

Comparables

(Welch, Chapter 15)

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1: Quick Comps for Dummies

- ▶ We know the earnings of our firm (\$5), but we do not know our firm's value.
- ▶ What do you think our firm's value could be?
 - ▶ How long did you study finance and NPV before you could even approach this question?

(Comparable or Comp means Similar.)

- ▶ For our own firm, there is a **comparable** publicly-traded firm with a P/E of 20.
- ▶ Can you guess now?

2: NPV Inputs

- ▶ What are the NPV inputs?
- ▶ Where do the public financial markets or websites tell you the inputs?

3: Any Comps in NPV?

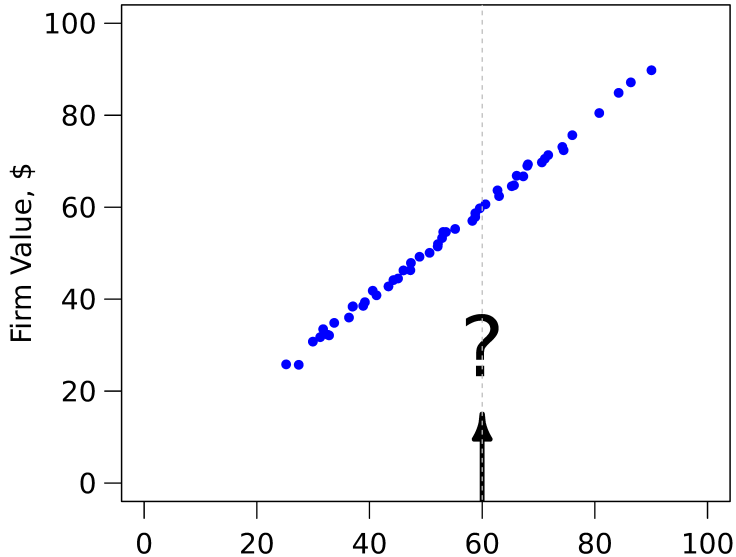
- ▶ Does NPV use information from comparables?

4: Choices of Value Attributes

- ▶ The *Value Attribute* could be
 - ▶ assets or sales,
 - ▶ or patents or scientists,
 - ▶ or earnings or price-earnings
 - ▶ *or even your own PV estimates!*

- ▶ (*Attribute and Value* can be total or per-share.)

5: Graph: Can You Value The Firm?



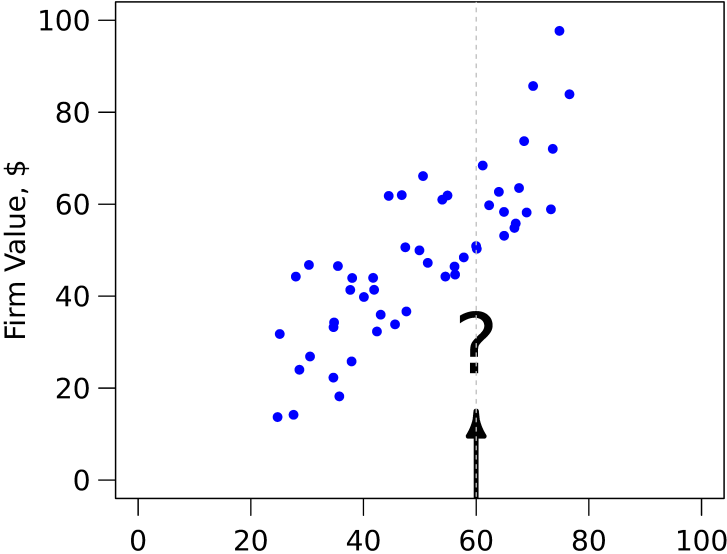
6: Graph Footnotes

- ▶ Each firm is one dot.
- ▶ We could include all stocks
 - ▶ or just stocks from the same industry.
 - ▶ or just stocks we considered similar.

