



VALUATION: CLOSING THOUGHTS

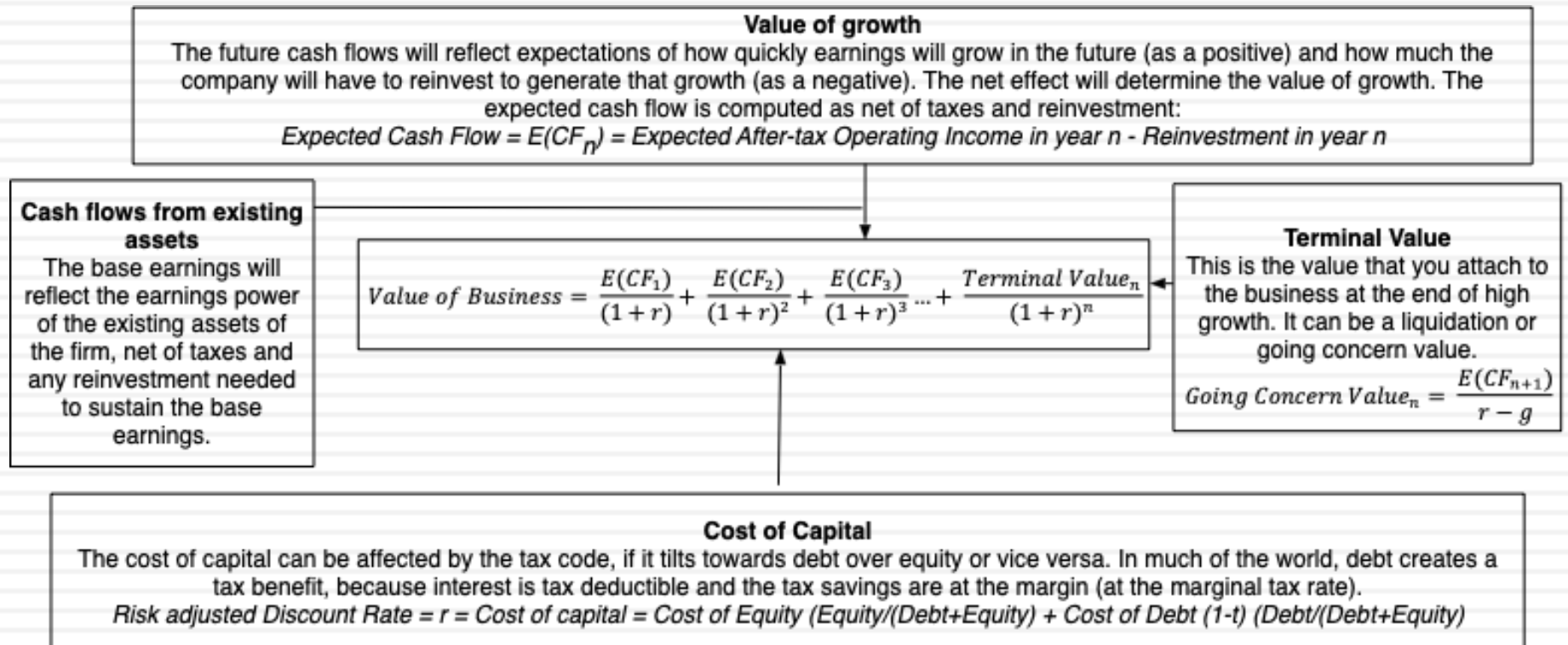
Spring 2024

“It ain’t over till its over”

Back to the very beginning: Approaches to Valuation

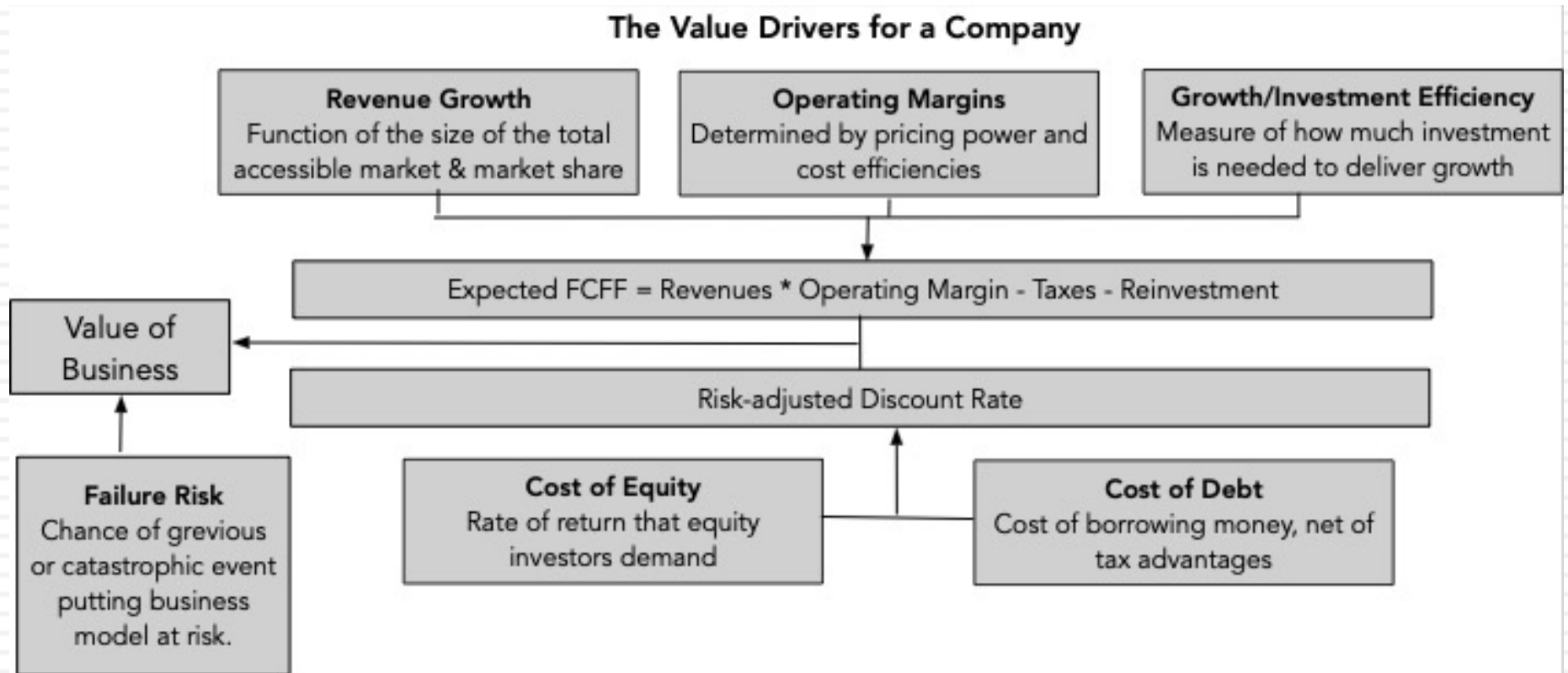
- **Discounted Cashflow Valuation**, where we try (sometimes desperately) to estimate the intrinsic value of an asset by using a mix of theory, guesswork and prayer.
- **Relative valuation**, where we pick a group of assets, attach the name “comparable” to them and tell a story.
- **Contingent claim valuation**, where we take the valuation that we did in the DCF valuation and divvy it up between the potential thieves (equity) and the victims of this crime (lenders)

