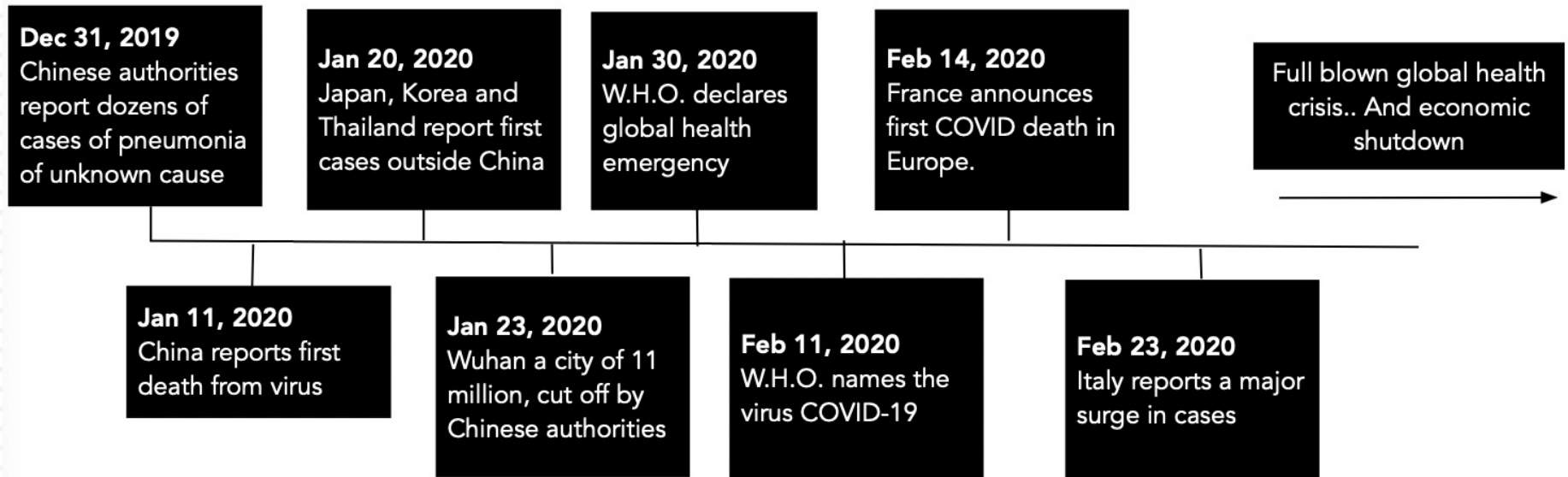




CRISIS AS A CRUCIBLE: A JEDI GUIDE TO
INVESTMENT SERENITY!

Look forward, you must!

COVID-19 Timeline



Lesson 1: Listen to markets, not experts

- During a crisis, you will be often told by experts and market gurus that markets are irrational and behave in crazy and chaotic ways.
- To back this up, the evidence that they will offer is that markets have wild swings on a day-to-day basis, and that these swings are incompatible with rational investing.
- They very conveniently ignore the fact that their advice is even more volatile, veering from day to day...

The truth: Markets play a pricing game...

Tools for intrinsic analysis

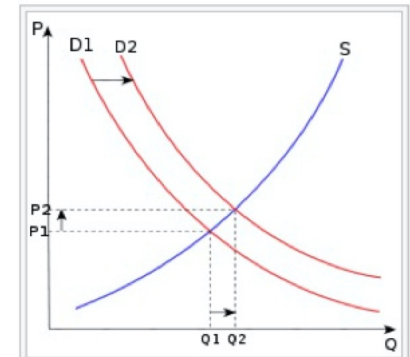
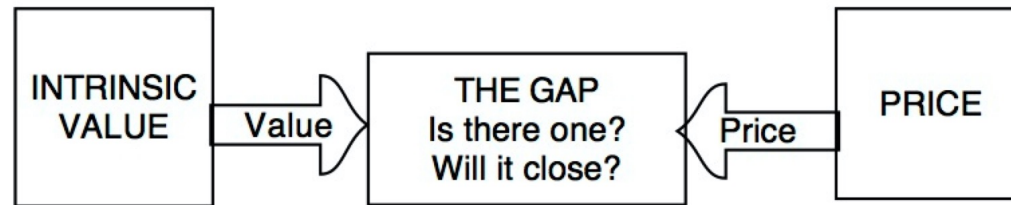
- Discounted Cashflow Valuation (DCF)
- Intrinsic multiples
- Book value based approaches
- Excess Return Models

Tools for "the gap"

- Behavioral finance
- Price catalysts

Tools for pricing

- Multiples and comparables
- Charting and technical indicators
- Pseudo DCF



Drivers of intrinsic value

- Cashflows from existing assets
- Growth in cash flows
- Quality of Growth

Drivers of "the gap"

- Information
- Liquidity
- Corporate governance

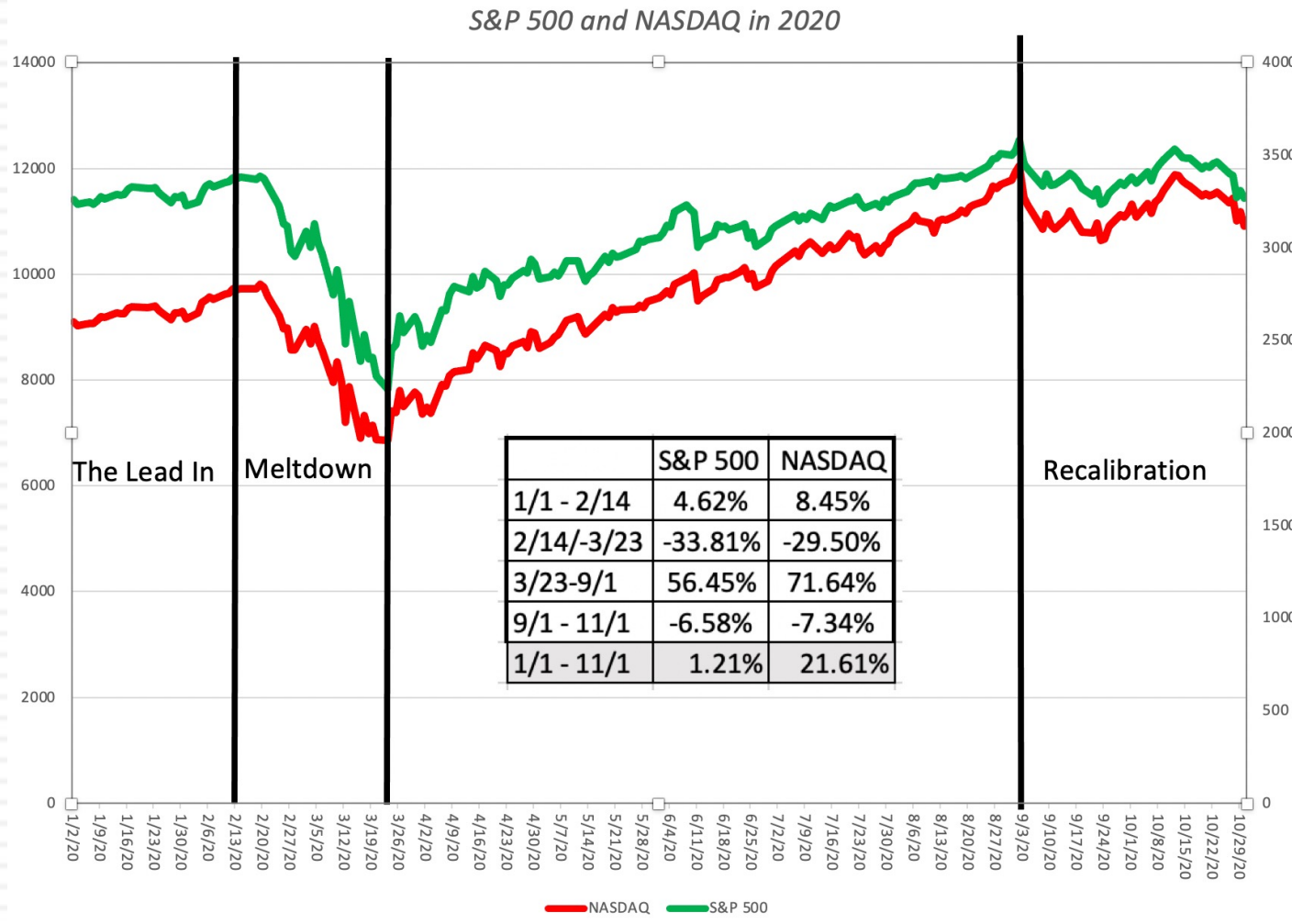
Drivers of price

- Market moods & momentum
- Surface stories about fundamentals

And price and value can diverge...

1. Value has upper & lower bounds. Price does not: Since price is determined by demand and supply, and there is nothing that requires that those buying and selling in markets have to be constrained, it follows that there is no upper or lower bound to prices. Value on the other hand has both upper and lower bounds, with both bounds being set by expected cash flows, growth and risk.
2. Price is reactive, value is proactive: Pricing forces can take information that, at least at first sight, seems insignificant to long term value and cause price changes that are disproportional.
3. Price may never converge on value: Absent a catalyst causing the convergence, price will not only diverge from value in the short term, but it could do so in the long term.

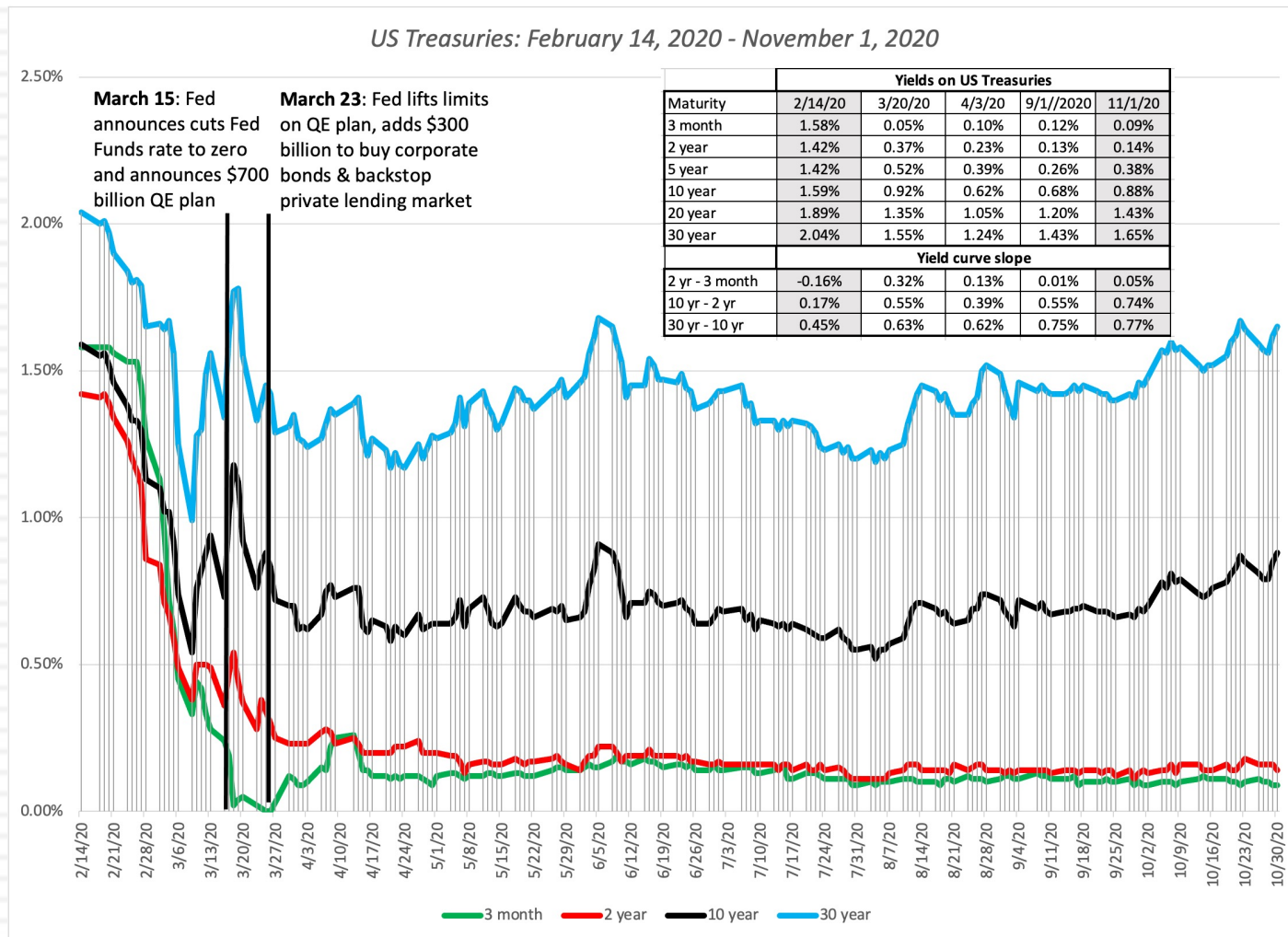
Equities, during the crisis...



