Twitter Thread by SEE ACT WIN

SEE ACT WIN
@SEEACTWIN

VALUATION MULTIPLES FROM FIRST PRINCIPLES

• There is a lot of misunderstanding & misapplication of valuation multiples, both among retail and institutional investors
• Get clarity on this by revisiting the 1st principles here

Prerequisites:
• Finance 101 knowledge

THREAD ■



KEY CONCEPT: VALUE STAKEHOLDERS
"Beauty is in the eye of the beholder"

"Value is in the rights of the user"
So it is important to ask, "VALUE TO WHOM?"

There are 2 main types of stakeholders in a company:
1. Equity holders
2. Lenders

KEY CONCEPTS: MCAP and EV

Value to equity holders is represented by the Market Capitalization (MCAP).

Value to equity AND lenders is represented by Enterprise Value (EV):

Notice how you can convert between Enterprise Value to Market Capitalization easily

$$Enterprise\ Value(EV) = Market\ Capitalization\ (MC) + Net\ Debt\ (ND)$$
$$Net\ Debt\ (ND) = Debt\ - Cash$$

KEY CONCEPT: FCFF

Free cash flow to the firm (FCFF) = Cash flows available for distribution to both equity holders AND lenders

Related:
Free cash flow to equity (FCFE) = Cash flows available for distribution to ONLY the equity holders

We will focus on EV & FCFF in the examples

$$FCFF = EBITDA * (1 - t) + D\&A * t - Capex - NWC, where:$$
$$t = Cash\ tax\ rate$$
$$D\&A = Depreciation\ and\ amortization$$
$$NWC = Net\ working\ capital = Current\ Operating\ Assets\ - Current\ Operating\ Liabilities$$
$$Note\ that\ Current\ Operating\ Assets\ would\ exclude\ Cash\ as\ that\ is\ NOT\ an\ operating\ asset$$

KEY CONCEPT: FUNDAMENTAL VALUE OF A COMPANY

The fundamental/intrinsic value of a company is equal to the present value of the cash flows it would generate in future.

The growing perpetuity expression of value is shown below:

$$The\ fundamental\ value\ equation\ states\ that$$
$$The\ value\ of\ a\ company\ is\ equal\ to\ the\ present\ value\ of\ the\ future\ \ stream\ of\ cash\ flows$$
$$Mathematically:$$
$$EV = \frac{FCFF}{r - g}, where$$
$$r = Opportunity\ cost\ of\ capital\ for\ the\ firm$$
$$g = Perpetuity\ growth\ rate\ of\ the\ FCFF$$
$$Note\ that\ FCFF\ in\ this\ equation\ corresponds\ to\ FCFF\ in\ the\ next\ year!$$

DERIVED CONCEPT: FCFF VALUATION MULTIPLE

From these principles, we get a link between the EV/FCFF multiple and the opportunity cost of capital r, and the perpetuity growth rate g:

From this, we can arrive at the first and most fundamental valuation multiple, based on FCFF:

$$\frac{EV}{FCFF} = \frac{1}{r-g}$$

Note that since FCFF corresponds to FCFF in the next year, this is a $1-yr$ *fwd FCFF multiple!*

DERIVATION OF OTHER VALUATION MULTIPLES:

From the FCFF multiple one can get other valuation multiples
These all help link the valuation multiples with underlying operating metrics of the business

What are operating metrics?
• Margins
• D&A
• Capex
• Working Capital

From this FCFF valuation multiple and the fundamental valuation equation, all other multiples can be derived.
Viewing valuation multiples in this fundamental way is useful
Because it explicitly links cost of capital, perpetuity growth and operating metric assumptions to the multiples
It helps you better understand what is actually driving the valuation multiple
And this knowledge is useful in understanding which companies would truly be comparables
Due to similar costs of capital, perpetuity growth and operating metrics

WHAT'S REALLY INCLUDED IN THE EV/EBITDA MULTIPLE:

This shows the link between the EV/FCFF multiple and the EV/EBITDA multiple:

Derivation of the $\frac{EV}{EBITDA}$ *multiple:*

$$\frac{EV}{EBITDA} = \frac{EV}{FCFF} * \frac{EBITDA*(1-t) + D\&A*t - Capex - NWC}{EBITDA}$$

$$\frac{EV}{EBITDA} = \frac{EV}{FCFF} * \left(1 - t + \frac{\left(\frac{D\&A}{Sales}*t - \frac{Capex}{Sales} - \frac{NWC}{Sales}\right)}{\frac{EBITDA}{Sales}}\right)$$

Note that again, all the multiples are $1-yr$ *fwd multiples! This is an important nuance!*

WHAT'S REALLY INCLUDED IN THE EV/EBIT MULTIPLE:

This shows the link between the EV/FCFF multiple and the EV/EBIT multiple:

$$Derivation\ of\ the\ \frac{EV}{EBIT}\ multiple:$$

$$\frac{EV}{EBIT} = \frac{EV}{FCFF} * \frac{(EBIT + D\&A) * (1-t) + D\&A * t - Capex - NWC}{EBIT}$$

$$\frac{EV}{EBIT} = \frac{EV}{FCFF} * \left(1 - t + \frac{\left(\frac{D\&A}{Sales} - \frac{Capex}{Sales} - \frac{NWC}{Sales}\right)}{\frac{EBIT}{Sales}}\right)$$

$$Note\ that\ again, all\ the\ multiples\ are\ 1-yr\ fwd\ multiples!\ This\ is\ an\ important\ nuance!$$

WHAT'S REALLY INCLUDED IN THE EV/Sales MULTIPLE:

This shows the link between the EV/FCFF multiple and the EV/Sales multiple:

Note that P/S is an incorrect metric because price P represents value to equity holders
But sales S is attributable to both equity holders AND lenders

$$Derivation\ of\ the\ \frac{EV}{Sales}\ multiple:$$

$$\frac{EV}{Sales} = \frac{EV}{FCFF} * \frac{EBITDA * (1-t) + D\&A * t - Capex - NWC}{Sales}$$

$$\frac{EV}{Sales} = \frac{EV}{FCFF} * \left(\frac{EBITDA}{Sales} * (1-t) + \frac{D\&A}{Sales} * t - \frac{Capex}{Sales} - \frac{NWC}{Sales}\right)$$

$$Note\ that\ again, all\ the\ multiples\ are\ 1-yr\ fwd\ multiples!\ This\ is\ an\ important\ nuance!$$

WHAT'S REALLY INCLUDED IN THE P/E MULTIPLE:

This shows the link between the EV/FCFF multiple and the P/E multiple:
*NPAT here refers to Net Profit After Tax

$$Derivation\ of\ the\ \frac{P}{E}\ multiple:$$

$$\frac{P}{E} = \frac{MC}{NPAT} = \frac{EV - ND}{NPAT} = \frac{EV}{NPAT} - \frac{ND}{NPAT} = \frac{EV}{FCFF} * \frac{EBITDA * (1-t) + D\&A * t - Capex - NWC}{NPAT} - \frac{ND}{NPAT}$$

$$\frac{P}{E} = \frac{EV}{FCFF} * \left(\frac{\frac{EBITDA}{Sales} * (1-t) + \frac{D\&A}{Sales} * t - \frac{Capex}{Sales} - \frac{NWC}{Sales}}{\frac{NPAT}{Sales}}\right) - \frac{ND}{NPAT}$$

$$Note\ that\ again, all\ the\ multiples\ are\ 1-yr\ fwd\ multiples!\ This\ is\ an\ important\ nuance!$$

OTHER VALUATION MULTIPLES

•The same exercise can be done for any other valuation multiple
•Simply start from the first principles that is the Fundamental Value Equation and do the math

APPLICATION OF VALUATION MULTIPLES - PART 1

• Opportunity cost of capital (r)
• Perpetuity growth rate (g)

Flawed application:
Comparing valuation multiples
Of companies in different countries
Which imply different r and g

Ensure r and g are comparable!