Intrinsic Valuation: The set up



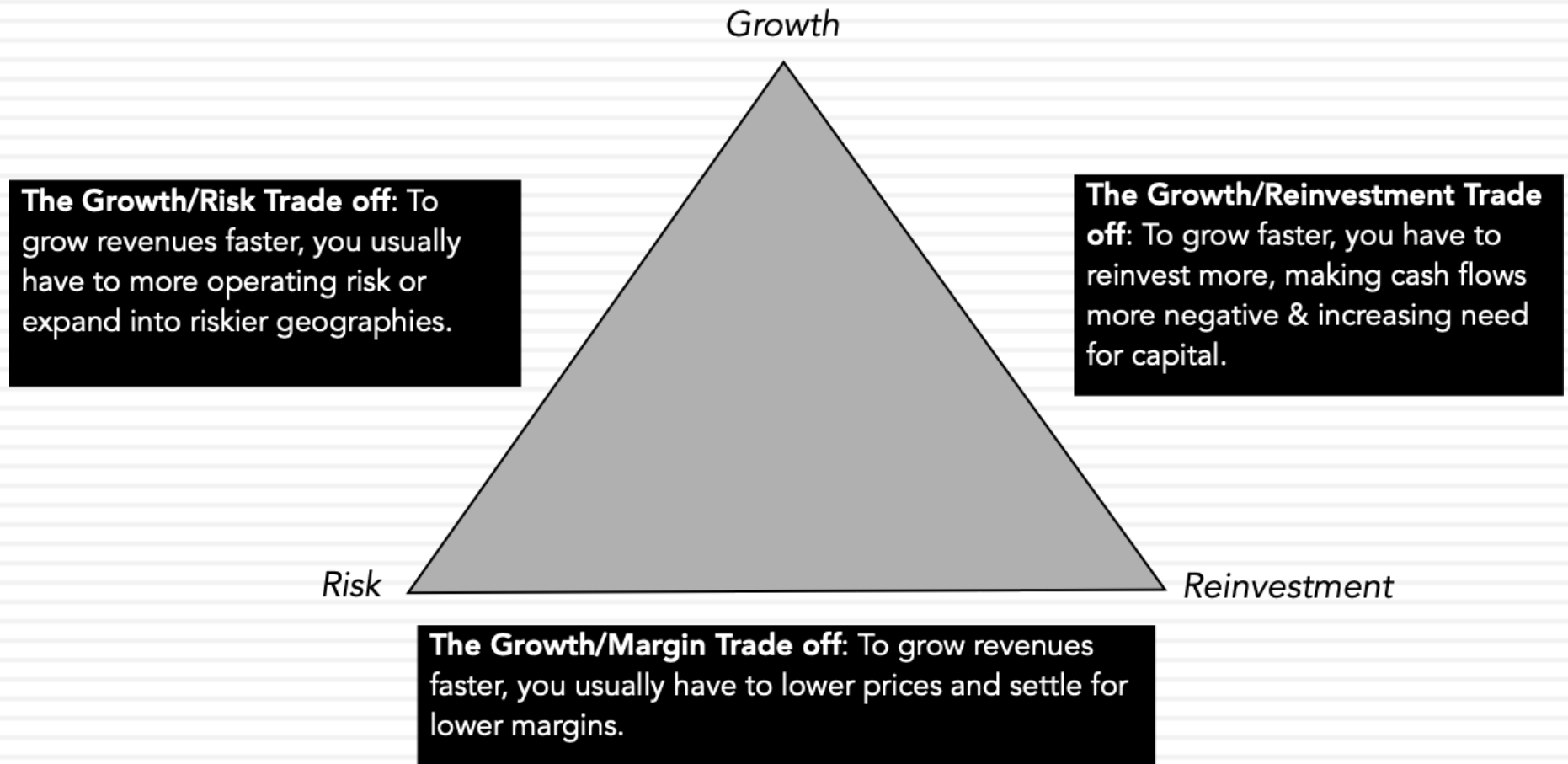
Going Concern Val

The Value Drivers..



The Valuation Triangle

The Valuation Triangle





Your intrinsic valuation findings

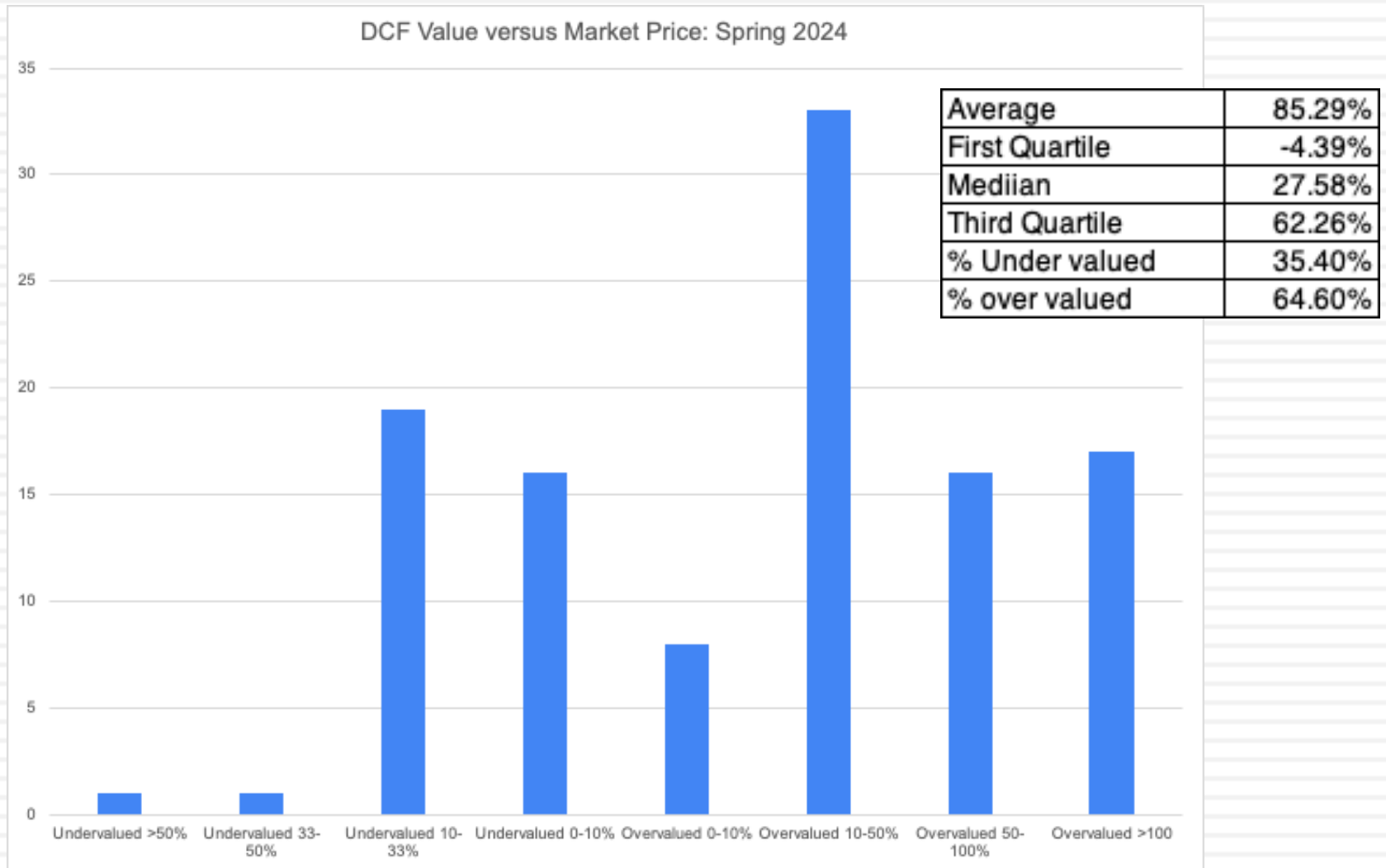
The Most Valued Company (Companies)..

<i>Company</i>	<i>Number of analyses</i>
Nvidia	6
Lululemon	4
Novo Nordisk, Nike	3
Five other firms	2

And here is why its not a problem..

<i>Company</i>	<i>Date of Valuation</i>	<i>Price per share on date</i>	<i>DCF Value</i>	<i>Multiple Used</i>	<i>Pricing per share</i>	<i>Recommendation</i>
Nvidia	5/5/24	\$887.83	\$624.83	EV/EBITDA	\$720.19	Hold
Nvidia	5/5/24	\$887.83	\$625.38	EV/EBITDA	\$721.97	Hold
NVIDIA	4/29/24	889.64	732.93	EV/EBITDA	844.92	HOLD
Nvidia	5/2/24	\$864.00	\$882.10	EV/Sales	\$650.00	Buy
Nvidia	5/3/24	887.89	\$1,017.67	EV/EBITDA	\$1,011.15	Buy

What you found...