Macro Review: Equity Indices

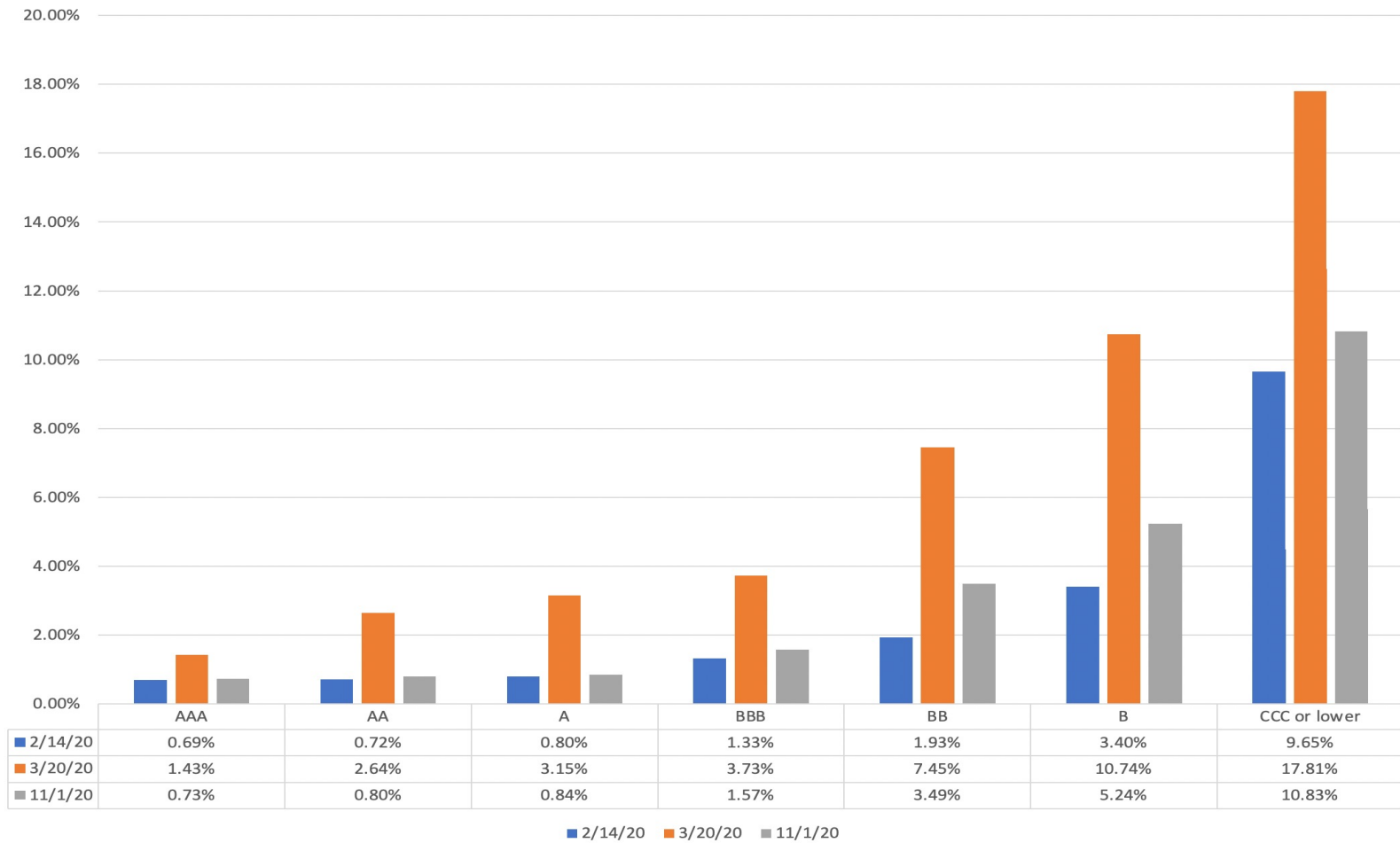
	Index	Country/Region	Levels			% Change				
			14-Feb	20-Mar	1-Nov	10/24-11/1	10/1-11/1	2/14-3/20	3/20-11/1	2/14 - 11/1
Americas	S&P 500	US	3374	2305	3270	0.74%	-3.09%	-31.68%	41.87%	-3.08%
	NASDAQ	US	9712	6880	10845	-0.30%	-4.31%	-29.16%	57.64%	11.67%
	TSX	Canada	17848	11852	15580	0.22%	-2.94%	-33.59%	31.45%	-12.71%
	IPC Mexico	Mexico	45000	34270	36802	0.51%	-4.44%	-23.84%	7.39%	-18.22%
	iBovespa	Brazil	114381	67069	91322	-2.72%	-7.22%	-41.36%	36.16%	-20.16%
Europe	FTSE 100	UK	7409	5191	5577	1.13%	-2.59%	-29.94%	7.44%	-24.73%
	DAX	Germany	13744	8929	11556	1.53%	-3.62%	-35.03%	29.42%	-15.92%
	CAC 40	France	6069	4131	4595	1.77%	-2.90%	-31.93%	11.23%	-24.29%
	S&P Europe 350	Europe	1731	1181	1357	0.15%	-5.53%	-31.77%	14.94%	-21.58%
Asia	Nikkei 225	Japan	23688	16553	22977	1.39%	-0.85%	-30.12%	38.81%	-3.00%
	Shanghai 50	China	2895	2628	3252	-0.44%	-1.17%	-9.22%	23.73%	12.31%
	Hang Seng	Hong Kong	27816	22805	24107	1.32%	-1.46%	-18.01%	5.71%	-13.33%
	Sensex	India	41258	29916	39615	0.23%	-1.10%	-27.49%	32.42%	-3.98%
Australia & NZ	ASX 200	Australia	7133	4825	5927	0.40%	-3.32%	-32.36%	22.85%	-16.90%
	NZX 50	New Zealand	11835	9202	12020	0.42%	-2.12%	-22.25%	30.62%	1.56%
Africa	FTSE/JSE TOP 40	South Africa	52050	36302	47473	1.94%	-3.77%	-30.26%	30.77%	-8.79%
	NSE-All Share	Nigeria	27756	22198	30428	-0.17%	5.91%	-20.02%	37.07%	9.63%