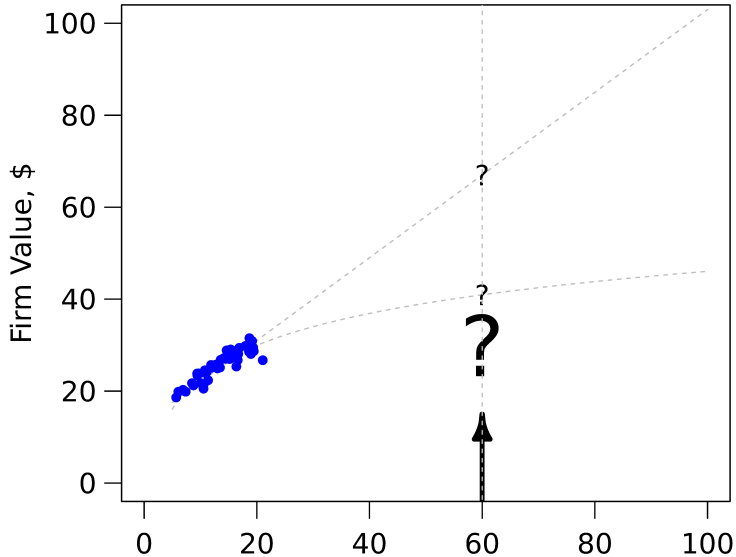
7: Why Comps Instead of NPV?

- ▶ But why not use NPV for your firm instead?
- ▶ Does it matter how the plot looks like?

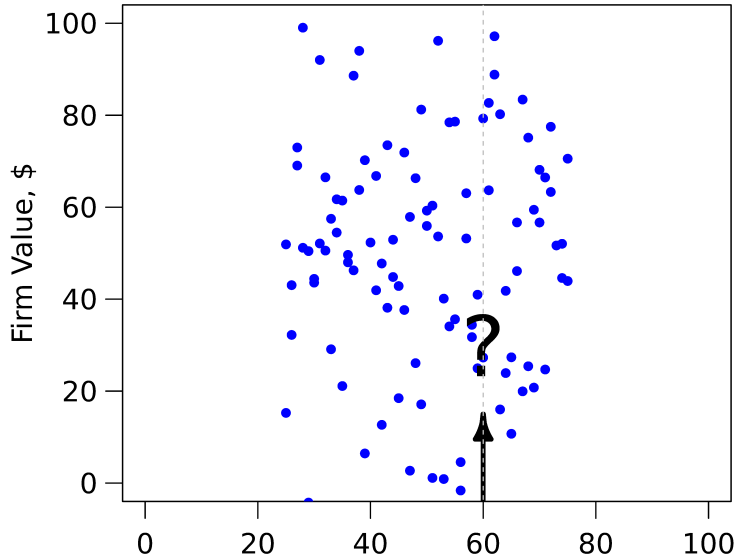
8: Graph: Can You Value The Firm? I



9: Graph: Can You Value The Firm? II



10: Graph: Can You Value The Firm? III



11: Conceptual Basis

- ▶ Does NPV have any conceptual problems?

12: Real-World Application Problem?

- ▶ Does NPV have any real-world application problems?

13: Subjective Factors

- ▶ Is there a subjective factor in NPV?
- ▶ Is there a subjective factor in Comparables?

14: Comparables

- ▶ Where would comparables fail?
- ▶ Are comparables better or worse than NPV?

15: Earnings vs Cash Flow

- ▶ After a full chapter of how to transform earnings into cash flows...
- ▶ Why do most analysts prefer to use *earnings* (P/E) instead of *cash flows* (P/CF) for comps?

16: Price-Earnings Ratio

- ▶ We now investigate the most common ratio for comparables, the **Price-Earnings (P/E) ratio**.

17: Eternal Growth-Rate I

- ▶ Assume the cost of capital is 10%.
- ▶ What should be the P/E ratio of a firm with a 5% *eternal* growth-rate?

18: Eternal Growth-Rate II

- ▶ Assume the cost of capital is 10%.
- ▶ What should be the P/E ratio of a firm with a -10% eternal growth-rate?

19: P/E Ratios by Firm Type

- ▶ Are P/E ratios higher for growth or value firms?

20: PVGO

- ▶ Assume the cost of capital is 10%.
- ▶ What is the *PVGO* of a firm with an eternal growth rate of
 - ▶ **+0%?**
 - ▶ **+10%?**
 - ▶ **-10%?**

21: Firm Pairs

- ▶ Give a few examples of firm pairs that you think would make great comps for one another?
 - ▶ Coca-Cola (KO) vs Pepsico (PEP)
 - ▶ Honda vs.

22: Value of Honda

- ▶ Value Honda

23: Coca-Cola vs PepsiCo

How similar *really* is Honda to ...