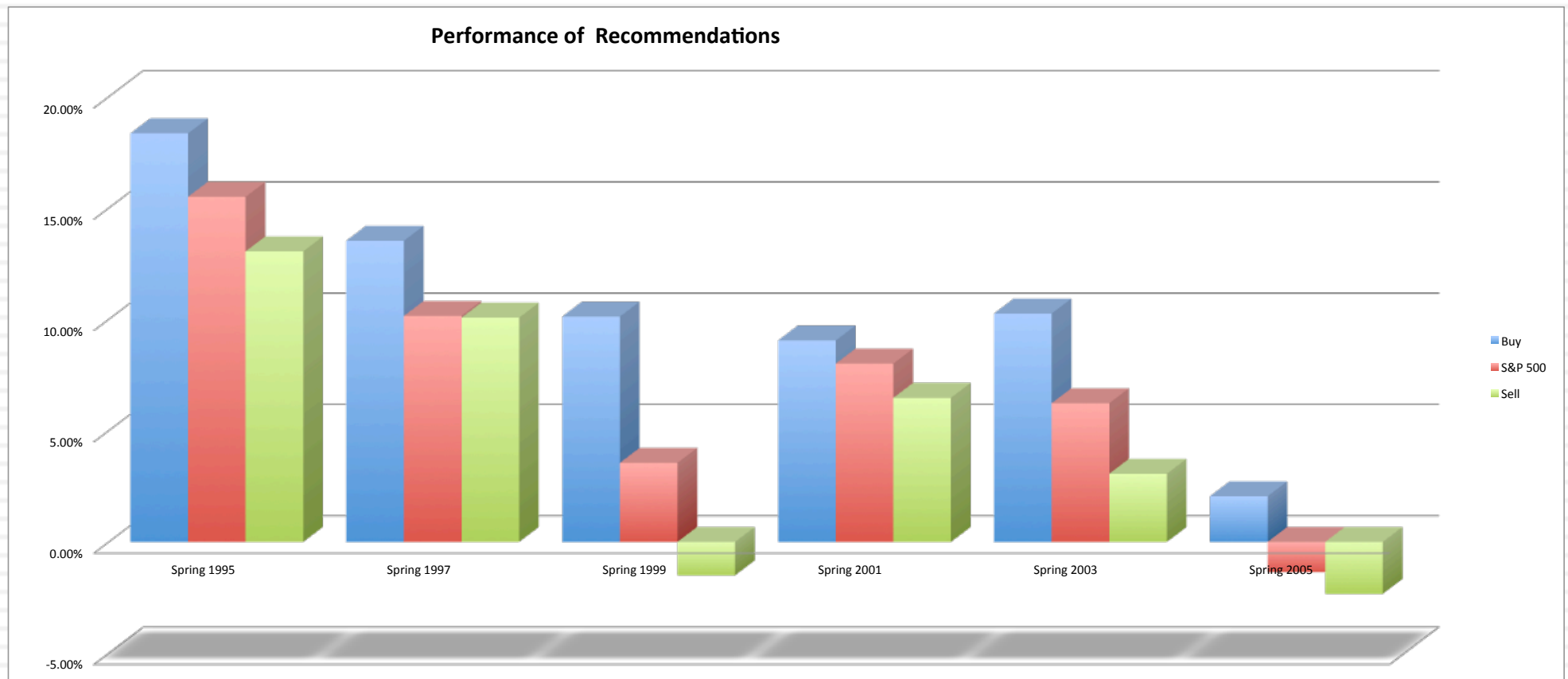
The most undervalued stocks...

<i>Company</i>	<i>Country</i>	<i>Date of Valuation</i>	<i>Price per share on date</i>	<i>DCF Value</i>	<i>Multiple used</i>	<i>Pricing per share</i>	<i>Recommendation</i>	<i>Price/DCF</i>
Heliogen	United States	5/3/24	\$1.43	\$4.60	EV/Sales	\$23.78	Buy	31.09%
PDD Holdings Inc	China	5/3/24	\$140.18	\$237.90	EV/EBITDA	\$142.88	Buy	58.92%
Doximity	United States	5/3/24	24.09	35.38	EV/Sales	22.58	Buy	68.09%
Gicsa	Mexico	5/2/24	\$2.36	\$3.40	EV/EBITDA	\$1.69	Hold	69.41%
Air Canada	Canada	5/3/24	\$18.75	\$26.22	TEV / LTM Revenue	\$26.97	Buy	71.51%
Rivian	United States	5/4/24	10.07	14.06	EV/Sales	7.14	Buy	71.62%
MGM Resorts International	United States	4/9/24	\$46.10	\$61.01	EV/Sales	\$105.98	Buy	75.56%
Reservoir Media	United States	5/2/24	\$8.56	\$11.32	EV/Sales	\$8.15	Sell	75.62%
Samsung Electronics	South Korea	5/3/24	77,600	101,686	EV/EBIDA	141,678	Buy	76.31%
Ubisoft	France	5/3/24	€ 21.97	€ 27.53	EV/Inv Cap	€ 15.31	Hold	79.80%

The Most Overvalued stocks are...

<i>Company</i>	<i>Country</i>	<i>Date of Valuation</i>	<i>Price per share on date</i>	<i>DCF Value</i>	<i>Multiple used</i>	<i>Pricing per share</i>	<i>Option value</i>	<i>Recommendation</i>	<i>Price/DCF</i>
AMC	United States	5/3/24	\$3.30	\$0.00	EV/Sales	(\$18.02)	\$1.70	Sell	NA
The RealReal	United States	5/3/24	\$3.90	\$0.00	EV/Sales	(\$2.70)	\$0.00	Sell	NA
Sweetgeeen	United States	3/10/24	\$18.95	\$0.49	PE	\$19.41	\$19.12	Hold	3867.35%
Hertz	United States	5/1/24	\$4.55	\$0.48	EV/Sales	\$3.17	1.85	Sell	947.92%
NYT	United States	4/30/24	43.25	7.82	EV/Sales			Sell	553.07%
Vornado	United States	5/3/24	\$26.99	\$4.89	EV/EBITDA	\$15.93		Sell	551.94%
Chipotle	United States	5/3/24	\$3,167.06	\$601.66	EV/EBITDA	\$2,346.84		Sell	526.39%
The Gap, Inc.	United States	3/6/24	\$19.06	\$5.06	EV/Sales	\$23.66	\$4.52	Sell	376.68%
Asian Paints	India	5/1/24	2,875.00	941.57	EV/EBITDA	1,662.40		Sell	305.34%
Mobileye	Israel	5/5/24	\$30.03	\$10.89	EV/Sales	\$25.36		Sell	275.76%
Estee Lauder	United States	5/3/24	\$132.94	52.55	EV/Sales	\$125.05		Hold	252.98%
Shopify	United States	5/1/24	\$74.48	30.23	EV/Sales	93.93		Sell	246.38%

The ultimate test... Did undervalued stocks make money?



More on the winners...

- On average, right: About 60% of all buy recommendations make money; about 45% of sell recommendations beat the market. The average return on buy recommendations was about 4% higher, on an annualized basis, than the average return on sell recommendations.
- More so on some: The excess returns on buy recommendations on small cap and emerging market companies is higher than the excess returns on large market cap companies, with higher mistakes in both directions on the former.
- Skewed payoffs: There are two or three big winners in each period, but the payoff was not always immediate. Buying Apple in 1999 would have led to negative returns for a year or more, before the turnaround occurred.
- Double whammy: Stocks that are under valued on both a DCF and relative valuation basis do better than stocks that are under valued on only one approach.