Macro Review: US Treasuries



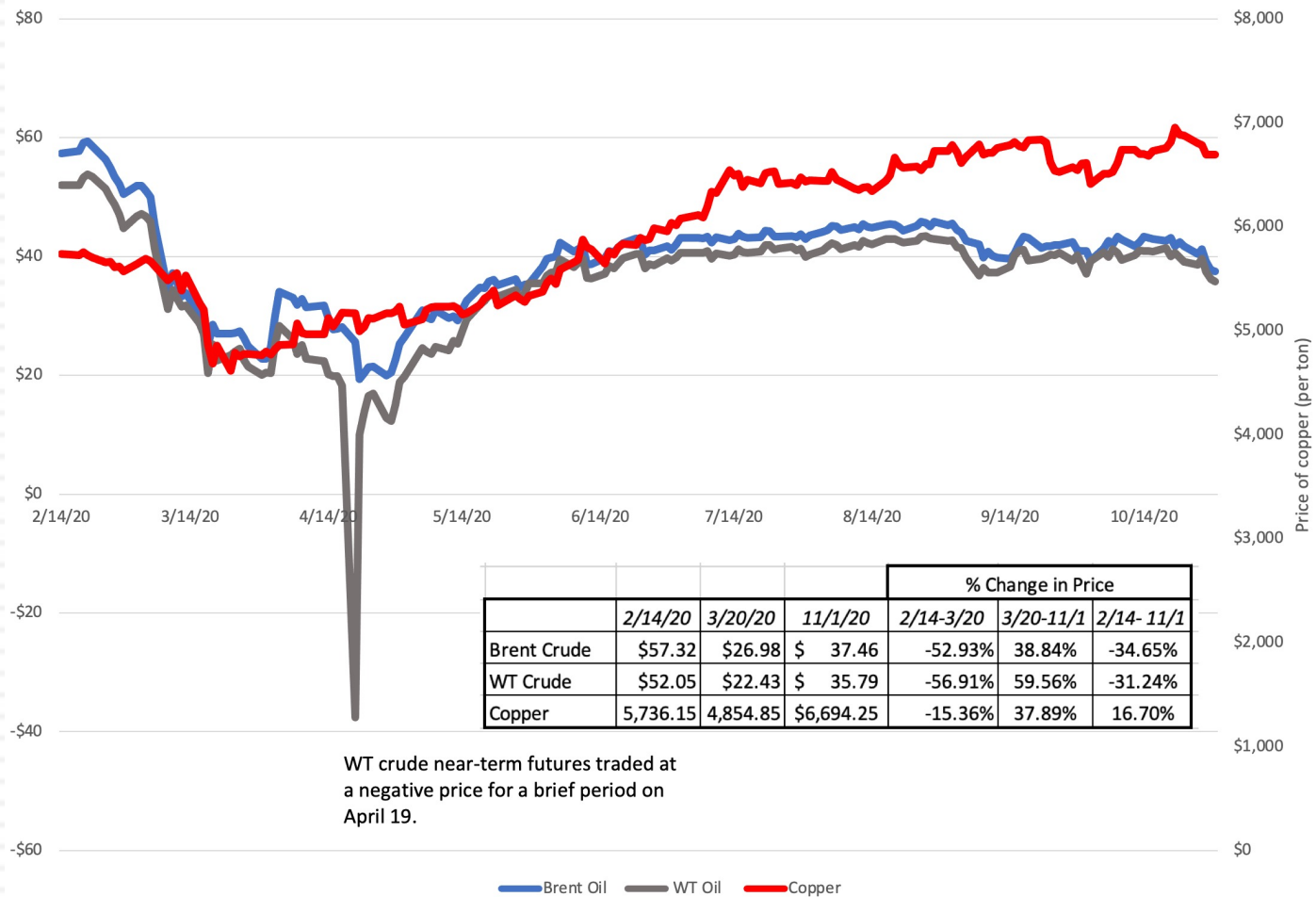
Macro Review: Corporate Bonds

Corporate Bond Default Spreads: 2/14 - 11/1



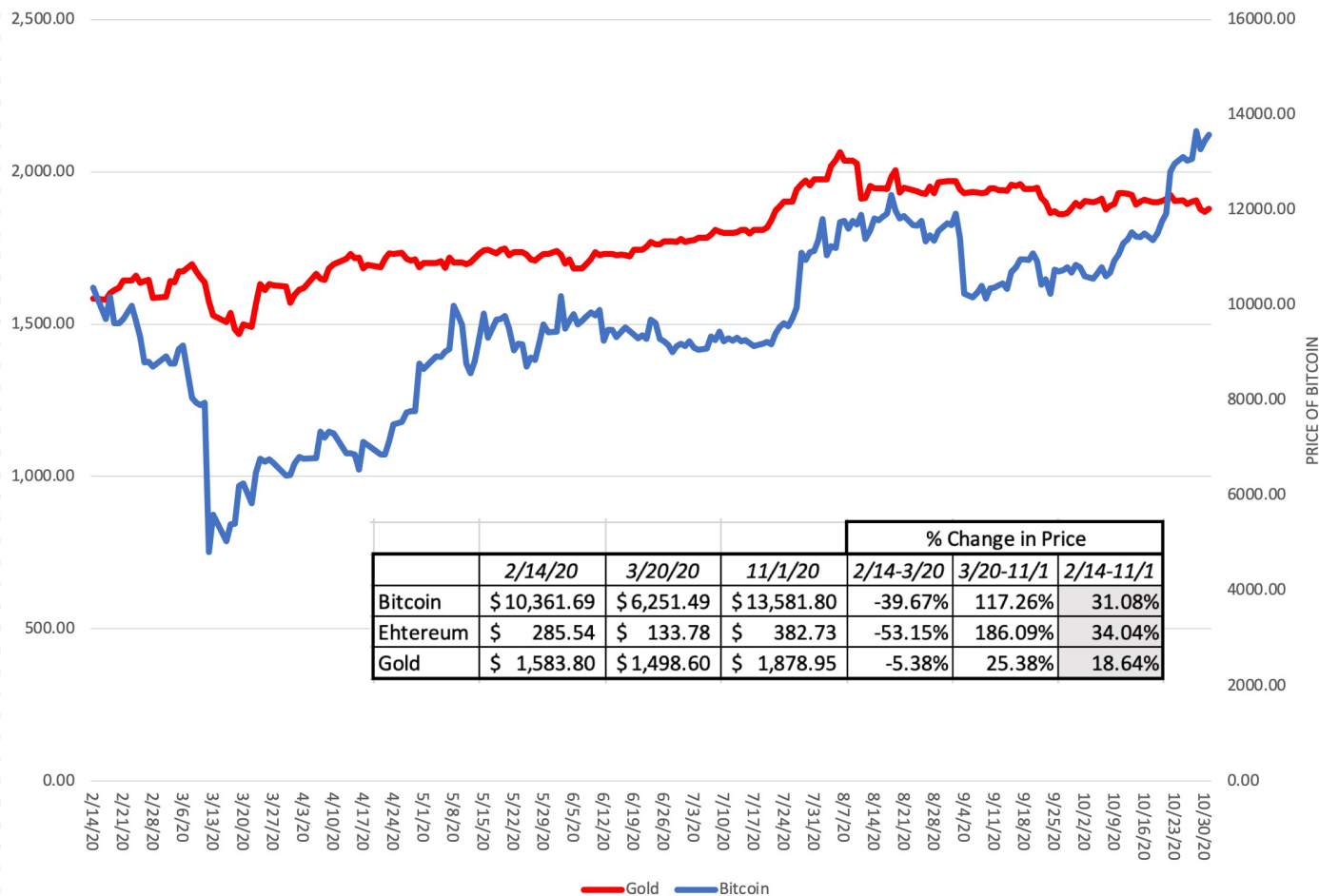
Macro Review: Oil & Copper

Oil and Copper Prices: February 14, 2020 - November 1, 2020



Macro Review: Gold & Bitcoin

Price of Gold & Bitcoin: Feb 14, 2020 - November 1, 2020



No place to hide?

	Equities				Treasuries		Corporate Bonds			Commodities			Currencies		Precious Metals		Cryptos		Real Estate
	S&P 500	S&P 600	S&P Euro 350	S&P Em Mkt BMI	3 month T.Bill	10-yr T.Bond	AAA	BBB	CCC & lower	Brent Crude	Copper	S&P WCI	\$ vs Developed	\$ vs Emerging	Gold Price per oz	Silver Price per oz	Bitcoin	Ehtereum	S&P Real Estate
S&P 500	1.0000																		
S&P 600	0.8885	1.0000																	
S&P Euro 350	0.7047	0.7379	1.0000																
S&P Em Mkt BMI	0.5991	0.5697	0.6261	1.0000															
3 month T.Bill	-0.0576	-0.0759	-0.0736	-0.0982	1.0000														
10-yr T.Bond	-0.4780	-0.4568	-0.4007	-0.2907	0.1300	1.0000													
AAA	0.4652	0.4229	0.4343	0.5591	-0.0649	-0.2957	1.0000												
BBB	0.4825	0.4362	0.4679	0.5321	-0.0689	-0.3043	0.7765	1.0000											
CCC & lower	0.6010	0.5993	0.6544	0.5703	-0.0975	-0.4074	0.5661	0.6867	1.0000										
Brent Crude	0.3340	0.2770	0.3502	0.3454	-0.0607	-0.2029	0.1303	0.1865	0.2768	1.0000									
Copper	0.3681	0.3807	0.4359	0.3812	-0.0943	-0.1952	0.2710	0.3155	0.3742	0.3301	1.0000								
S&P WCI	0.3949	0.3858	0.4334	0.4465	-0.1079	-0.2536	0.2870	0.3608	0.3901	0.6676	0.3835	1.0000							
\$ vs Developed	-0.1718	-0.2315	-0.2863	-0.2767	0.0805	-0.1883	-0.2850	-0.3608	-0.3423	-0.0935	-0.3899	-0.1296	1.0000						
\$ vs Emerging	-0.5381	-0.5659	-0.6338	-0.4779	0.0728	0.2579	-0.3987	-0.5496	-0.6486	-0.2640	-0.4768	-0.3916	0.5965	1.0000					
Gold Price per oz	0.1704	0.1069	0.1341	0.2228	0.0173	-0.0458	0.1932	0.1814	0.1132	0.0957	0.1251	0.0717	-0.2234	-0.1914	1.0000				
Silver Price per oz	0.2375	0.2082	0.2092	0.3345	-0.0620	-0.1302	0.2124	0.2752	0.2452	0.1181	0.1936	0.1949	-0.3116	-0.3229	0.7740	1.0000			
Bitcoin	0.4291	0.4223	0.4101	0.3439	-0.0362	-0.0708	0.1234	0.1142	0.2584	0.2091	0.1660	0.2992	-0.2172	-0.3194	0.1029	0.1550	1.0000		
Ehtereum	0.4496	0.4264	0.3816	0.3283	0.0248	-0.0831	0.1292	0.1375	0.2889	0.1868	0.1647	0.2608	-0.1912	-0.2930	0.1221	0.1693	0.8478	1.0000	
S&P Real Estate	0.8923	0.8492	0.6301	0.5237	-0.0101	-0.4441	0.4808	0.5154	0.6085	0.2655	0.2985	0.3216	-0.1981	-0.5263	0.1965	0.2619	0.3460	0.3674	1.0000

Global Equities: By Region

Sub Region	Number of firms	Market Cap (\$ Millions)				\$ Change in Market Cap				% Change in Market Cap			
		2/14/20	3/20/20	8/28/20	11/1/20	2/14 - 3/20	3/20- 9/1	9/1-11/1	2/14 - 11/1	2/14 - 3/20	3/20- 9/1	9/1-11/1	2/14 - 11/1
Africa	775	\$ 551,313	\$ 347,724	\$ 453,676	\$ 450,891	\$ (203,590)	\$ 105,953	\$ (2,785)	\$ (100,422)	-36.93%	30.47%	-0.61%	-18.22%
Australia & NZ	1,544	\$ 1,460,485	\$ 867,789	\$ 1,457,249	\$ 1,377,797	\$ (592,696)	\$ 589,460	\$ (79,452)	\$ (82,688)	-40.58%	67.93%	-5.45%	-5.66%
Canada	2,396	\$ 2,069,846	\$ 1,263,949	\$ 2,025,929	\$ 1,874,426	\$ (805,897)	\$ 761,980	\$ (151,503)	\$ (195,420)	-38.94%	60.29%	-7.48%	-9.44%
China	6,293	\$ 13,955,224	\$ 12,367,237	\$ 16,742,877	\$ 16,405,890	\$ (1,587,987)	\$ 4,375,641	\$ (336,988)	\$ 2,450,666	-11.38%	35.38%	-2.01%	17.56%
EU & Environs	5,190	\$ 13,195,783	\$ 8,955,805	\$ 12,849,117	\$ 12,356,947	\$ (4,239,979)	\$ 3,893,312	\$ (492,170)	\$ (838,836)	-32.13%	43.47%	-3.83%	-6.36%
Eastern Europe & Russia	494	\$ 820,322	\$ 495,278	\$ 630,915	\$ 543,773	\$ (325,044)	\$ 135,637	\$ (87,142)	\$ (276,549)	-39.62%	27.39%	-13.81%	-33.71%
India	3,314	\$ 2,189,647	\$ 1,510,005	\$ 2,137,221	\$ 2,074,926	\$ (679,642)	\$ 627,215	\$ (62,295)	\$ (114,721)	-31.04%	41.54%	-2.91%	-5.24%
Japan	3,732	\$ 5,857,677	\$ 4,367,763	\$ 5,806,406	\$ 5,793,928	\$ (1,489,914)	\$ 1,438,644	\$ (12,479)	\$ (63,749)	-25.44%	32.94%	-0.21%	-1.09%
Latin America & Caribbean	1,164	\$ 2,420,178	\$ 1,418,615	\$ 1,889,419	\$ 1,764,617	\$ (1,001,563)	\$ 470,804	\$ (124,802)	\$ (655,561)	-41.38%	33.19%	-6.61%	-27.09%
Middle East	1,430	\$ 3,072,356	\$ 2,555,641	\$ 3,130,835	\$ 3,056,482	\$ (516,716)	\$ 575,194	\$ (74,353)	\$ (15,875)	-16.82%	22.51%	-2.37%	-0.52%
Small Asia	8,625	\$ 4,993,589	\$ 3,496,975	\$ 5,048,960	\$ 4,995,842	\$ (1,496,614)	\$ 1,551,985	\$ (53,118)	\$ 2,253	-29.97%	44.38%	-1.05%	0.05%
UK	1,130	\$ 2,899,163	\$ 1,826,761	\$ 2,506,942	\$ 2,306,805	\$ (1,072,402)	\$ 680,181	\$ (200,137)	\$ (592,358)	-36.99%	37.23%	-7.98%	-20.43%
United States	6,357	\$ 33,844,978	\$ 22,773,956	\$ 35,589,058	\$ 33,525,453	\$ (11,071,022)	\$ 12,815,102	\$ (2,063,605)	\$ (319,524)	-32.71%	56.27%	-5.80%	-0.94%
Global	42,445	\$ 87,330,562	\$ 62,247,496	\$ 74,920,290	\$ 87,744,240	\$ (25,083,065)	\$ 12,672,794	\$ 12,823,950	\$ 413,679	-28.72%	20.36%	17.12%	0.47%

