	$ 3,612	$ 4,132	$ 2,020	$ 2,800	$ 2,000	$ 2,000	
Book Value	$ 4,025	$ 394	$ 2,506	$ 700	$ 3,600	$ 8,000	
Shares Outstanding	91.33	91.44	3048	3048	3048	3048	
BVPS	$44.07	$4.31	$0.82	$0.23	$1.18	$2.62	
P/B	0.17	0.26	1.35	0.2	1.3	3	
Price	$ 7.50	$ 1.12	$ 1.11	$ 0.05	$ 1.53	$ 7.86	
Returns				-96%	38%	608%	
CAGR				-47%	7%	48%	
Probability				20%	50%	30%	
Expected				-9.4%	3.3%	14.4%	8.27%
@ $0.60				-7.8%	10.3%	14.4%	16.83%

For this one, I used PB exit multiples and in order to find the book value of the company, I had to look at future PP&E.

There is no formula to calculate the intrinsic value or the exit multiples of a company. Each company is different. It is hard but over time, you’ll get used to this art.