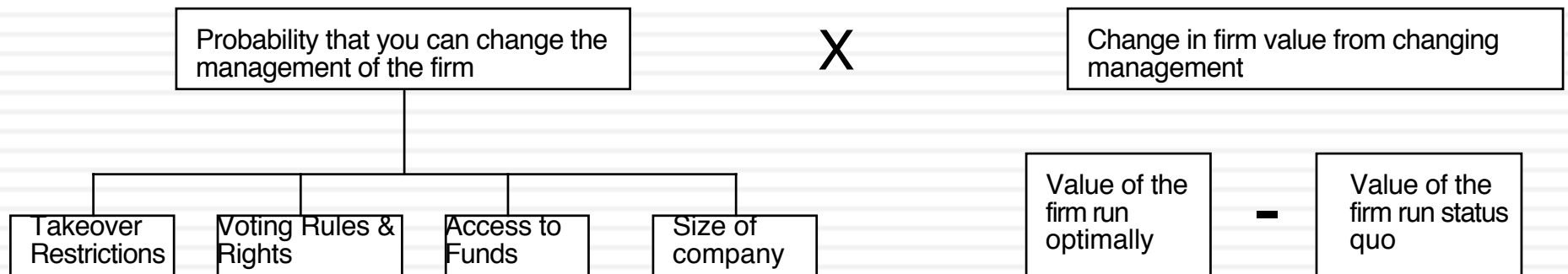


The Value of Control

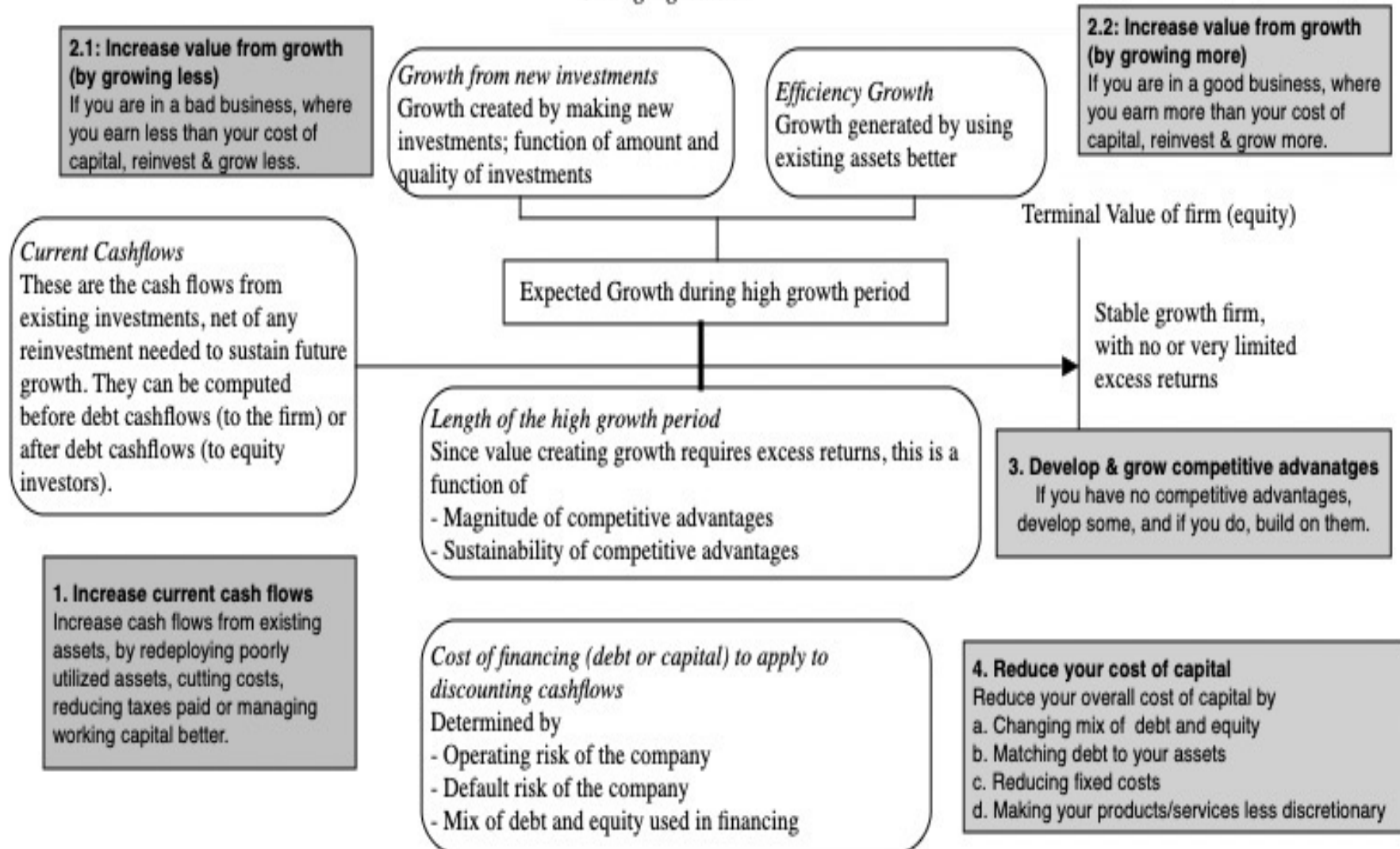
The Expected Value of Control

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The Value of Control



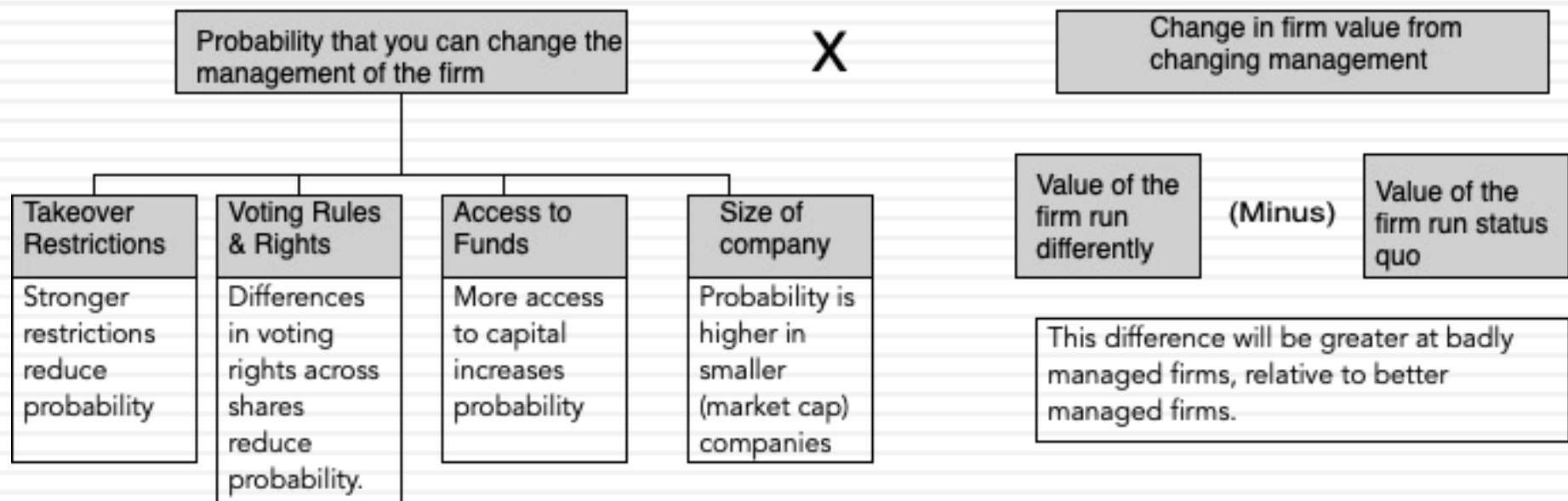
Changing Value



The Expected Value of Control

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The Value of Control



Why the probability of management changing shifts over time....

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- Corporate governance rules can change over time, as new laws are passed. If the change gives stockholders more power, the likelihood of management changing will increase.
- Activist investing ebbs and flows with market movements (activist investors are more visible in down markets) and often in response to scandals.
- Events such as hostile acquisitions can make investors reassess the likelihood of change by reminding them of the power that they do possess.

Estimating the Probability of Change

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- You can estimate the probability of management changes by using historical data (on companies where change has occurred) and statistical techniques such as probits or logits.
- Empirically, the following seem to be related to the probability of management change:
 - Stock price and earnings performance, with forced turnover more likely in firms that have performed poorly relative to their peer group and to expectations.
 - Structure of the board, with forced CEO changes more likely to occur when the board is small, is composed of outsiders and when the CEO is not also the chairman of the board of directors.
 - Ownership structure, since forced CEO changes are more common in companies with high institutional and low insider holdings. They also seem to occur more frequently in firms that are more dependent upon equity markets for new capital.
 - Industry structure, with CEOs more likely to be replaced in competitive industries.