Global Equities: By Sector

Primary Sector	Number of firms	Market Cap (\$ Millions)				\$ Change in Market Cap				% Change in Market Cap			
		2/14/20	3/20/20	8/28/20	11/1/20	2/14 - 3/20	3/20- 9/1	9/1-11/1	2/14 - 11/1	2/14 - 3/20	3/20- 9/1	9/1-11/1	2/14 - 11/1
Communication Services	2,079	\$ 7,291,713	\$ 5,460,948	\$ 7,920,931	\$ 7,605,693	\$ (1,830,765)	\$ 2,459,983	\$ (315,238)	\$ 313,980	-25.11%	45.05%	-3.98%	4.31%
Consumer Discretionary	5,945	\$ 10,153,097	\$ 7,068,864	\$ 11,850,184	\$ 12,063,642	\$ (3,084,232)	\$ 4,781,319	\$ 213,459	\$ 1,910,546	-30.38%	67.64%	1.80%	18.82%
Consumer Staples	2,847	\$ 7,168,482	\$ 5,729,650	\$ 7,641,382	\$ 7,237,898	\$ (1,438,832)	\$ 1,911,731	\$ (403,484)	\$ 69,416	-20.07%	33.37%	-5.28%	0.97%
Energy	1,654	\$ 5,922,675	\$ 3,847,829	\$ 4,991,620	\$ 4,444,401	\$ (2,074,846)	\$ 1,143,792	\$ (547,220)	\$ (1,478,274)	-35.03%	29.73%	-10.96%	-24.96%
Financials	4,356	\$ 14,234,754	\$ 9,514,353	\$ 12,061,179	\$ 11,412,865	\$ (4,720,402)	\$ 2,546,827	\$ (648,315)	\$ (2,821,889)	-33.16%	26.77%	-5.38%	-19.82%
Health Care	3,955	\$ 8,905,753	\$ 6,857,601	\$ 9,949,643	\$ 9,527,764	\$ (2,048,152)	\$ 3,092,042	\$ (421,879)	\$ 622,012	-23.00%	45.09%	-4.24%	6.98%
Industrials	7,560	\$ 10,081,864	\$ 6,865,944	\$ 9,922,741	\$ 9,576,177	\$ (3,215,919)	\$ 3,056,797	\$ (346,564)	\$ (505,687)	-31.90%	44.52%	-3.49%	-5.02%
Information Technology	5,577	\$ 13,560,982	\$ 9,707,739	\$ 15,984,270	\$ 14,992,176	\$ (3,853,242)	\$ 6,276,531	\$ (992,094)	\$ 1,431,194	-28.41%	64.65%	-6.21%	10.55%
Materials	5,705	\$ 4,976,622	\$ 3,514,149	\$ 5,380,546	\$ 5,200,887	\$ (1,462,473)	\$ 1,866,397	\$ (179,658)	\$ 224,265	-29.39%	53.11%	-3.34%	4.51%
Real Estate	1,842	\$ 1,836,062	\$ 1,353,453	\$ 1,679,779	\$ 1,585,009	\$ (482,609)	\$ 326,326	\$ (94,769)	\$ (251,053)	-26.29%	24.11%	-5.64%	-13.67%
Utilities	917	\$ 3,196,558	\$ 2,325,395	\$ 2,884,510	\$ 2,879,452	\$ (871,163)	\$ 559,115	\$ (5,058)	\$ (317,106)	-27.25%	24.04%	-0.18%	-9.92%
Global	42,445	\$ 87,330,562	\$ 62,247,496	\$ 74,920,290	\$ 87,744,240	\$ (25,083,065)	\$ 12,672,794	\$ 12,823,950	\$ 413,679	-28.72%	20.36%	17.12%	0.47%

Global Equities: Industry Winners & Losers

Worst Performing Industries (2/14- 11/1)													
Industry	Number of firms	Market Cap (\$ Millions)				\$ Change in Market Cap				% Change in Market Cap			
		2/14/20	3/20/20	8/28/20	11/1/20	2/14 - 3/20	3/20- 9/1	9/1-11/1	2/14 - 11/1	2/14 - 3/20	3/20- 9/1	9/1-11/1	2/14 - 11/1
Oil/Gas (Production and Exploration)	705	\$ 683,665	\$ 316,958	\$ 477,802	\$ 383,653	\$ (366,707)	\$ 160,844	\$ (94,149)	\$ (300,012)	-53.64%	50.75%	-19.70%	-43.88%
R. E. I. T.	80	\$ 108,606	\$ 49,179	\$ 68,474	\$ 64,681	\$ (59,427)	\$ 19,296	\$ (3,793)	\$ (43,925)	-54.72%	39.24%	-5.54%	-40.44%
Oil/Gas Distribution	197	\$ 644,032	\$ 355,094	\$ 480,384	\$ 424,030	\$ (288,938)	\$ 125,290	\$ (56,354)	\$ (220,002)	-44.86%	35.28%	-11.73%	-34.16%
Reinsurance	35	\$ 180,669	\$ 98,290	\$ 141,359	\$ 122,608	\$ (82,379)	\$ 43,069	\$ (18,752)	\$ (58,061)	-45.60%	43.82%	-13.27%	-32.14%
Aerospace/Defense	235	\$ 1,219,943	\$ 674,529	\$ 939,969	\$ 830,117	\$ (545,414)	\$ 265,440	\$ (109,851)	\$ (389,825)	-44.71%	39.35%	-11.69%	-31.95%
Air Transport	161	\$ 558,878	\$ 315,543	\$ 418,144	\$ 389,947	\$ (243,335)	\$ 102,601	\$ (28,196)	\$ (168,930)	-43.54%	32.52%	-6.74%	-30.23%
Broadcasting	139	\$ 164,223	\$ 93,880	\$ 128,388	\$ 122,024	\$ (70,343)	\$ 34,508	\$ (6,364)	\$ (42,199)	-42.83%	36.76%	-4.96%	-25.70%
Insurance (General)	222	\$ 833,814	\$ 508,265	\$ 694,490	\$ 620,410	\$ (325,549)	\$ 186,225	\$ (74,079)	\$ (213,404)	-39.04%	36.64%	-10.67%	-25.59%
Bank (Money Center)	629	\$ 6,844,013	\$ 4,651,769	\$ 5,397,921	\$ 5,107,604	\$ (2,192,245)	\$ 746,152	\$ (290,317)	\$ (1,736,409)	-32.03%	16.04%	-5.38%	-25.37%
Food Wholesalers	149	\$ 94,803	\$ 51,326	\$ 77,791	\$ 71,464	\$ (43,477)	\$ 26,465	\$ (6,327)	\$ (23,339)	-45.86%	51.56%	-8.13%	-24.62%
Best Performing Industries (2/14- 11/1)													
Industry	Number of firms	Market Cap (\$ Millions)				\$ Change in Market Cap				% Change in Market Cap			
		2/14/20	3/20/20	8/28/20	11/1/20	2/14 - 3/20	3/20- 9/1	9/1-11/1	2/14 - 11/1	2/14 - 3/20	3/20- 9/1	9/1-11/1	2/14 - 11/1
Software (Internet)	133	\$ 226,460	\$ 166,483	\$ 355,195	\$ 334,679	\$ (59,977)	\$ 188,712	\$ (20,516)	\$ 108,219	-26.48%	113.35%	-5.78%	47.79%
Retail (Online)	307	\$ 2,454,579	\$ 1,989,255	\$ 3,728,349	\$ 3,585,642	\$ (465,324)	\$ 1,739,094	\$ (142,707)	\$ 1,131,063	-18.96%	87.42%	-3.83%	46.08%
Healthcare Information and Technology	374	\$ 768,829	\$ 604,390	\$ 1,029,307	\$ 1,054,953	\$ (164,439)	\$ 424,917	\$ 25,646	\$ 286,124	-21.39%	70.31%	2.49%	37.22%
Precious Metals	796	\$ 419,259	\$ 297,645	\$ 611,235	\$ 557,335	\$ (121,614)	\$ 313,590	\$ (53,900)	\$ 138,076	-29.01%	105.36%	-8.82%	32.93%
Furn/Home Furnishings	333	\$ 330,673	\$ 253,089	\$ 383,318	\$ 406,726	\$ (77,583)	\$ 130,229	\$ 23,408	\$ 76,053	-23.46%	51.46%	6.11%	23.00%
Transportation	262	\$ 548,150	\$ 415,190	\$ 675,026	\$ 668,808	\$ (132,960)	\$ 259,836	\$ (6,218)	\$ 120,658	-24.26%	62.58%	-0.92%	22.01%
Software (Entertainment)	297	\$ 2,530,194	\$ 1,843,089	\$ 3,075,331	\$ 3,059,148	\$ (687,105)	\$ 1,232,242	\$ (16,183)	\$ 528,954	-27.16%	66.86%	-0.53%	20.91%
Electrical Equipment	890	\$ 894,227	\$ 678,000	\$ 1,041,728	\$ 1,070,976	\$ (216,228)	\$ 363,728	\$ 29,248	\$ 176,749	-24.18%	53.65%	2.81%	19.77%
Computers/Peripherals	328	\$ 2,216,118	\$ 1,565,486	\$ 2,912,841	\$ 2,626,303	\$ (650,632)	\$ 1,347,355	\$ (286,538)	\$ 410,185	-29.36%	86.07%	-9.84%	18.51%
Semiconductor	539	\$ 2,059,092	\$ 1,457,139	\$ 2,419,298	\$ 2,407,639	\$ (601,953)	\$ 962,159	\$ (11,659)	\$ 348,547	-29.23%	66.03%	-0.48%	16.93%

A Sum-up on Markets..

- Uncertainty barometer: The market has had its ups and downs, with volatility in the mix. It has looked uncertain about direction, with big up days followed by big down days. It is reflecting the uncertainty that we all feel, on a day-to-day basis.
- Order in chaos: When we look at the full effects, the market has been remarkably orderly in how it has meted out punishment and doled out reward.
- Liquidity is a solution, not a problem: To those who argued that markets should be shut down, this crisis should be a reminder that removing liquidity during a crisis often makes it worse, rather than better.

Lesson 2: Opinions are trumped by data...

- Every crisis brings forth explanations for why it is happening, and what we should do about it, with half-baked rationales and anecdotal evidence. Listen, with respect, but verify for yourself.
- For people with agendas, the crisis has offered an opportunity to not only say, “I told you so”, but also to push for legal and regulatory changes to advance their viewpoints.
- Here are two stories that are making the rounds
 - Just punishment: The market drop is well-deserved punishment for those who invested in high flying companies and on momentum.
 - Buybacks are the problem: The surge in buybacks are caused companies to become weak and exposed, and the market is punishing those companies.

Value versus Growth: A pre-crisis lead in..

Value vs Growth: US Stocks, by decade

	<i>Lowest PBV</i>	<i>Highest PBV</i>	<i>Difference</i>	<i>Lowest PE</i>	<i>Highest PE</i>	<i>Difference</i>
1930-39	6.04%	4.27%	1.77%	NA	NA	NA
1940-49	22.96%	7.43%	15.53%	NA	NA	NA
1950-59	25.06%	20.92%	4.14%	34.33%	19.16%	15.17%
1960-69	13.23%	9.57%	3.66%	15.27%	9.79%	5.48%
1970-79	17.05%	3.89%	13.16%	14.83%	2.28%	12.54%
1980-89	24.48%	12.94%	11.54%	18.38%	14.46%	3.92%
1990-99	20.17%	21.88%	-1.71%	21.61%	22.03%	-0.41%
2000-09	8.59%	-0.49%	9.08%	13.84%	0.61%	13.23%
2010-19	11.27%	16.67%	-5.39%	11.35%	17.09%	-5.75%

The under performance of value has played out not only in the mutual fund business, but it has also brought many legendary value investors down to earth. We were told that this was temporary, and that a crisis would put value back on top again...