24: P/E Ratio

- ▶ Guess the P/E of your Honda comps, plus those of
- ▶ Tesla (TSLA)
- ▶ Ford (F)
- ▶ Alphabet (GOOG)
- ▶ Goldman-Sachs (GS)
- ▶ Altria (MO)
- ▶ and so on.

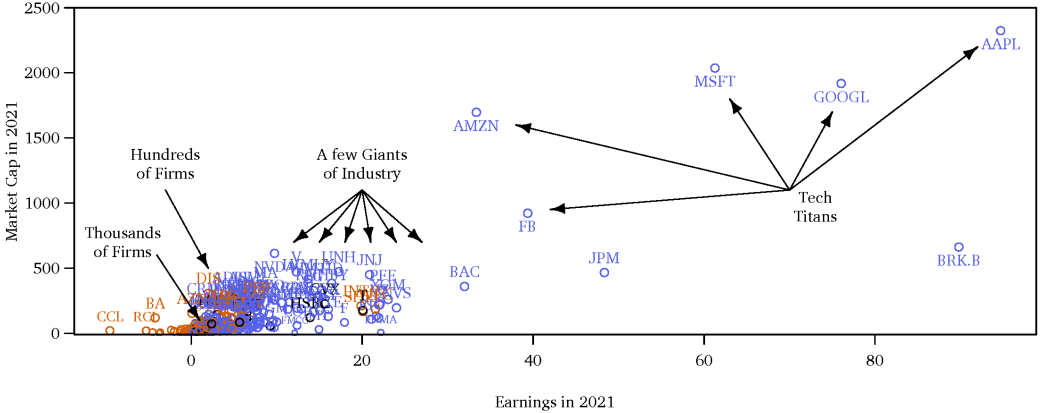
25: Empirical Performance of Comps?

- ▶ So, how good are P/E ratios for valuing firms?
- ▶ If P/E ratios are good predictors, can we buy the firm with the low P/E ratios and short its comp with the high P/E ratio?

26: Proof in the Pudding

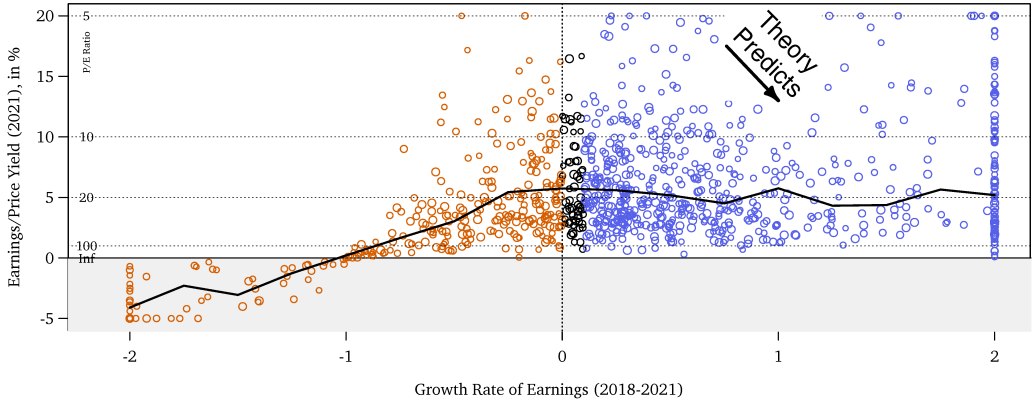
- ▶ The following graph is as of 2021. Any other year would look fairly similar.
- ▶ P is price. $\text{Exp}(E)$ are analysts' earnings forecasts. g is analysts' forecast of growth rate of earnings.
 - ▶ Recall: Should higher-growth firms have higher or lower E/P ratios?
 - ▶ How good/noisy/bad should your prediction be?