Manifestations of the Value of Control

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- Publicly traded firms: The market price of every publicly traded firm has an embedded expected value of control in it, increasing with
 - how well or badly the firm is perceived to be run
 - the likelihood that there will be change in the firm
- Hostile acquisitions: In hostile acquisitions which are motivated by control, the control premium should reflect the change in value that will come from changing management.
- Voting and non-voting shares: The premium (if any) that you would pay for a voting share should increase with the expected value of control.
- Minority Discounts in private companies: The minority discount (attached to buying less than a controlling stake) in a private business should be increase with the expected value of control.

1. All publicly traded firms

- When investors value a publicly traded firm, they are implicitly valuing (or pricing) two versions of the firm:
 - ▣ Status Quo: The firm run by the existing management in place (with all of its pluses and minuses)
 - ▣ With change: The firm run by someone else with different ideas on how best to run it

Value = Status Quo value (1 – Probability of change) + Change value (Probability of change

2. Hostile Acquisition: Example

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- In a hostile acquisition, you can ensure management change after you take over the firm. Consequently, you would be willing to pay up to the optimal value.
- As an example, Blockbuster was trading at \$9.50 per share in July 2005. The optimal value per share that we estimated as \$ 12.47 per share. Assuming that this is a reasonable estimate, you would be willing to pay up to \$2.97 as a premium in acquiring the shares.
- Issues to ponder:
 - Would you automatically pay \$2.97 as a premium per share? Why or why not?
 - What would your premium per share be if change will take three years to implement?

3. Voting and Non-voting Shares: An Example

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- To value voting and non-voting shares, we will consider Embraer, the Brazilian aerospace company. As is typical of most Brazilian companies, the company has common (voting) shares and preferred (non-voting shares).
 - ▣ Status Quo Value = 12.5 billion \$R for the equity;
 - ▣ Optimal Value = 14.7 billion \$R, assuming that the firm would be more aggressive both in its use of debt and in its reinvestment policy.
- There are 242.5 million voting shares and 476.7 non-voting shares in the company and the probability of management change is relatively low. Assuming a probability of 20% that management will change, we estimated the value per non-voting and voting share:
 - ▣ Value per non-voting share = Status Quo Value / (# voting shares + # non-voting shares) = $12,500 / (242.5 + 476.7) = 17.38$ \$R/ share
 - ▣ Value per voting share = Status Quo value/sh + Probability of management change * (Optimal value – Status Quo Value) = $17.38 + 0.2 * (14,700 - 12,500) / 242.5 = 19.19$ \$R/share
- With our assumptions, the voting shares should trade at a premium of 10.4% over the non-voting shares.

4. Minority Discount: An example

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- Assume that you are valuing Kristin Kandy, a privately owned candy business for sale in a private transaction. You have estimated a value of \$ 1.6 million for the equity in this firm, assuming that the existing management of the firm continues into the future and a value of \$ 2 million for the equity with new and more creative management in place.
 - Value of 51% of the firm = 51% of optimal value = $0.51 * \$ 2 \text{ million} = \1.02 million
 - Value of 49% of the firm = 49% of status quo value = $0.49 * \$1.6 \text{ million} = \$784,000$
- Note that a 2% difference in ownership translates into a large difference in value because one stake ensures control and the other does not.

Alternative Approaches to Value Enhancement

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- Maximize a variable that is correlated with the value of the firm. There are several choices for such a variable. It could be
 - an accounting variable, such as earnings or return on investment
 - a marketing variable, such as market share
 - a cash flow variable, such as cash flow return on investment (CFROI)
 - a risk-adjusted cash flow variable, such as Economic Value Added (EVA)
- The advantages of using these variables are that they
 - Are often simpler and easier to use than DCF value.
- The disadvantage is that the
 - Simplicity comes at a cost; these variables are not perfectly correlated with DCF value.

Value Alchemy: Acronyms and Shortcuts

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- The nature of value consulting is to add mystery and magic to the process, with a proprietary twist (to make the consultant indispensable)
- In the 1990s, Stern Stewart soared by offering companies its variant, the Economic Value Added (EVA), measured as follows:
 - ▣ $EVA = (\text{Return on Capital} - \text{Cost of Capital}) (\text{Capital Invested in Project})$
 - ▣ Firms were advised to focus on increasing EVA and tie top management compensation to EVA
- In the 1980s, Holt Associates offered CFROI as a measure of the cash flow return made on capital
 - ▣ It is computed as an IRR, based upon a base value of capital invested and the cash flow on that capital.

The bottom line...

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- The value of a firm is not going to change just because you use a different metric for value. All approaches that are discounted cash flow approaches should yield the same value for a business, if they make consistent assumptions.
- If there are differences in value from using different approaches, they must be attributable to differences in assumptions, either explicit or implicit, behind the valuation.
- When you use a shortcut (as you are with EVA or CFROI), you are making assumptions that firms can exploit to game the system.



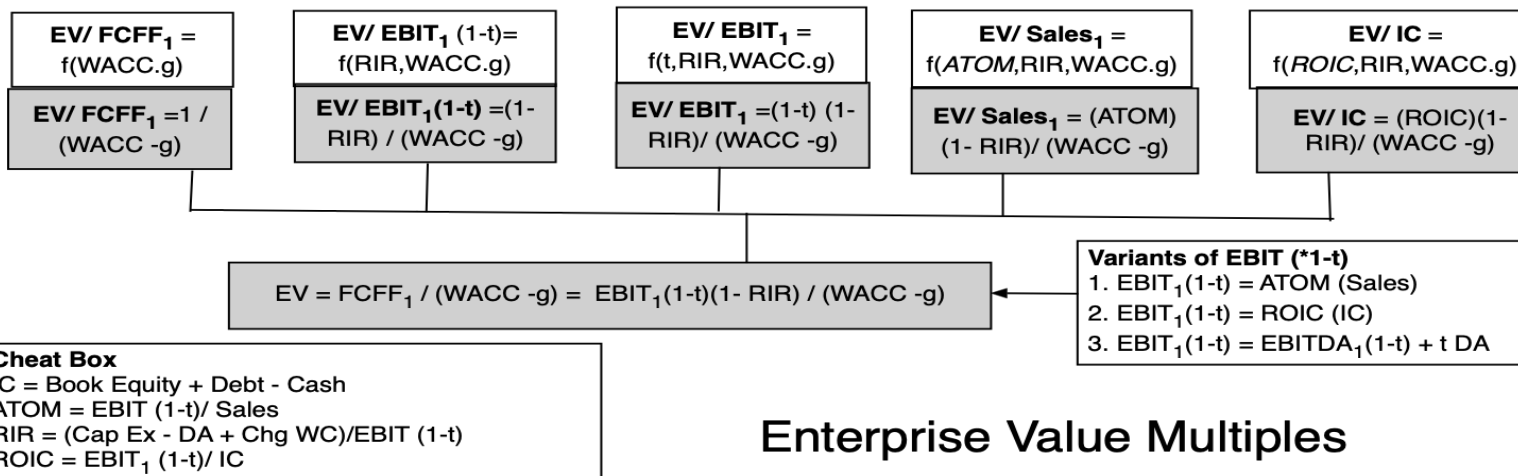
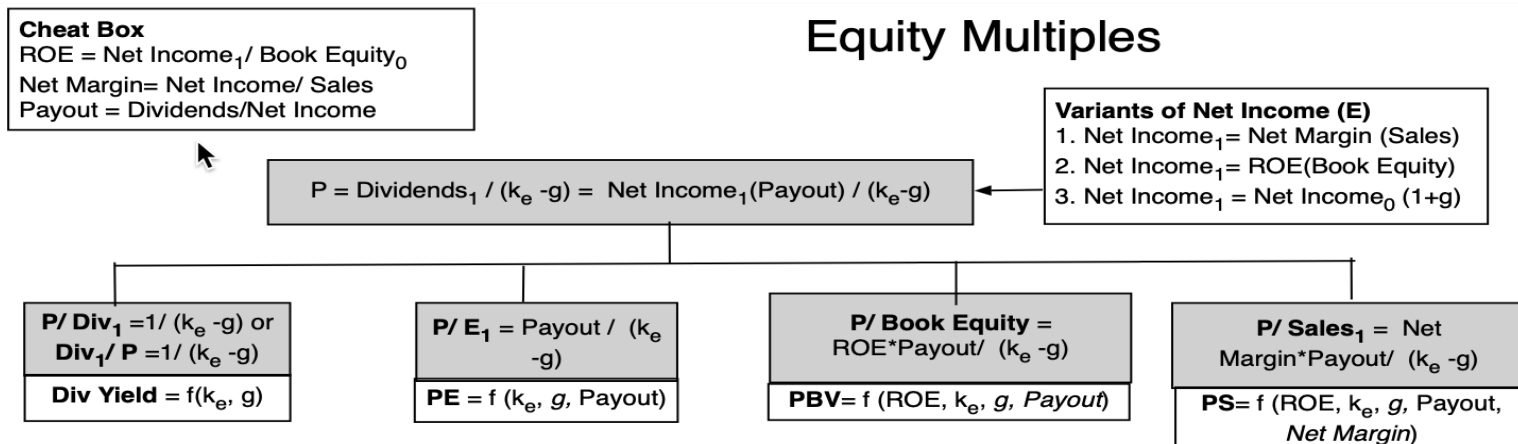
Your Pricing