PE, Dividends and Market Returns – During Crisis

decile(Trailing PE)	Number of firms	Market Cap (\$ Millions)				\$ Change in Market Cap				% Change in Market Cap			
		2/14/20	3/20/20	8/28/20	11/1/20	2/14 - 3/20	3/20- 9/1	9/1-11/1	2/14 - 11/1	2/14 - 3/20	3/20- 9/1	9/1-11/1	2/14 - 11/1
Bottom decile	2,333	\$ 1,755,010	\$ 1,422,217	\$ 1,774,142	\$ 1,698,243	\$ (332,794)	\$ 351,925	\$ (75,899)	\$ (56,767)	-18.96%	24.74%	-4.28%	-3.23%
2nd decile	2,334	\$ 2,971,983	\$ 2,262,564	\$ 2,842,712	\$ 2,708,398	\$ (709,418)	\$ 580,147	\$ (134,314)	\$ (263,585)	-23.87%	25.64%	-4.72%	-8.87%
3rd decile	2,334	\$ 3,798,983	\$ 2,781,595	\$ 3,659,654	\$ 3,537,429	\$ (1,017,388)	\$ 878,059	\$ (122,225)	\$ (261,554)	-26.78%	31.57%	-3.34%	-6.88%
4th decile	2,334	\$ 6,130,592	\$ 4,337,513	\$ 5,772,392	\$ 5,875,533	\$ (1,793,079)	\$ 1,434,879	\$ 103,141	\$ (255,059)	-29.25%	33.08%	1.79%	-4.16%
5th decile	2,334	\$ 7,435,170	\$ 5,185,493	\$ 7,227,482	\$ 6,924,120	\$ (2,249,677)	\$ 2,041,989	\$ (303,362)	\$ (511,050)	-30.26%	39.38%	-4.20%	-6.87%
6th decile	2,333	\$ 8,806,792	\$ 6,406,899	\$ 8,908,535	\$ 8,588,767	\$ (2,399,893)	\$ 2,501,636	\$ (319,768)	\$ (218,025)	-27.25%	39.05%	-3.59%	-2.48%
7th decile	2,334	\$18,241,633	\$13,447,184	\$20,211,926	\$19,102,554	\$ (4,794,449)	\$ 6,764,742	\$ (1,109,373)	\$ 860,921	-26.28%	50.31%	-5.49%	4.72%
8th decile	2,334	\$10,112,133	\$ 7,327,847	\$10,526,888	\$10,222,756	\$ (2,784,286)	\$ 3,199,041	\$ (304,132)	\$ 110,623	-27.53%	43.66%	-2.89%	1.09%
9th decile	2,334	\$10,213,139	\$ 7,649,640	\$11,653,529	\$11,044,945	\$ (2,563,499)	\$ 4,003,889	\$ (608,584)	\$ 831,806	-25.10%	52.34%	-5.22%	8.14%
Top decile	2,334	\$ 5,154,457	\$ 3,549,939	\$ 5,701,200	\$ 5,467,262	\$ (1,604,519)	\$ 2,151,261	\$ (233,938)	\$ 312,805	-31.13%	60.60%	-4.10%	6.07%
Negative Earnings	19,107	\$12,710,669	\$ 7,876,605	\$11,990,144	\$11,357,769	\$ (4,834,064)	\$ 4,113,539	\$ (632,375)	\$ (1,352,899)	-38.03%	52.22%	-5.27%	-10.64%
Global	42,445	\$87,330,562	\$62,247,496	\$74,920,290	\$87,744,240	\$ (25,083,065)	\$12,672,794	\$12,823,950	\$ 413,679	-28.72%	20.36%	17.12%	0.47%

quintile(Dividend Yield)	Number of firms	Market Cap (\$ Millions)				\$ Change in Market Cap				% Change in Market Cap			
		2/14/20	3/20/20	5/22/20	8/14/20	2/14 - 3/20	3/20- 5/22	5/22 - 8/14	2/14 - 8/14	2/14 - 3/20	3/20- 5/22	5/22 - 8/14	2/14 - 8/14
Non-dividend paying	26,088	\$24,416,274	\$17,683,438	\$22,096,476	\$26,078,982	\$ (6,732,837)	\$4,413,038	\$3,982,506	\$ 1,662,708	-27.58%	24.96%	18.02%	6.81%
Bottom quintile	3,576	\$12,298,324	\$ 8,992,480	\$10,976,052	\$13,261,223	\$ (3,305,844)	\$1,983,572	\$2,285,171	\$ 962,899	-26.88%	22.06%	20.82%	7.83%
2nd quintile	3,576	\$17,146,283	\$12,023,053	\$14,984,816	\$17,827,271	\$ (5,123,230)	\$2,961,763	\$2,842,455	\$ 680,988	-29.88%	24.63%	18.97%	3.97%
3rd quintile	3,577	\$16,104,332	\$11,183,049	\$13,128,188	\$14,992,988	\$ (4,921,283)	\$1,945,139	\$1,864,800	\$ (1,111,344)	-30.56%	17.39%	14.20%	-6.90%
4th quintile	3,576	\$13,396,923	\$ 9,275,069	\$10,471,358	\$11,969,783	\$ (4,121,854)	\$1,196,289	\$1,498,425	\$ (1,427,140)	-30.77%	12.90%	14.31%	-10.65%
Top quintile	3,577	\$ 7,036,275	\$ 4,963,652	\$ 5,553,475	\$ 6,219,322	\$ (2,072,623)	\$ 589,823	\$ 665,847	\$ (816,954)	-29.46%	11.88%	11.99%	-11.61%

Momentum and Damage

Mkt Cap Change (2/14/19)	Number of firms	Market Cap (\$ Millions)				\$ Change in Market Cap				% Change in Market Cap			
		2/14/20	3/20/20	8/28/20	11/1/20	2/14 - 3/20	3/20- 9/1	9/1-11/1	2/14 - 11/1	2/14 - 3/20	3/20- 9/1	9/1-11/1	2/14 - 11/1
Bottom decile	3,865	\$ 462,520	\$ 297,389	\$ 506,127	\$ 488,936	\$ (165,130)	\$ 208,738	\$ (17,191)	\$ 26,416	-35.70%	70.19%	-3.40%	5.71%
2nd decile	3,866	\$ 1,780,767	\$ 1,241,333	\$ 1,669,163	\$ 1,568,755	\$ (539,434)	\$ 427,831	\$ (100,408)	\$ (212,012)	-30.29%	34.47%	-6.02%	-11.91%
3rd decile	3,866	\$ 4,241,671	\$ 2,830,604	\$ 3,689,012	\$ 3,448,320	\$ (1,411,067)	\$ 858,408	\$ (240,693)	\$ (793,352)	-33.27%	30.33%	-6.52%	-18.70%
4th decile	3,866	\$ 4,977,529	\$ 3,394,232	\$ 4,515,909	\$ 4,280,305	\$ (1,583,297)	\$ 1,121,677	\$ (235,604)	\$ (697,224)	-31.81%	33.05%	-5.22%	-14.01%
5th decile	3,866	\$ 7,198,682	\$ 5,249,535	\$ 6,574,856	\$ 6,208,734	\$ (1,949,147)	\$ 1,325,321	\$ (366,122)	\$ (989,948)	-27.08%	25.25%	-5.57%	-13.75%
6th decile	3,865	\$ 7,655,049	\$ 5,368,099	\$ 7,273,459	\$ 6,986,724	\$ (2,286,949)	\$ 1,905,359	\$ (286,735)	\$ (668,324)	-29.88%	35.49%	-3.94%	-8.73%
7th decile	3,866	\$12,828,994	\$ 9,104,464	\$12,419,292	\$11,814,370	\$ (3,724,531)	\$ 3,314,828	\$ (604,922)	\$ (1,014,624)	-29.03%	36.41%	-4.87%	-7.91%
8th decile	3,865	\$20,073,481	\$14,079,065	\$20,107,930	\$19,647,460	\$ (5,994,415)	\$ 6,028,865	\$ (460,471)	\$ (426,021)	-29.86%	42.82%	-2.29%	-2.12%
9th decile	3,867	\$15,805,455	\$11,408,965	\$17,957,190	\$17,231,036	\$ (4,396,490)	\$ 6,548,225	\$ (726,154)	\$ 1,425,581	-27.82%	57.40%	-4.04%	9.02%
Top decile	3,866	\$ 8,719,161	\$ 6,325,292	\$11,563,695	\$10,896,992	\$ (2,393,869)	\$ 5,238,403	\$ (666,703)	\$ 2,177,831	-27.46%	82.82%	-5.77%	24.98%

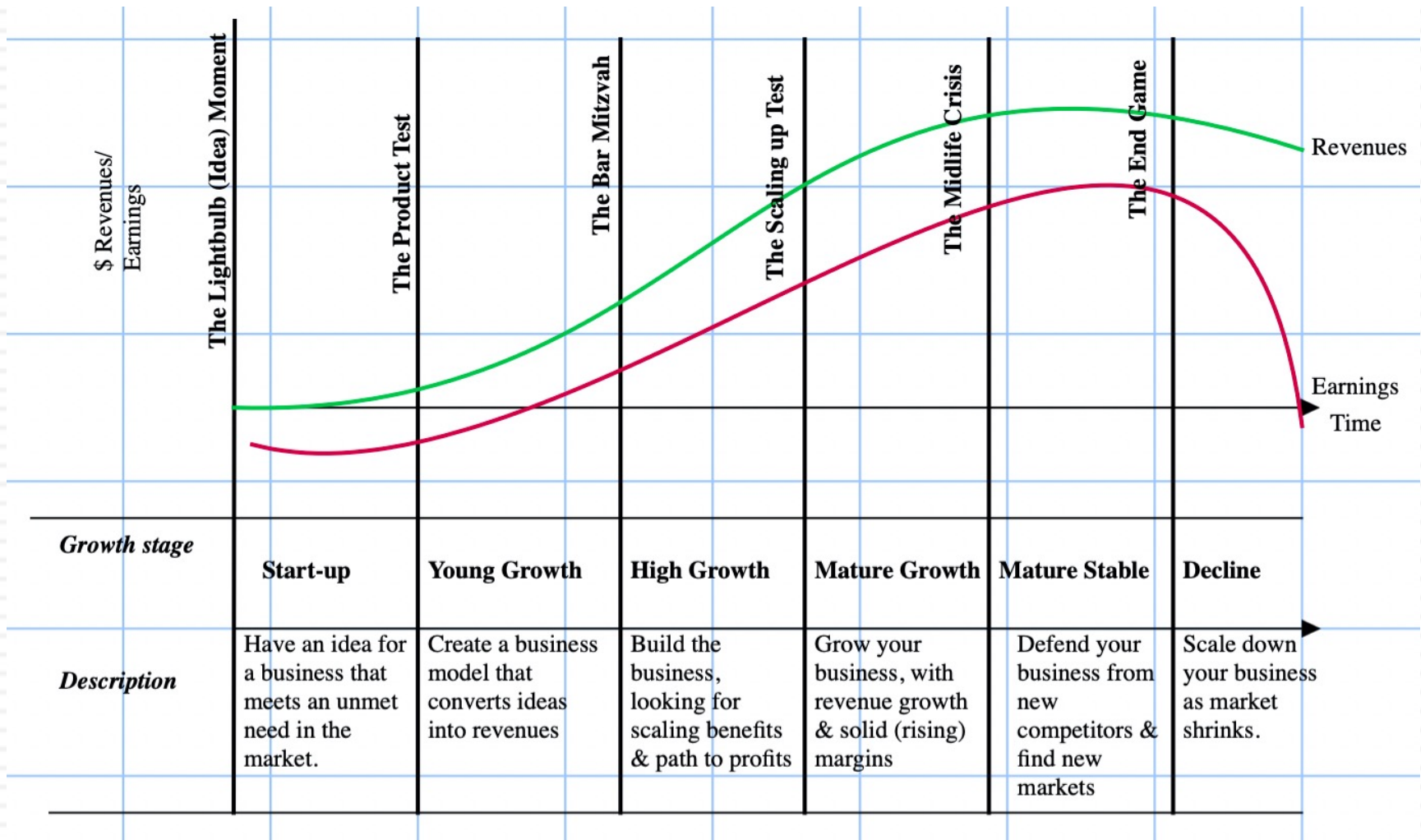
The Real Culprit...

