



Presents

## EP3: Identifying Reasonable Buying Price Of Asset(P/B)

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## Identifying reasonable price of an asset/business

- P/E(Price To Earning) & P/B(Price To Book) tool helps us to determine the reasonable price of a business to pay while buying.
- For simplicity we would continue to assume book value or total equity of the company is the total capital employed.
- We would also discuss on how quality of business(ROE) is related with P/E & P/B ratio. Basically, we try to establish between business intrinsic valuation and market pricing.

## P/B Value

- Although book value is accounting term, but for now we would assume that it is closed approximation of value of an asset in our hypothetical company.
- P/B value is calculated at dividing current Market Price(MCap) to its book value.
- In general, a P/B ratio less than 1 is considered low, and any value beyond 1 is considered be moderate/expensive. However, P/B is very industry specific and hence it requires further understanding about it. P/B alone should never be sole criteria for any investment.
- Let's us calculate the P/B & P/E for a particular year for our hypothetical company.

	MCap=Value	P/E	Equity	Profit	ROE
Year					
0	10.0	10.0	10.0	1.0	10
1	11.0	7.9	11.0	1.4	13

$$\frac{P}{B} = \frac{11.0}{11.0} = 1$$
$$\frac{P}{E} = \frac{11.0}{1.4} \approx 7.9$$

## Some facts about P/B value and its significance

- Low P/B means that company is earning low ROE. Usually low P/B corresponds to the poor business(ROE) and hence it should not be the only criteria.
- P/B could be useful in the companies where earning are negative(loss making).
- P/B could be useful for the sectors where asset is more important. For an example like financial, utility, manufacturing sectors.
- As book value is accounting term, let us see how it can impact on P/B & ROE value in case company decides to reduce/write-off book value by 50%. There would not be any changes in the P/E value.

	MCap=Value	P/E	Equity	Profit	ROE
Year					
0	10.0	10.0	10.0	1.0	10
1	11.0	7.9	11.0	1.4	13

$$\frac{P}{B} = \frac{11.0}{5.5} = 2$$
$$ROE = \frac{1.4}{5.5} = 26$$
$$\frac{P}{E} = \frac{11.0}{1.4} = 7.9$$

## P/B & P/E of asset in three different situation

- In general, increase in value of P/B and P/E goes in sync under constant ROE.

	MCap=Value	P/E	Equity	Profit	ROE
Year					
0	10.0	10.0	10.0	1.0	10
1	11.0	7.9	11.0	1.4	13

$$\frac{P}{B} = \frac{11.0}{11.0} = 1$$

$$\frac{P}{E} = \frac{11.0}{1.4} \approx 7.9$$

	MCap=0.5Value	P/E	Equity	Profit	ROE
Year					
0	5.0	5.0	10.0	1.0	10
1	5.5	3.9	11.0	1.4	13

$$\frac{P}{B} = \frac{5.5}{11.0} = 0.5$$

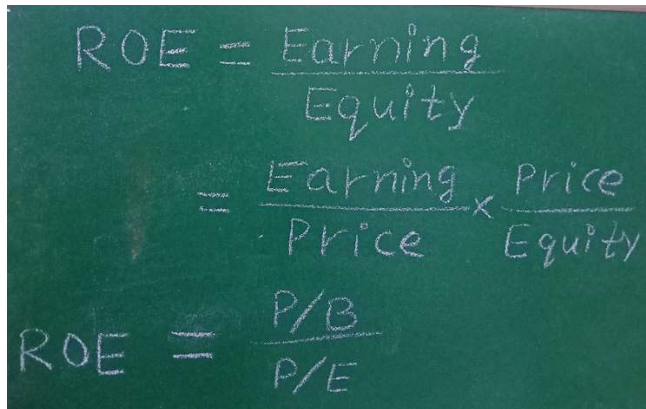
$$\frac{P}{E} = \frac{5.5}{1.4} \approx 3.9$$

	MCap=2*Value	P/E	Equity	Profit	ROE
Year					
0	20.0	20.0	10.0	1.0	10
1	22.0	15.7	11.0	1.4	13

$$\frac{P}{B} = \frac{22.0}{11.0} = 2$$

$$\frac{P}{E} = \frac{22.0}{1.4} \approx 15.7$$

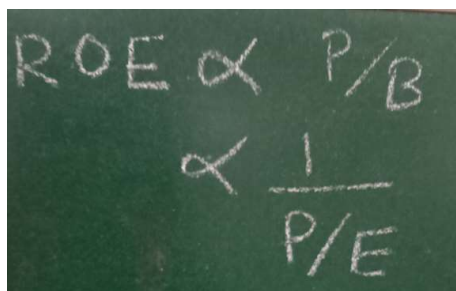
## Relationship establishment in quality and price



Handwritten derivation of ROE formula on a green chalkboard:

$$\text{ROE} = \frac{\text{Earning}}{\text{Equity}}$$
$$= \frac{\text{Earning}}{\text{Price}} \times \frac{\text{Price}}{\text{Equity}}$$
$$\text{ROE} = \frac{\text{P/B}}{\text{P/E}}$$