Relative Valuation: The Four Steps to Understanding Multiples

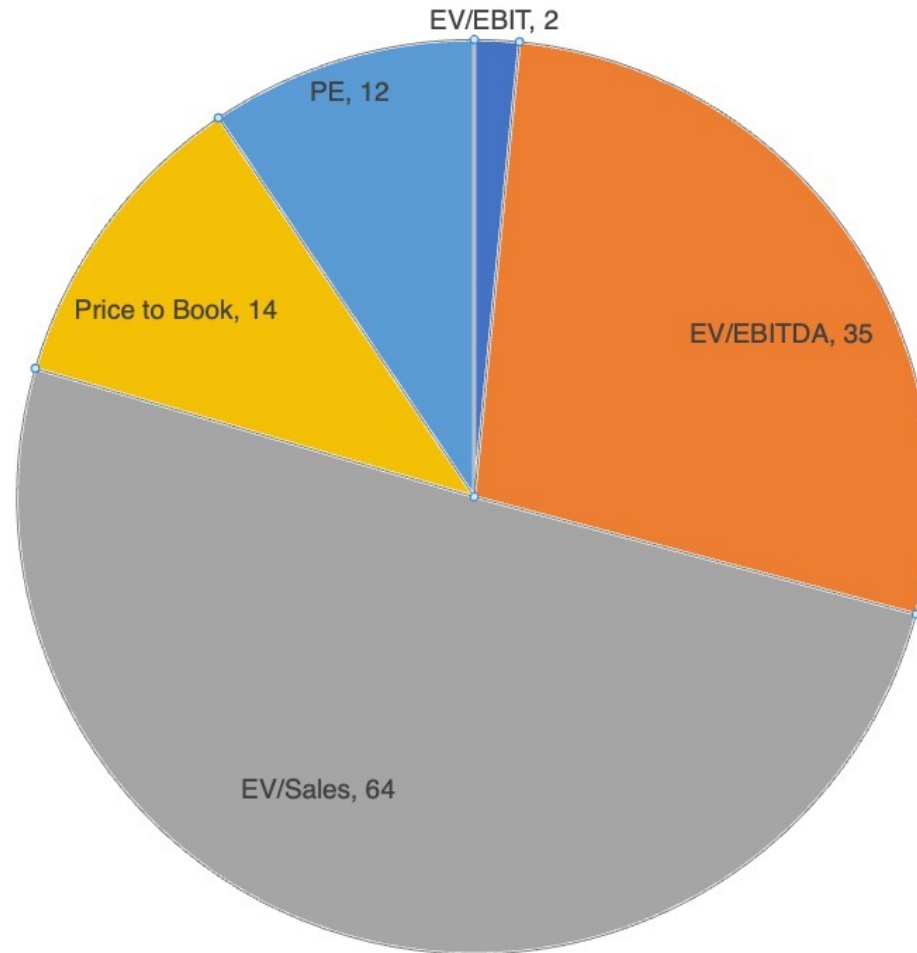
- Anna Kournikova knows PE.... Or does she?
 - In use, the same multiple can be defined in different ways by different users. When comparing and using multiples, estimated by someone else, it is critical that we understand how the multiples have been estimated
- 8 times EBITDA is not always cheap...
 - Too many people who use a multiple have no idea what its cross sectional distribution is. If you do not know what the cross sectional distribution of a multiple is, it is difficult to look at a number and pass judgment on whether it is too high or low.
- You cannot get away without making assumptions
 - It is critical that we understand the fundamentals that drive each multiple, and the nature of the relationship between the multiple and each variable.
- There are no perfect comparables
 - Defining the comparable universe and controlling for differences is far more difficult in practice than it is in theory.

The Determinants of Multiples...