decile(Net Debt/EBITDA)	Number of firms	Market Cap (\$ Millions)				\$ Change in Market Cap				% Change in Market Cap			
		2/14/20	3/20/20	8/28/20	11/1/20	2/14 - 3/20	3/20- 9/1	9/1-11/1	2/14 - 11/1	2/14 - 3/20	3/20- 9/1	9/1-11/1	2/14 - 11/1
Bottom decile	2,561	\$ 2,526,331	\$ 1,977,910	\$ 3,094,261	\$ 3,051,935	\$ (548,421)	\$ 1,116,352	\$ (42,326)	\$ 525,604	-21.71%	56.44%	-1.37%	20.81%
2nd decile	2,562	\$ 4,637,694	\$ 3,571,187	\$ 5,462,377	\$ 5,388,956	\$ (1,066,507)	\$ 1,891,190	\$ (73,421)	\$ 751,263	-23.00%	52.96%	-1.34%	16.20%
3rd decile	2,562	\$ 6,936,438	\$ 5,317,075	\$ 8,154,861	\$ 7,974,930	\$ (1,619,363)	\$ 2,837,786	\$ (179,930)	\$ 1,038,492	-23.35%	53.37%	-2.21%	14.97%
4th decile	2,562	\$ 7,230,286	\$ 5,495,109	\$ 8,377,444	\$ 7,951,663	\$ (1,735,178)	\$ 2,882,335	\$ (425,781)	\$ 721,376	-24.00%	52.45%	-5.08%	9.98%
5th decile	2,562	\$14,151,922	\$10,635,051	\$16,283,389	\$15,578,894	\$ (3,516,871)	\$ 5,648,338	\$ (704,495)	\$ 1,426,972	-24.85%	53.11%	-4.33%	10.08%
6th decile	2,562	\$10,105,796	\$ 7,328,795	\$10,362,916	\$ 9,890,546	\$ (2,777,001)	\$ 3,034,121	\$ (472,370)	\$ (215,249)	-27.48%	41.40%	-4.56%	-2.13%
7th decile	2,562	\$11,100,170	\$ 7,596,739	\$10,529,678	\$ 9,922,860	\$ (3,503,432)	\$ 2,932,939	\$ (606,818)	\$ (1,177,311)	-31.56%	38.61%	-5.76%	-10.61%
8th decile	2,562	\$ 8,377,931	\$ 5,541,497	\$ 7,739,240	\$ 7,280,637	\$ (2,836,434)	\$ 2,197,743	\$ (458,603)	\$ (1,097,294)	-33.86%	39.66%	-5.93%	-13.10%
9th decile	2,562	\$ 5,026,529	\$ 3,291,975	\$ 4,525,750	\$ 4,361,870	\$ (1,734,554)	\$ 1,233,775	\$ (163,880)	\$ (664,658)	-34.51%	37.48%	-3.62%	-13.22%
Top decile	2,562	\$ 2,463,013	\$ 1,557,556	\$ 2,133,395	\$ 2,004,414	\$ (905,457)	\$ 575,840	\$ (128,982)	\$ (458,599)	-36.76%	36.97%	-6.05%	-18.62%
Negative EBITDA	16,826	\$14,774,452	\$ 9,934,604	\$13,605,293	\$13,121,071	\$ (4,839,848)	\$ 3,670,689	\$ (484,222)	\$ (1,653,381)	-32.76%	36.95%	-3.56%	-11.19%
Global	42,445	\$87,330,562	\$62,247,496	\$74,920,290	\$87,744,240	\$ (25,083,065)	\$12,672,794	\$12,823,950	\$ 413,679	-28.72%	20.36%	17.12%	0.47%

Bottom Line on Value vs Growth

- Value failed this crisis test: During this crisis, following the value investing playbook of buying low PE stocks with high dividend yields would have resulted in far worse punishment being meted out than buying high PE stocks, based upon momentum.
- In my view: I believe that value investing has become ritualistic (worshiping at the altar of Buffett and Munger, and paying lip service to Ben Graham) and righteous (with finger wagging and worse reserved for anyone who invested in growth or tech companies).
- Hope? On a hopeful note, I think that value investing can recover, but only if it is open to more flexible thinking about value, less hero worship and less of a sense of entitlement.

The Corporate Life Cycle



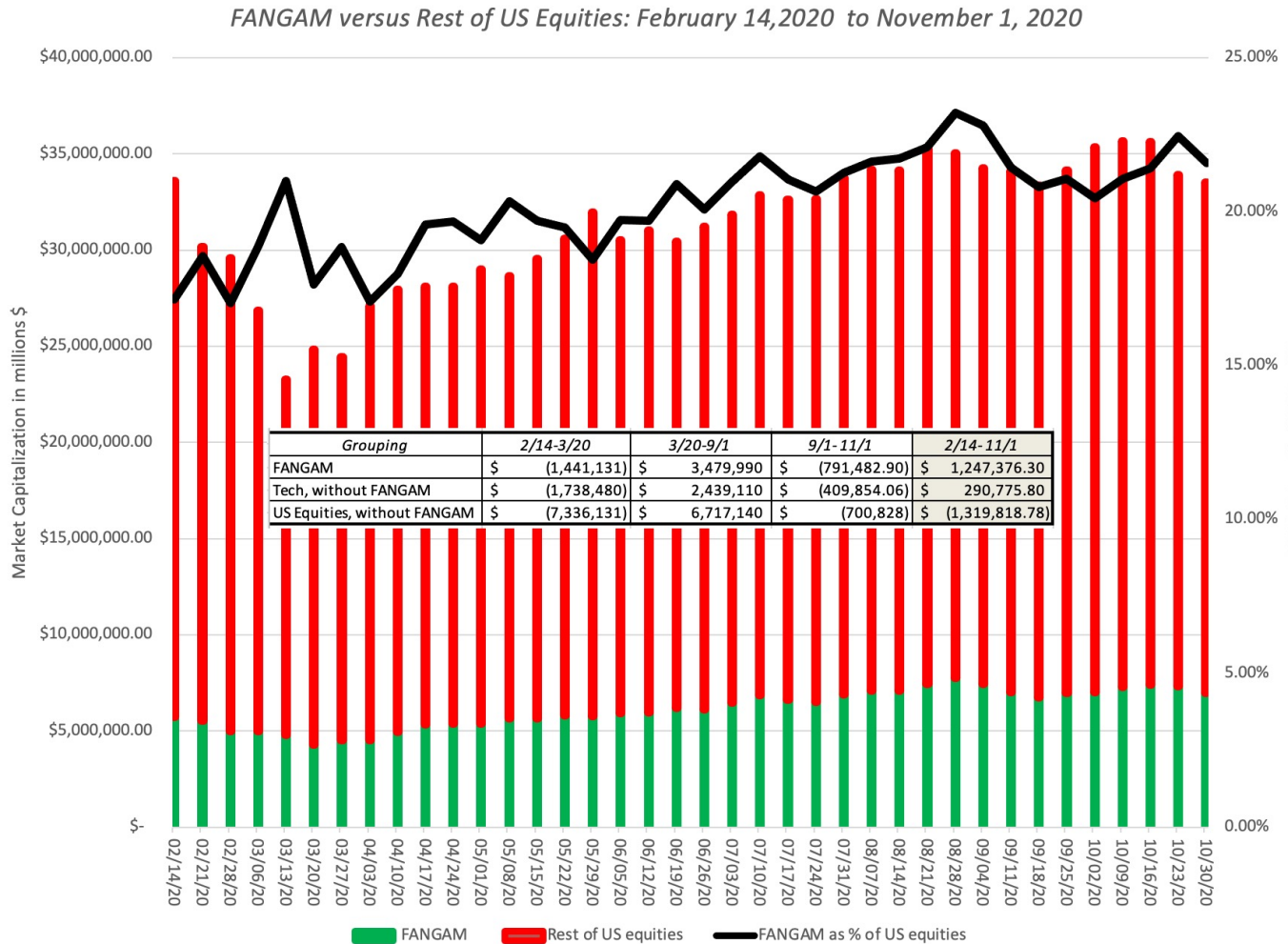
COVID: Young versus Old

decile(Age of company)	Number of firms	Market Cap (\$ Millions)				\$ Change in Market Cap				% Change in Market Cap			
		2/14/20	3/20/20	8/28/20	11/1/20	2/14 - 3/20	3/20- 9/1	9/1-11/1	2/14 - 11/1	2/14 - 3/20	3/20- 9/1	9/1-11/1	2/14 - 11/1
Bottom decile	3,503	\$ 2,421,697	\$ 1,713,634	\$ 2,826,698	\$ 2,888,084	\$ (708,063)	\$ 1,113,064	\$ 61,385	\$ 466,387	-29.24%	64.95%	2.17%	19.26%
2nd decile	3,693	\$ 3,275,844	\$ 2,354,837	\$ 3,704,221	\$ 3,622,988	\$ (921,007)	\$ 1,349,384	\$ (81,233)	\$ 347,144	-28.12%	57.30%	-2.19%	10.60%
3rd decile	3,088	\$ 3,796,174	\$ 2,844,897	\$ 4,896,346	\$ 4,665,097	\$ (951,277)	\$ 2,051,449	\$ (231,250)	\$ 868,923	-25.06%	72.11%	-4.72%	22.89%
4th decile	4,717	\$ 9,227,590	\$ 7,076,659	\$ 10,375,119	\$ 10,052,954	\$ (2,150,930)	\$ 3,298,460	\$ (322,165)	\$ 825,364	-23.31%	46.61%	-3.11%	8.94%
5th decile	3,455	\$ 5,548,369	\$ 4,314,115	\$ 6,673,329	\$ 6,269,467	\$ (1,234,254)	\$ 2,359,214	\$ (403,862)	\$ 721,098	-22.25%	54.69%	-6.05%	13.00%
6th decile	3,802	\$ 4,439,174	\$ 3,334,530	\$ 4,656,948	\$ 4,556,857	\$ (1,104,644)	\$ 1,322,418	\$ (100,091)	\$ 117,683	-24.88%	39.66%	-2.15%	2.65%
7th decile	4,041	\$ 8,847,988	\$ 6,290,382	\$ 9,540,459	\$ 8,938,124	\$ (2,557,606)	\$ 3,250,077	\$ (602,335)	\$ 90,136	-28.91%	51.67%	-6.31%	1.02%
8th decile	3,964	\$ 8,798,192	\$ 6,036,256	\$ 9,023,653	\$ 8,510,063	\$ (2,761,936)	\$ 2,987,397	\$ (513,590)	\$ (288,129)	-31.39%	49.49%	-5.69%	-3.27%
9th decile	3,796	\$ 10,117,591	\$ 7,027,533	\$ 9,792,003	\$ 9,924,204	\$ (3,090,058)	\$ 2,764,470	\$ 132,201	\$ (193,387)	-30.54%	39.34%	1.35%	-1.91%
Top decile	3,816	\$ 27,265,362	\$ 18,635,738	\$ 24,952,610	\$ 23,458,255	\$ (8,629,624)	\$ 6,316,872	\$ (1,494,355)	\$ (3,807,106)	-31.65%	33.90%	-5.99%	-13.96%
Missing	4,570	\$ 3,592,582	\$ 2,618,915	\$ 3,827,218	\$ 3,641,685	\$ (973,666)	\$ 1,208,302	\$ (185,533)	\$ 49,103	-27.10%	46.14%	-4.85%	1.37%
Global	42,445	\$ 87,330,562	\$ 62,247,496	\$ 74,920,290	\$ 87,744,240	\$ (25,083,065)	\$ 12,672,794	\$ 12,823,950	\$ 413,679	-28.72%	20.36%	17.12%	0.47%