27: Graph: Empirical Relationship



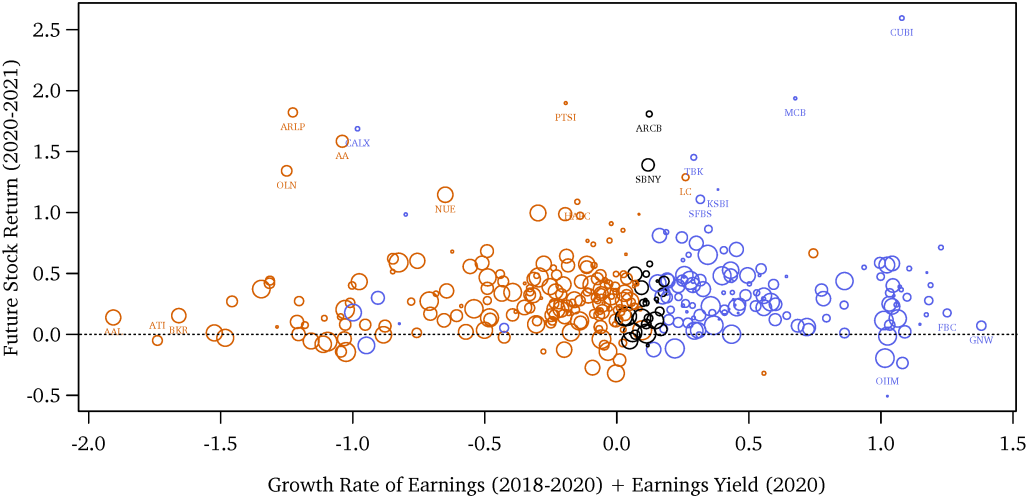
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28: Graph: Empirical Relationship



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29: Graph: Predict and Make Money?



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30: Some Conceptual Problems

1. P/E ratios are empirically not very satisfying (capable of explaining value).
2. They also have serious conceptual flaws,
 - ▶ to be explained next.

31: Merging Value

- ▶ Firm A is worth \$200 based on comps.
- ▶ Firm B is worth \$200 based on comps.
- ▶ If A and B merge, what is the value of AB?

- ▶ Does the merged firm have the avg PE?

32: Value From Industry Comps

- ▶ Industry X has 3 firms:
 - ▶ A has P of \$1,000, E of \$5.
 - ▶ B has P of \$200, E of \$10.
 - ▶ C has P of \$700, E of \$70.
- ▶ Your firm is in the same industry with $E = \$25$.
- ▶ What is your own firm worth?

33: Slightly Off

- ▶ *Oops.* I was wrong.
- ▶ I had overestimated A (the \$1,000 firm) by \$4.
- ▶ A's earnings were not +\$5, but +\$1.
- ▶ What is your own firm worth now?

34: Worth of Firm ?!

- ▶ *Oops.* I was seriously wrong.
- ▶ I overestimated A (a firm worth \$1,000) by \$6.
- ▶ A's earnings were not +\$5, but -\$1.
- ▶ What is your own firm worth?

35: $1/X$

- ▶ What can you do to mitigate the $1/X$ problem?
 - ▶ as X gets near 0 or turns negative.

- ▶ **IMPORTANT:** Whenever you see a ratio in any context, ask yourself first: *can the denominator ever be negative?* If yes, then it is a crap ratio that should *never* have been defined in the first place.

36: Does Leverage Matter?

- ▶ Firms should be worth their underlying projects.
- ▶ The financing method should be secondary.
 - ▶ Small tax benefits, very small...
- ▶ This is violated for P/E valuation methods.
 - ▶ more leverage could imply more or less P
- ▶ This matters also for the comps.

WTH?

37: When Earnings Abandon You

- ▶ If our firm has negative earnings,
- ▶ what alternative attribute(s) could we use?

38: Alternative Ratios?

- ▶ Will firm owners figure out how to game bad ratios in wide use?
- ▶ If you switch fiscal years when earnings are negative, is this good or bad? Will owners know?
- ▶ And what do you use if your or peer firms do not even have any sales yet?

39: Omitted (Book)

- ▶ More detailed comp analysis of auto manufacturers.
- ▶ Many more financial ratios, some in wide use.

40: Auto-Comps from the Web

- ▶ The URLs keep changing, but if you google for combinations of
 - ▶ industry,
 - ▶ peers,
 - ▶ ratios, and
 - ▶ comparables,
- ▶ you will find responses from different financial websites, such as [Google](#) itself, [Bloomberg](#), [Yahoo!Finance](#), etc.

41: Comps vs NPVs

- ▶ Do you prefer Comps or NPVs?
- ▶ Which one is easier?
- ▶ Which one is better?

42: Competitive Advantage?

- ▶ Comparables are more often used for firms.
- ▶ NPV is more often used for individual projects.

- ▶ But both are used in both cases!