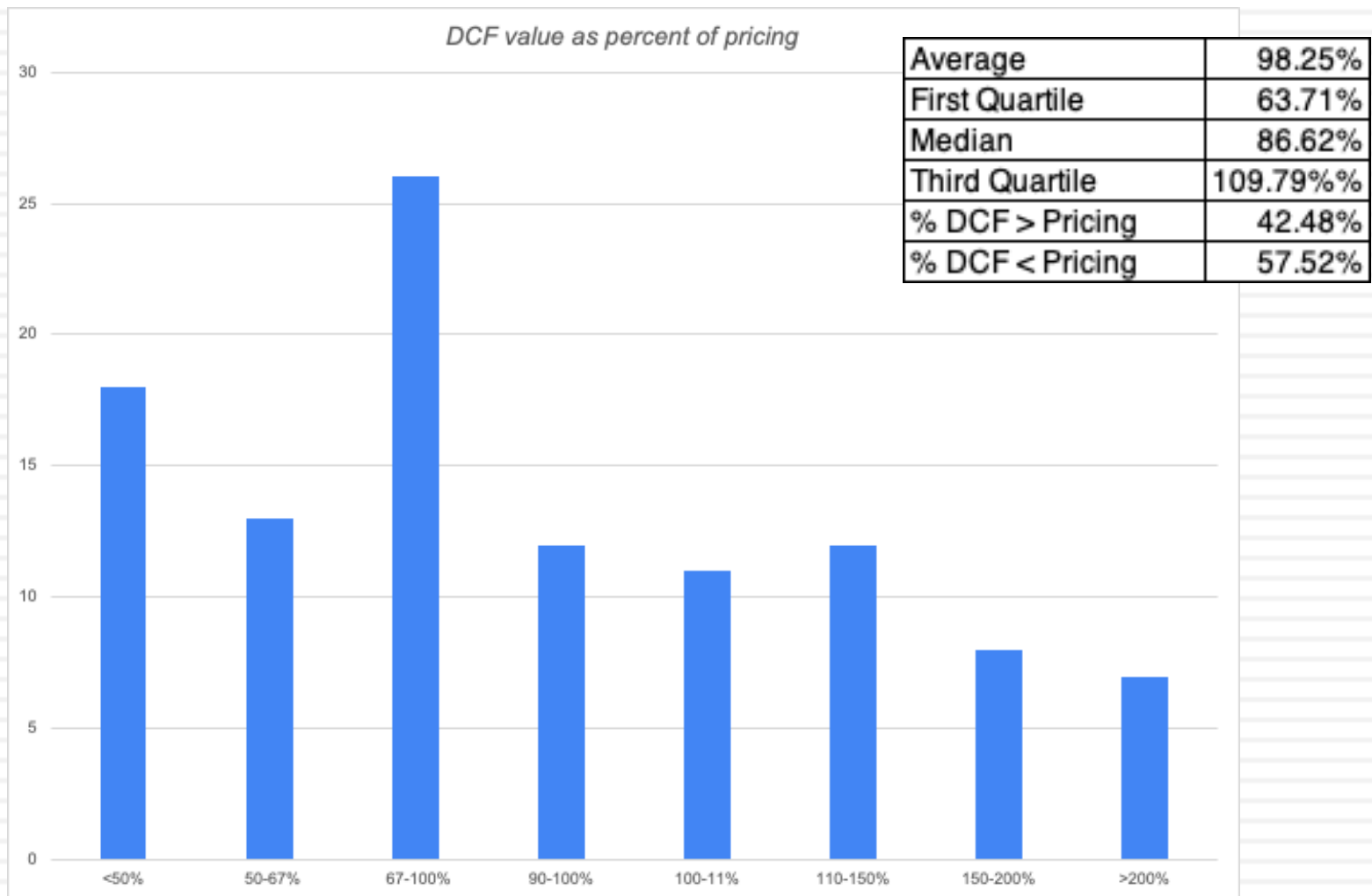
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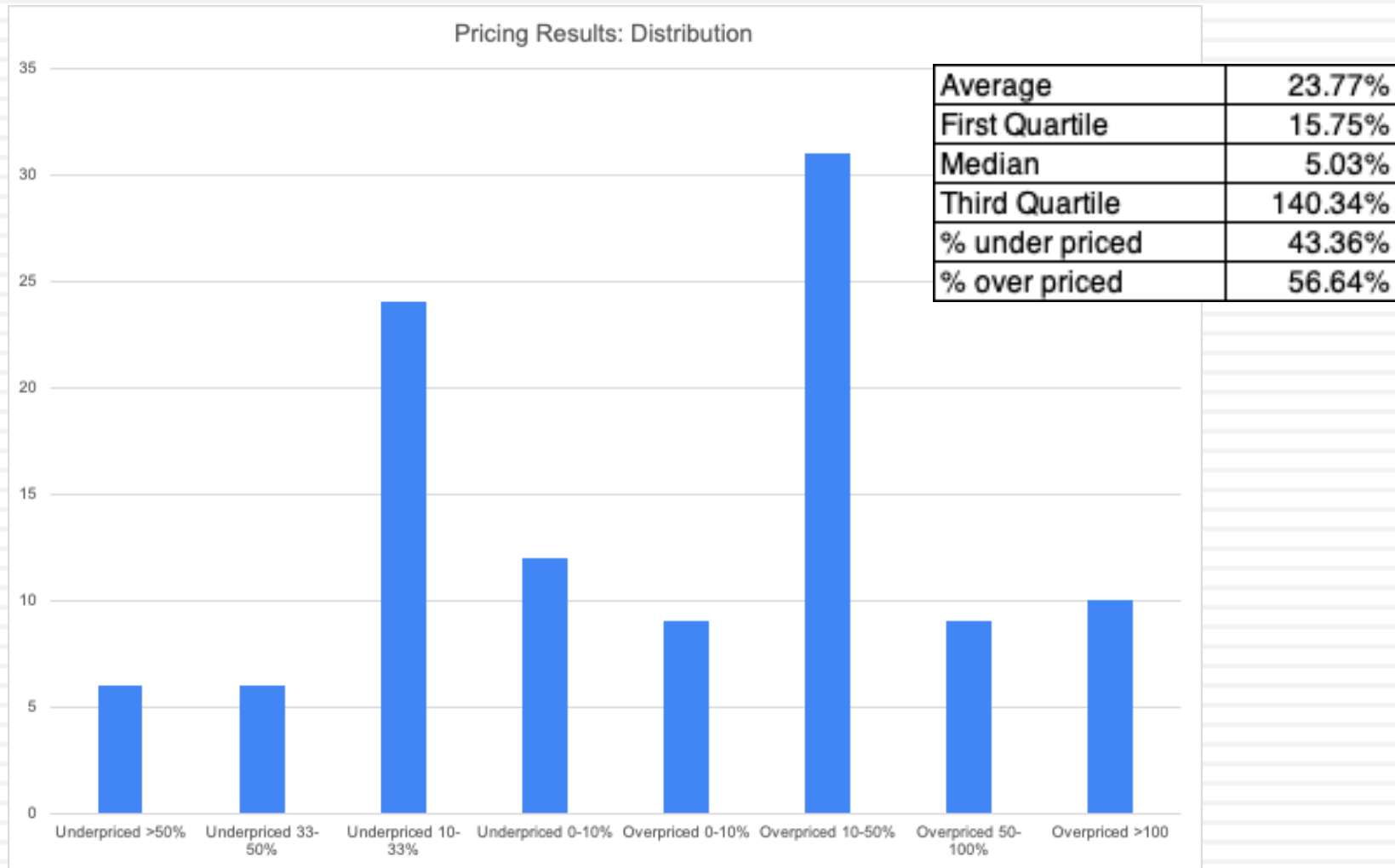
The Multiples you used were ...



DCF vs Relative Valuation



Pricing Results



Most underpriced on a relative basis...

<i>Company</i>	<i>Country</i>	<i>Date of Valuation</i>	<i>Price per share on date</i>	<i>DCF Value</i>	<i>Multiple used</i>	<i>Pricing per share</i>	<i>Recommendation</i>	<i>Price/DCF</i>
Heliogen	United States	5/3/24	\$1.43	\$4.60	EV/Sales	\$23.78	Buy	6.01%
Levis	United States	4/1/24	\$15.48	\$15.20	EV/Sales	\$44.06	Sell	35.13%
Lucid Group	United States	5/3/24	\$2.79	\$1.99	EV/Sales	\$7.05	Buy	39.57%
Disney	United States	5/4/24	\$113.60	\$90.60	PBV	\$271.54	Buy	41.84%
Uber	United States	4/15/24	\$69.23	\$73.16	EV/Sales	159.27	Buy	43.47%
MGM Resorts International	United States	4/9/24	\$46.10	\$61.01	EV/Sales	\$105.98	Buy	43.50%
Skyward Specialty Insurance Group	United States	5/3/24	\$37.58	\$45.92	EV/EBITDA	\$72.24	Buy	52.02%
Samsung Electronics	South Korea	5/3/24	77,600	101,686	EV/EBIDA	141,678	Buy	54.77%
Paramount Global	United States	5/1/24	\$12.25	\$13.68	PBV	\$21.93	Buy	55.86%
Taiwan Semiconductor	Taiwan	5/3/24	\$780	\$788	EV/EBITDA	\$1,234	Buy	63.21%

Most overpriced on a relative basis...

<i>Company</i>	<i>Country</i>	<i>Date of Valuation</i>	<i>Price per share on date</i>	<i>DCF Value</i>	<i>Multiple used</i>	<i>Pricing per share</i>	<i>Option value</i>	<i>Recommendation</i>	<i>Price/RV</i>
Meta	United States	5/5/24	\$452	\$335	EV/EBIDA	\$101		Sell	447.52%
Indigo	India	5/2/24	4,110.00	4,339.00	PE	1,015.00		Hold	404.93%
Crowdstrike	United States	5/2/24	303.54	139.83	EV/Sales	91.25		Sell	332.65%
Celsius Holdings, Inc.	United States	5/3/24	\$75.80	\$50.09	P/E	\$22.94		Sell	330.43%
Costco	United States	5/2/24	\$732.44	\$648.17	EV/Revenue	\$249		Sell	294.15%
Lululemon	United States	5/3/24	\$352.66	\$304.57	P/E	\$132.38		Sell	266.40%
<u>C3.ai Inc</u>	United States	5/3/24	\$24.04	\$13.97	EV/Sales	\$9.08		Sell	264.76%
Kellanova	United States	5/3/24	\$60.51	\$43.30	PBV	\$23.38		Hold	258.81%
Meta	United States	5/3/24	\$451.96	\$202.63	EV/Sales	\$206.40		Sell	218.97%