COVID: High Growth versus Low Growth

decile (Est. Annual Revenue)	Number of firms	Market Cap (\$ Millions)				\$ Change in Market Cap				% Change in Market Cap			
		2/14/20	3/20/20	8/28/20	11/1/20	2/14 - 3/20	3/20 - 9/1	9/1 - 11/1	2/14 - 11/1	2/14 - 3/20	3/20 - 9/1	9/1 - 11/1	2/14 - 11/1
Bottom decile	1,358	\$ 8,033,306	\$ 4,958,887	\$ 6,421,657	\$ 5,814,363	\$ (3,074,419)	\$ 1,462,770	\$ (607,294)	\$ (2,218,943)	-38.27%	29.50%	-9.46%	-27.62%
2nd decile	1,357	\$ 7,372,479	\$ 4,733,248	\$ 6,206,061	\$ 5,850,825	\$ (2,639,231)	\$ 1,472,813	\$ (355,236)	\$ (1,521,654)	-35.80%	31.12%	-5.72%	-20.64%
3rd decile	1,358	\$ 9,513,228	\$ 6,361,069	\$ 8,483,436	\$ 7,986,898	\$ (3,152,158)	\$ 2,122,367	\$ (496,538)	\$ (1,526,330)	-33.13%	33.36%	-5.85%	-16.04%
4th decile	1,353	\$ 10,851,227	\$ 7,463,872	\$ 9,981,228	\$ 9,407,862	\$ (3,387,354)	\$ 2,517,356	\$ (573,366)	\$ (1,443,364)	-31.22%	33.73%	-5.74%	-13.30%
5th decile	1,360	\$ 10,077,446	\$ 7,379,681	\$ 9,934,055	\$ 9,473,061	\$ (2,697,765)	\$ 2,554,374	\$ (460,994)	\$ (604,385)	-26.77%	34.61%	-4.64%	-6.00%
6th decile	1,360	\$ 8,893,613	\$ 6,421,250	\$ 8,932,329	\$ 8,636,950	\$ (2,472,364)	\$ 2,511,079	\$ (295,379)	\$ (256,664)	-27.80%	39.11%	-3.31%	-2.89%
7th decile	1,349	\$ 8,263,269	\$ 6,019,432	\$ 9,694,771	\$ 9,021,311	\$ (2,243,837)	\$ 3,675,339	\$ (673,460)	\$ 758,042	-27.15%	61.06%	-6.95%	9.17%
8th decile	1,357	\$ 6,949,329	\$ 5,137,478	\$ 7,972,869	\$ 7,738,244	\$ (1,811,851)	\$ 2,835,391	\$ (234,625)	\$ 788,914	-26.07%	55.19%	-2.94%	11.35%
9th decile	1,372	\$ 8,461,941	\$ 6,697,267	\$ 11,446,466	\$ 11,552,523	\$ (1,764,674)	\$ 4,749,199	\$ 106,056	\$ 3,090,582	-20.85%	70.91%	0.93%	36.52%
Top decile	1,361	\$ 3,197,077	\$ 2,428,102	\$ 5,230,861	\$ 5,246,910	\$ (768,975)	\$ 2,802,759	\$ 16,049	\$ 2,049,834	-24.05%	115.43%	0.31%	64.12%
Global	42,445	\$ 87,330,562	\$ 62,247,496	\$ 74,920,290	\$ 87,744,240	\$ (25,083,065)	\$ 12,672,794	\$ 12,823,950	\$ 413,679	-28.72%	20.36%	17.12%	0.47%

The Strong get stronger... The FANGAM stocks...



The Value Transfer: Risk On vs Risk Off

Grouping	Risk On	Returns (2/14/20 - 11/1/20)		Risk Off	Returns (2/14/20 - 11/1/20)	
		% Change	\$ Change (billions)		% Change	\$ Change (billions)
PE	High PE	6.07%	\$313.00	Low PE	-3.23%	-\$57.00
PBV	High PBV	13.96%	\$3,387.00	Low PBV	-16.21%	-\$204.00
Dividend Yield	No or low Dividends	5.20%	\$1,546.00	High Dividend Yields	-16.06%	-\$1,448.00
Corporate Age	Young companies	19.26%	\$466.00	Old companies	-13.96%	-\$3,807.00
Growth	High growth	64.12%	\$2,049.00	Low growth	-27.62%	-\$2,218.00
Size	Small Market Cap	100.40%	\$4,119.00	Large Market Cap	-1.50%	-\$1,150.00
Debt	High debt	-18.62%	-\$459.00	Low debt	20.81%	\$526.00

Returns reported for firms in the highest and lowest deciles of each grouping, except for dividends, reported in quintiles.

What's different?

- Crisis Origins: This crisis seems to have had a much greater negative impact on older, more mature companies than on younger, high growth ones. perhaps because it started at a time, when capital markets were buoyant and investors were eagerly taking on risk, with risk premiums in both equity and bond markets at close to decade-level lows, with a global economic shut down, with a cessation of most business activity.
- With a Timer: That shut down came with a time frame, though there was uncertainty not only about when economic activity would start up again, but how vigorously it would return.
- Private Risk Capital: Young companies have benefited from the fact, that after being on hold in the first few weeks of the crisis, risk capital came roaring back in the middle of March, both in public and private markets. That access to risk capital has also benefited distressed companies at the other end of the life cycle, explaining why you have seen surges in airline stock prices and in portions of the oil sector.

The Resilience of Risk Capital

- Risk capital is capital invested in the riskiest investments. When investors get scared, a common by-product of crises, risk capital usually dries up, making it difficult for young cash-burning companies and aging, debt-laden companies to survive.
- With equity, risk capital shows up in private companies as venture capital investing and in public companies, as IPOs.
- With debt, risk capital is invested in the riskiest debt, in both public markets (as high yield, low rated bonds) and in private markets.