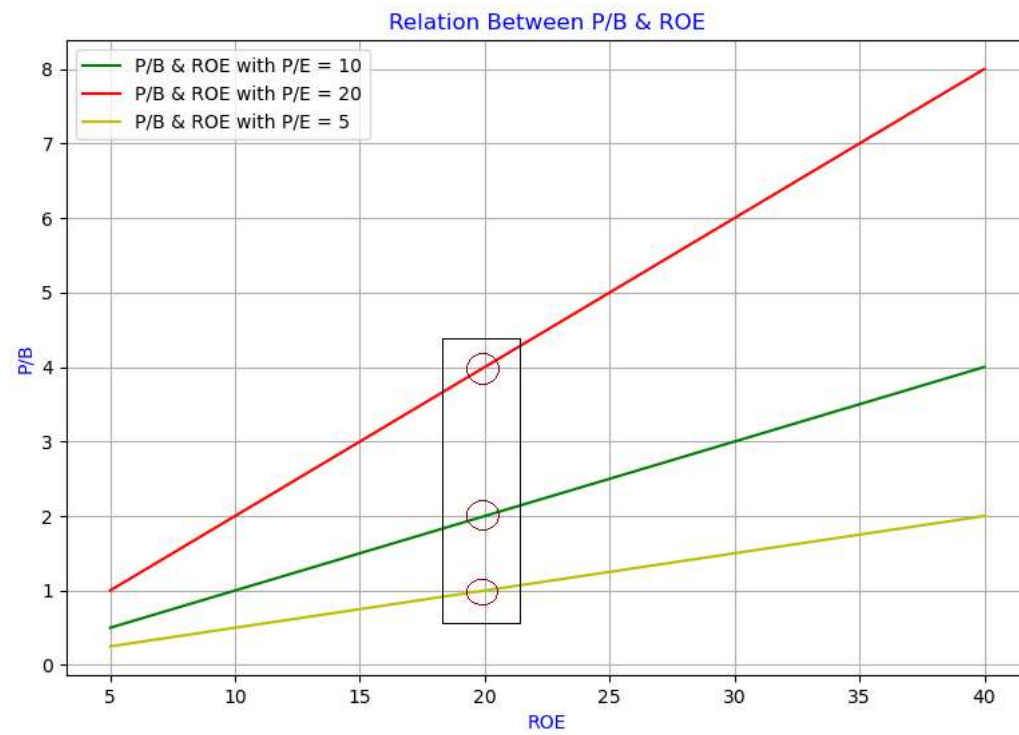
- Higher P/E firm usually would be traded on higher P/B as well for good quality (higher ROE).
- For  $\text{P/B} = 1$ , ROE would and earningYield would be same. This means business returns would match the investment return for investor.
- However as discussed key is to identify mismatch between price and quality as we have already discussed.



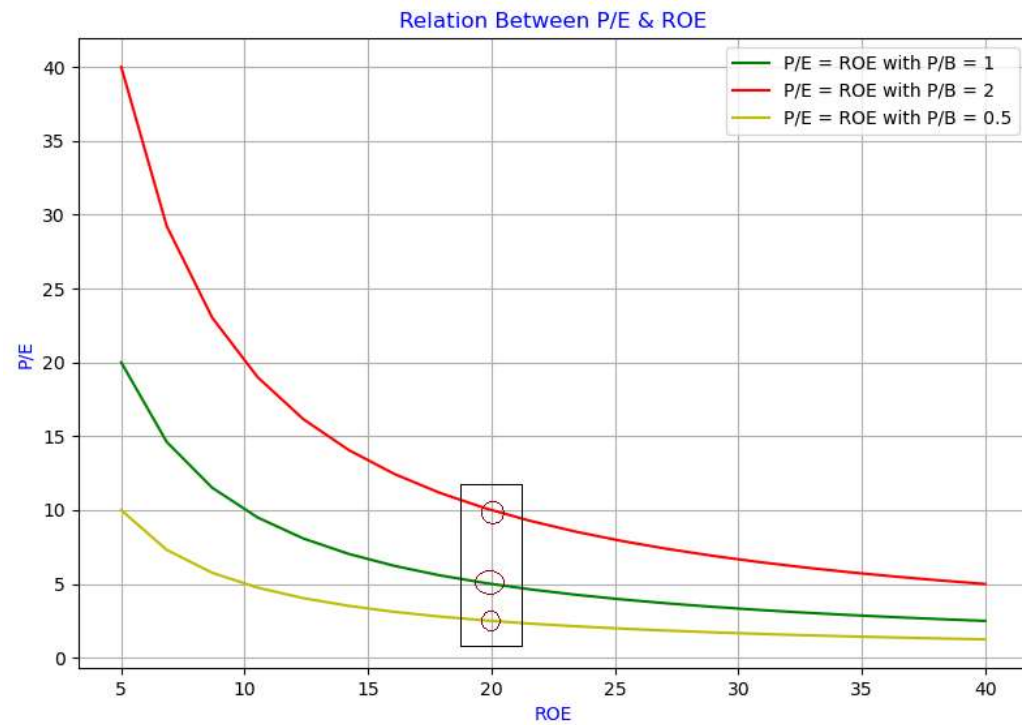
Handwritten relationship between ROE and P/B on a green chalkboard:

$$\text{ROE} \propto \text{P/B}$$
$$\propto \frac{1}{\text{P/E}}$$

## P/B & ROE establishment



## P/E & ROE establishment





## Summary

- Discussed about how we can identify reasonable price of asset.
- P/B is one of many tools which gets used in investment. This gets used along with P/E for identifying the price of an asset.
- With this, we have completed our basic discussions on identifying quality and price of an asset.
- Based on our understanding, these 3 parts are foundations upon which all investment related concepts could be understood. Of course, there would many different tools and criteria which needs to be analyzed while taking final investment decision.
- In future discussions, we shall move our discussion towards real public equity(stock) market and see how we can apply these concepts along with other tools for doing investment.

Thank You 😊