Contingent Claim (Option) Valuation

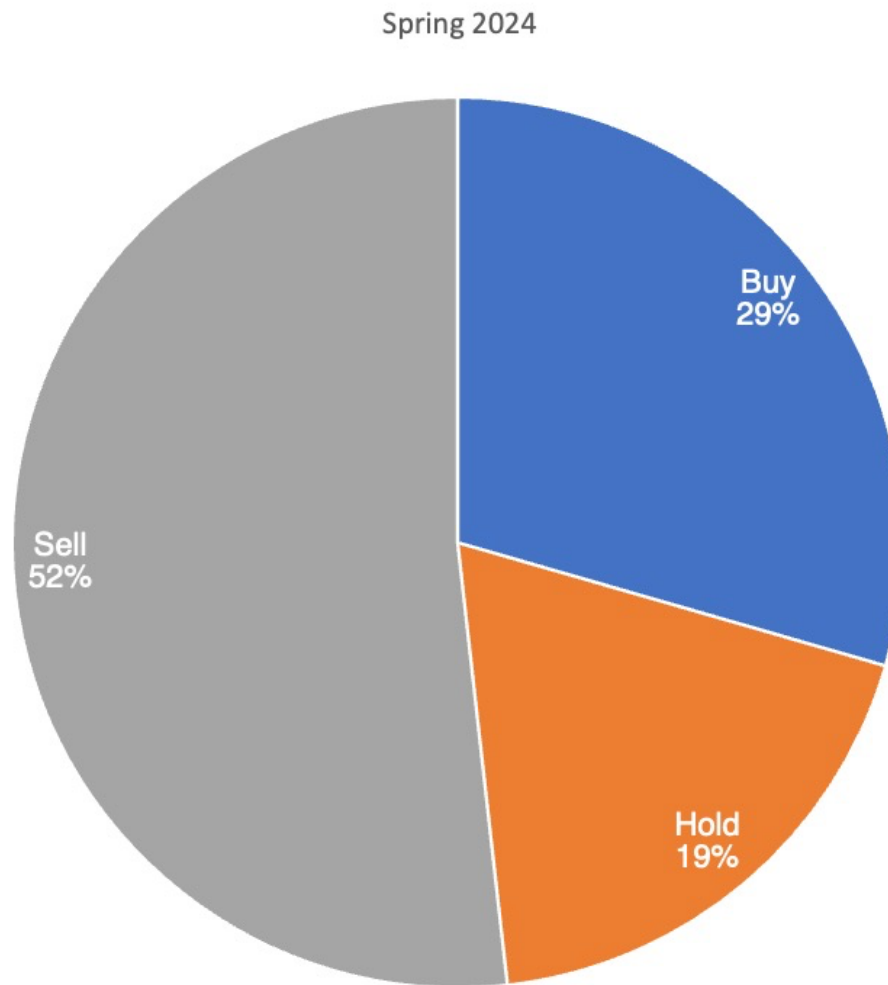
- Options have several features
 - They derive their value from an underlying asset, which has value
 - The payoff on a call (put) option occurs only if the value of the underlying asset is greater (lesser) than an exercise price that is specified at the time the option is created. If this contingency does not occur, the option is worthless.
 - They have a fixed life
- Any security that shares these features can be valued as an option.

- Number of firms valued using option models = 14
- Median Percent increase in value over DCF value= 36.99%

Acting on valuation: It is not just an academic exercise

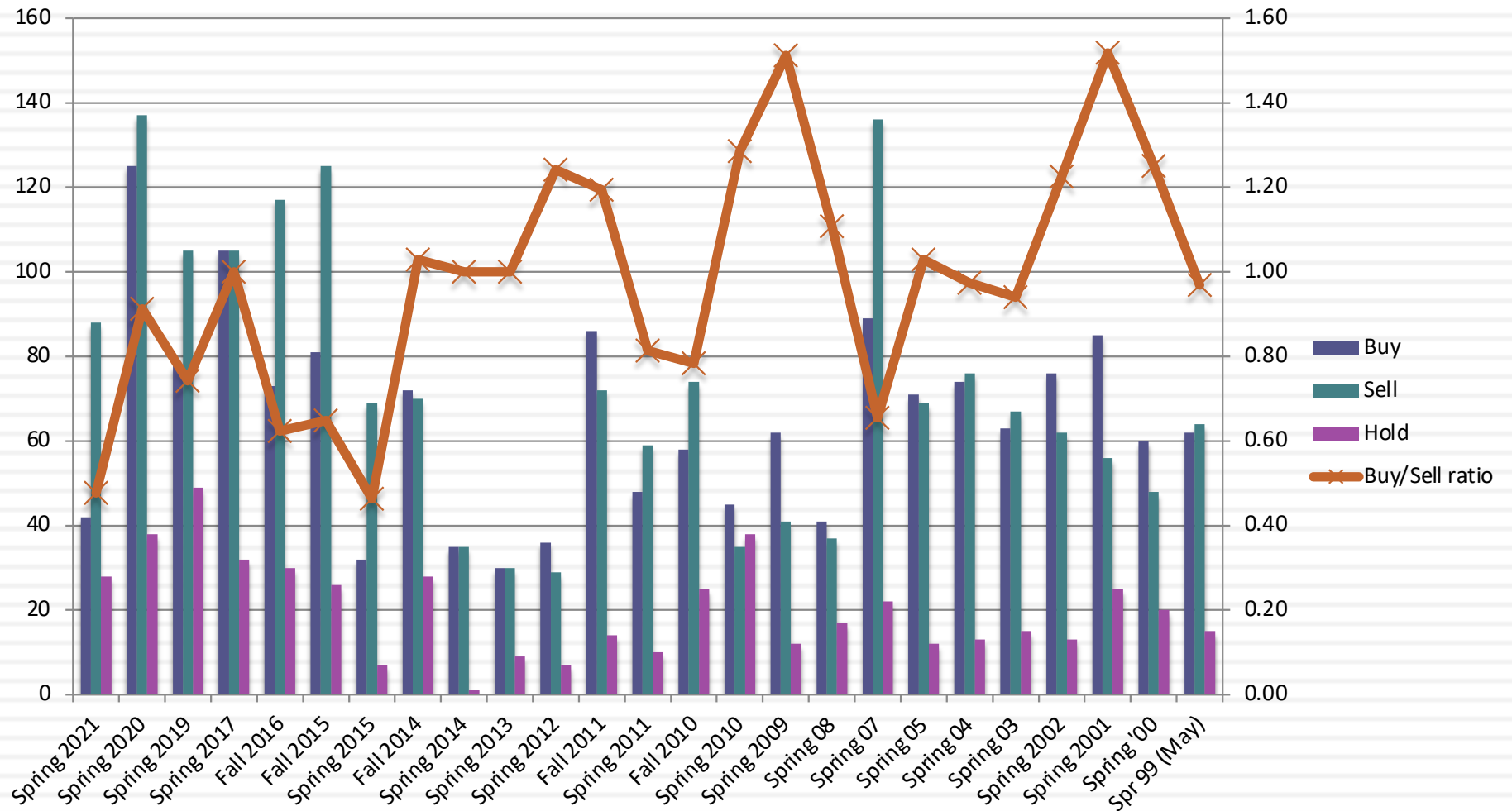
- a. I am not sure yet: Uncertainty is not a shield against action. If you wait until you feel “certain” about your valuation, you will never act.
- b. All believers now? Ultimately, you have to believe in some modicum of market efficiency. Markets have to correct their mistakes for your valuations to pay off.
- c. The law of large numbers: Assuming your valuations carry heft, you are far more likely to be right across many companies than on any individual one.

Your recommendations!



Buy to Sell ratio: 0.56

Prior semesters



Picking your valuation approach

- Asset characteristics
 - ▣ Marketability
 - ▣ Cash flow generating capacity
 - ▣ Uniqueness
- Your characteristics
 - ▣ Time horizon
 - ▣ Reasons for doing the valuation
 - ▣ Beliefs about markets

What approach would work for you?

- As an investor, given your investment philosophy, time horizon and beliefs about markets (that you will be investing in), which of the the approaches to valuation would you choose?
 - a. Discounted Cash Flow Valuation
 - b. Relative Valuation
 - c. Neither. I believe that markets are efficient.

Story Tellers? Number Crunchers?

- If you are a storyteller, I hope that you have
 - ▣ More confidence in your number crunching
 - ▣ More discipline in your stories
 - ▣ Less intimidation, when confronted with number crunchers
- If you are a number cruncher, I hope that you have
 - ▣ More willingness to put stories behind your numbers
 - ▣ More imagination in your number crunching
 - ▣ More understanding, when confronted with story telling

Some Not Very Profound Advice

1. Its all in the fundamentals.
2. Focus on the big picture. Don't sweat the small stuff and don't get distracted.
3. Anecdotes mean little and experience does not equal knowledge.
4. Keep your perspective. It is only a valuation.
5. In investing, luck dominates skill and knowledge.

Do not forget to do your CFEs. Your ability to check your grade rests on it.