APPLICATION OF VALUATION MULTIPLES - PART 2

Operating metrics must be comparable across businesses:
•Margins
•D&A
•Capex
•Working Capital

Common Error Example:
•Tech companies with different biz models & operating structures CANNOT be compared to each other on EV/Revenue

APPLICATION OF VALUATION MULTIPLES - PART 3

Now knowing the link fundamental link between business metrics and valuation multiples,

You can more precisely explain WHY a company trades at a particular multiple

Or what business metrics would lead to company's multiple re-rating

ARE VALUATION MULTIPLES TODAY TOO HIGH? - PART 1

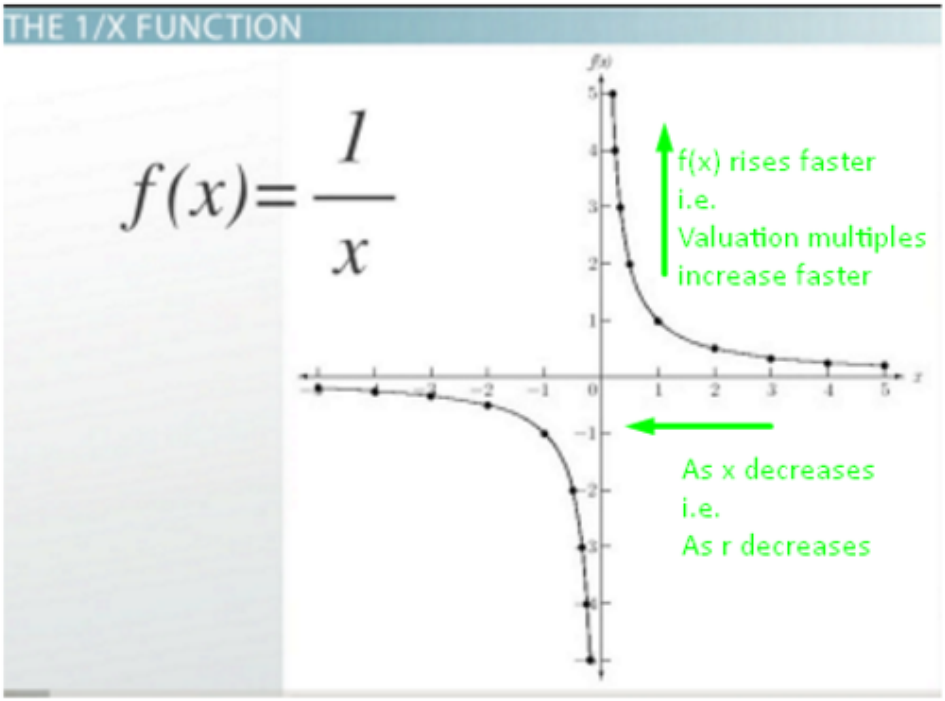
You may have noticed how valuation multiples today are generally much higher than they were decades ago

Why is this?
Is this justified?
Or is it a bubble?

Consider the fundamental FCFF valuation multiple and its drivers:

$$\frac{EV}{FCFF} = \frac{1}{r-g}$$

The FCFF multiple is inversely proportional to the opportunity cost of capital
The relationship between the FCFF valuation multiple and the opportunity cost of capital is hyperbolic
This suggests that as the cost of capital decreases more, the valuation multiple rises at a steeper rate:



ARE VALUATION MULTIPLES TODAY TOO HIGH? - PART 2

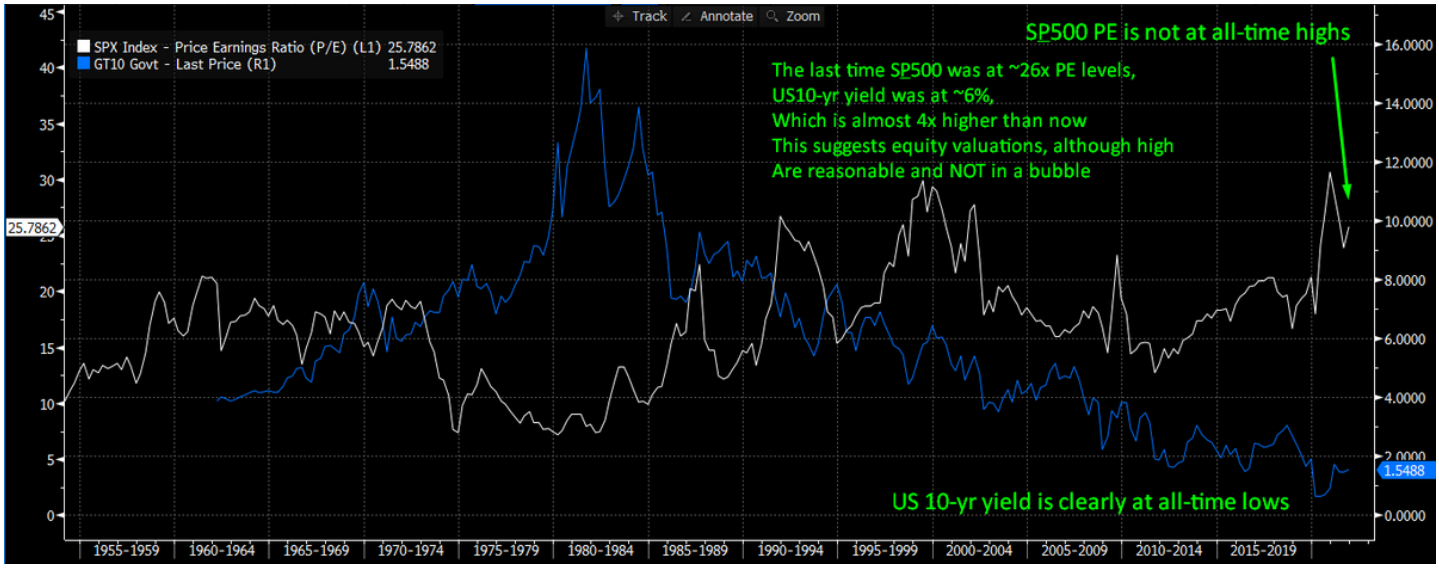
• Other valuation multiples are directly proportional to the EV/FCFF, so the same relationship with r holds

• Cost of capital is directly proportional to bond yields
• Making bond yields a key driver of valuation multiples

ARE VALUATION MULTIPLES TODAY TOO HIGH? - PART 3

Valuation multiples are reasonable and justified
Due to low bond yields

This further supports that we are NOT in a bubble:
https://t.co/4580t3OilR



HOW TO SEE BUBBLES, ACT ON OPPORTUNITY, WIN

- There's a lot of talk of market bubbles recently
- Often a normal correction is called a bubble
- But bubbles are rare & brutal, even to long term investors

See how to profit from the euphoria & get out without undue risk

THREAD \U0001f447

— SEE ACT WIN (@SEEACTWIN) November 13, 2021

EXTENSION: VALUATION MULTIPLES TO BONDS

• The same idea of working from the fundamental value equation into the valuation multiple can be applied to bonds
• The current yields and math shows that bonds are valued at more than 52x currently, compared to just 26x PE for S&P500



Hopefully you have a clearer understanding of valuation multiples now, if you didn't before

Follow me @SEEACTWIN for more content on investing, trading and philosophy

I also write more in-depth stuff at https://t.co/wCvlLZcyEP

TL;DR:

1. Who are you valuing for? Equity holder, lender, or both?
2. EV = MCAP + Net Debt
3. FCFF = EBITDA*(1-t)+D&A*t-Capex-NWC
4. Cash flow multiples are the foundation for all other multiples
6. Ensure comparability in r, g and biz metrics when using multiples for comparison

7. Ask what business metrics lead to valuation multiples? What changes in business metrics would lead to a valuation multiple re-rating?
8. Stock market valuation multiples are not too high due to low yields
9. Bond valuation multiples suggest bonds are more expensive than stocks