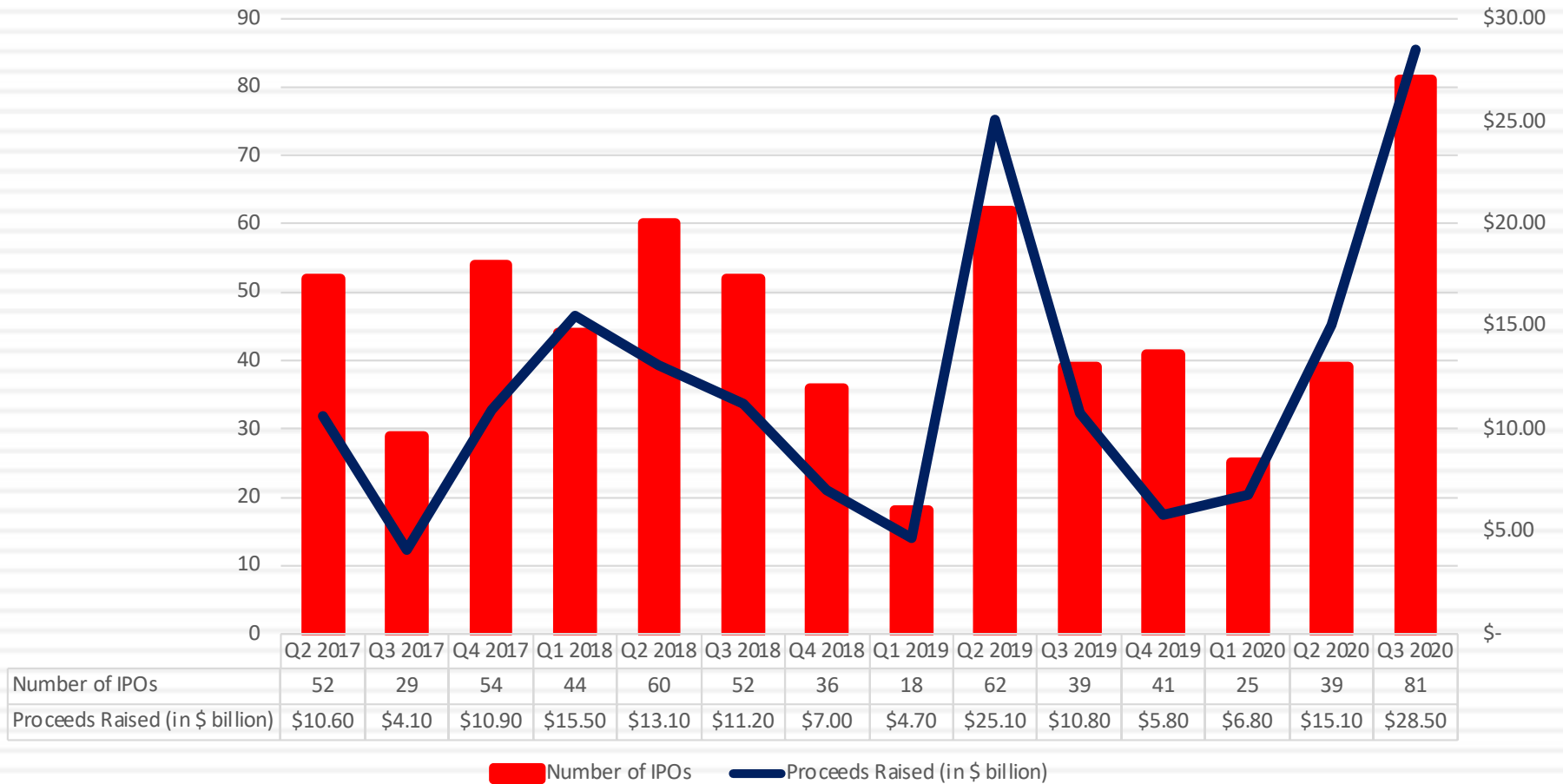
Venture Capital: The COVID effect

VC Investing during COVID: By Type

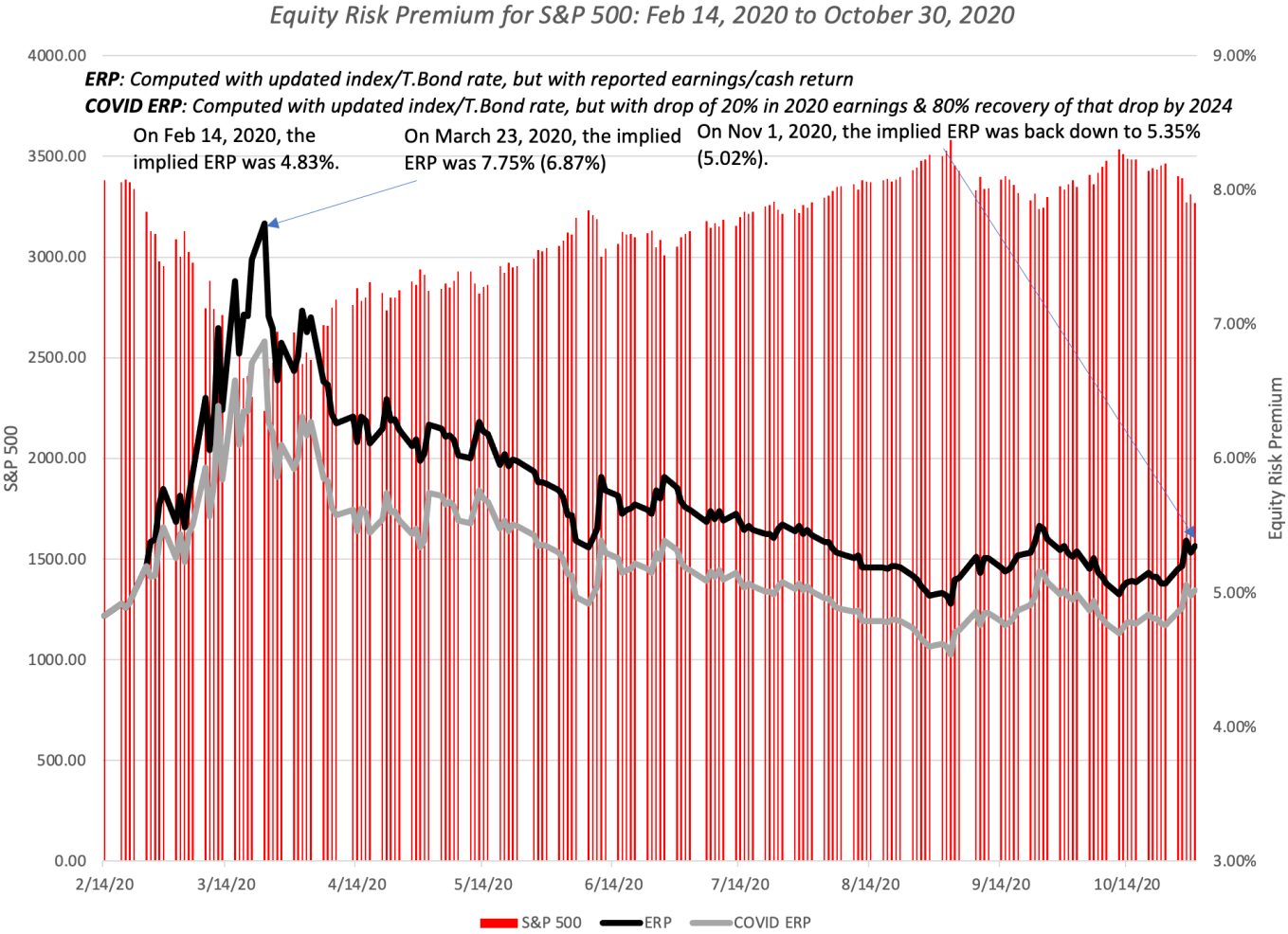


IPOs: The COVID effect

IPOs by Quarter: Including COVID quarters



The Price of Equity Risk: COVID



Andorra	7.08%	9.49%	8.03%	Italy	7.37%	10.04%	8.46%
Austria	5.59%	6.74%	5.81%	Jersey	5.89%	7.30%	6.12%
Belgium	5.80%	7.12%	6.12%	Liechtenstein	5.20%	6.01%	5.23%
Cyprus	8.16%	11.51%	9.64%	Luxembourg	5.20%	6.01%	5.23%
Denmark	5.20%	6.01%	5.23%	Malta	6.04%	7.56%	6.48%
Finland	5.59%	6.74%	5.81%	Netherlands	5.20%	6.01%	5.23%
France	5.69%	6.92%	5.96%	Norway	5.20%	6.01%	5.23%
Germany	5.20%	6.01%	5.23%	Portugal	7.37%	10.04%	8.46%
Greece	9.64%	14.25%	11.84%	Spain	6.77%	8.93%	7.58%
Guernsey	6.77%	8.93%	6.12%	Sweden	5.20%	6.01%	5.23%
Iceland	6.04%	7.56%	6.48%	Switzerland	5.20%	6.01%	5.23%
Ireland	6.04%	7.56%	6.48%	Turkey	9.64%	14.25%	11.84%
Isle of Man	5.69%	6.92%	5.96%	United Kingdom	5.69%	6.92%	5.96%

Country	1/20	4/20	7/20
Angola	11.62%	17.91%	14.79%
Benin	10.63%	16.08%	13.32%
Botswana	6.04%	7.56%	6.48%
Burkina Faso	10.63%	16.08%	13.32%
Cameroon	10.63%	16.08%	13.32%
Cape Verde	10.63%	16.08%	13.32%
Congo (DR)	12.59%	19.73%	16.25%
Congo (Rep)	14.08%	22.49%	18.46%
Côte d'Ivoire	8.75%	12.60%	10.52%
Egypt	10.63%	16.08%	13.32%
Ethiopia	9.64%	14.25%	13.32%
Gabon	12.59%	19.73%	16.25%
Ghana	11.62%	17.91%	14.79%
Kenya	10.63%	16.08%	13.32%
Mali	11.62%	17.91%	14.79%
Morocco	7.66%	10.58%	8.90%
Mozambique	14.08%	22.49%	18.46%
Namibia	8.16%	11.51%	9.64%
Niger	11.62%	17.91%	14.79%
Nigeria	10.63%	16.08%	13.32%
Rwanda	10.63%	16.08%	13.32%
Senegal	8.75%	12.60%	10.52%
South Africa	7.37%	10.58%	8.90%
Swaziland	10.63%	16.08%	13.32%
Tanzania	9.64%	14.25%	11.84%
Togo	11.62%	17.91%	14.79%
Tunisia	10.63%	16.08%	13.32%
Uganda	10.63%	16.08%	13.32%
Zambia	14.08%	27.97%	22.86%

Canada	5.20%	6.01%	5.23%
United States	5.20%	6.01%	5.23%

Argentina	14.08%	27.97%	22.86%
Belize	11.62%	17.91%	16.25%
Bolivia	8.75%	14.25%	11.84%
Brazil	8.16%	11.51%	9.64%
Chile	5.89%	7.30%	6.26%
Colombia	7.08%	9.49%	8.03%
Costa Rica	9.64%	16.08%	13.32%
Ecuador	11.62%	24.30%	19.92%
El Salvador	11.62%	17.91%	14.79%
Guatemala	7.66%	10.58%	8.90%
Honduras	9.64%	14.25%	11.84%
Mexico	6.38%	8.21%	7.58%
Nicaragua	10.63%	17.91%	14.79%
Panama	6.77%	8.93%	7.58%
Paraguay	7.66%	10.58%	8.90%
Peru	6.38%	8.21%	6.99%
Suriname	10.63%	16.08%	14.79%
Uruguay	7.08%	9.49%	8.03%
Venezuela	22.89%	29.46%	27.14%

Albania	9.64%	14.25%	11.84%
Armenia	8.75%	12.60%	10.52%
Azerbaijan	8.16%	11.51%	9.64%
Belarus	11.62%	17.91%	14.79%
Bosnia and Herzegovina	11.62%	17.91%	14.79%
Bulgaria	7.08%	9.49%	8.03%
Croatia	8.16%	11.51%	9.64%
Czech Republic	5.80%	7.12%	6.12%
Estonia	5.89%	7.30%	6.26%
Georgia	8.16%	11.51%	9.64%
Hungary	7.37%	10.04%	8.46%
Kazakhstan	7.37%	10.04%	8.46%
Kyrgyzstan	10.63%	16.08%	13.32%
Latvia	6.38%	8.21%	6.99%
Lithuania	6.38%	8.21%	6.99%
Macedonia	8.75%	12.60%	10.52%
Moldova	11.62%	17.91%	14.79%
Montenegro	9.64%	14.25%	11.84%
Poland	6.04%	7.56%	6.48%
Romania	7.37%	10.04%	8.46%
Russia	7.37%	10.04%	8.46%
Serbia	8.75%	12.60%	10.52%
Slovakia	6.04%	7.56%	6.48%
Slovenia	6.77%	8.93%	7.58%
Tajikistan	11.62%	17.91%	14.79%
Ukraine	12.59%	19.73%	14.79%
Uzbekistan	9.64%	14.25%	11.84%

Abu Dhabi	5.69%	6.92%	5.96%
Bahrain	10.63%	16.08%	13.32%
Iraq	12.59%	19.73%	16.25%
Israel	5.89%	7.30%	6.26%
Jordan	9.64%	14.25%	11.84%
Kuwait	5.69%	6.92%	5.96%
Lebanon	14.08%	27.97%	22.86%
Oman	7.66%	11.51%	10.52%
Qatar	5.80%	7.12%	6.12%
Ras Al Khaimah (Emirate of)	12.59%	19.73%	6.48%
Saudi Arabia	5.89%	7.30%	6.26%
Sharjah	6.38%	9.49%	8.03%
United Arab Emirates	5.69%	6.92%	5.96%

Region	Weighted Average: ERP
Africa	12.42%
Asia	6.78%
Australia & New Zealand	5.23%
Caribbean	13.37%
Central and South America	10.70%
Eastern Europe & Russia	8.42%
Middle East	7.70%
North America	5.23%
Western Europe	6.44%
Global	6.76%

Country	PRS	1-Jan	1-Apr	1-Jul
Algeria	55	11.62%	17.91%	22.86%
Brunei	80	5.59%	6.74%	6.48%
Gambia	63.5	11.62%	17.91%	14.79%
Guinea	54	15.06%	24.30%	22.86%
Guinea-Bissau	62	11.62%	17.91%	16.25%
Guyana	65	11.62%	17.91%	13.32%
Haiti	54.5	14.08%	22.49%	22.86%
Iran	58.5	11.62%	17.91%	18.46%
Korea, D.P.R.	50.3	17.03%	27.97%	22.86%
Liberia	53.5	21.71%	31.93%	22.86%
Libya	58.3	8.16%	11.51%	18.46%
Madagascar	63	10.63%	16.08%	14.79%
Malawi	57.8	11.62%	17.91%	18.46%
Myanmar	62.8	11.62%	17.91%	14.79%
Sierra Leone	59	15.06%	24.30%	18.46%
Somalia	50.5	17.03%	27.97%	22.86%
Sudan	36.3	21.71%	31.93%	27.14%
Syria	53.8	17.03%	27.97%	22.86%
Yemen, Republic	50	17.03%	27.97%	27.14%
Zimbabwe	51.3	17.03%	27.97%	22.86%

Bangladesh	8.75%	12.60%	10.52%
Cambodia	10.63%	16.08%	13.32%
China	5.89%	7.30%	6.26%
Fiji	8.75%	12.60%	10.52%
Hong Kong	5.69%	7.12%	6.12%
India	7.08%	9.49%	8.46%
Indonesia	7.08%	9.49%	8.03%
Japan	5.89%	7.30%	6.26%
Korea	5.69%	6.92%	5.96%
Laos	NA	8.21%	6.99%
Macao	5.80%	7.12%	6.12%
Malaysia	6.38%	8.21%	6.99%
Maldives	10.63%	16.08%	14.79%
Mauritius	6.77%	8.93%	7.58%
Mongolia	11.62%	17.91%	14.79%
Pakistan	11.62%	17.91%	14.79%
Papua New Guinea	10.63%	16.08%	13.32%
Philippines	7.08%	9.49%	8.03%
Singapore	5.20%	6.01%	5.23%
Solomon Islands	11.62%	17.91%	14.79%
Sri Lanka	10.63%	16.08%	13.32%
Taiwan	5.80%	7.12%	6.12%
Thailand	6.77%	8.93%	7.58%
Vietnam	8.75%	12.60%	10.52%

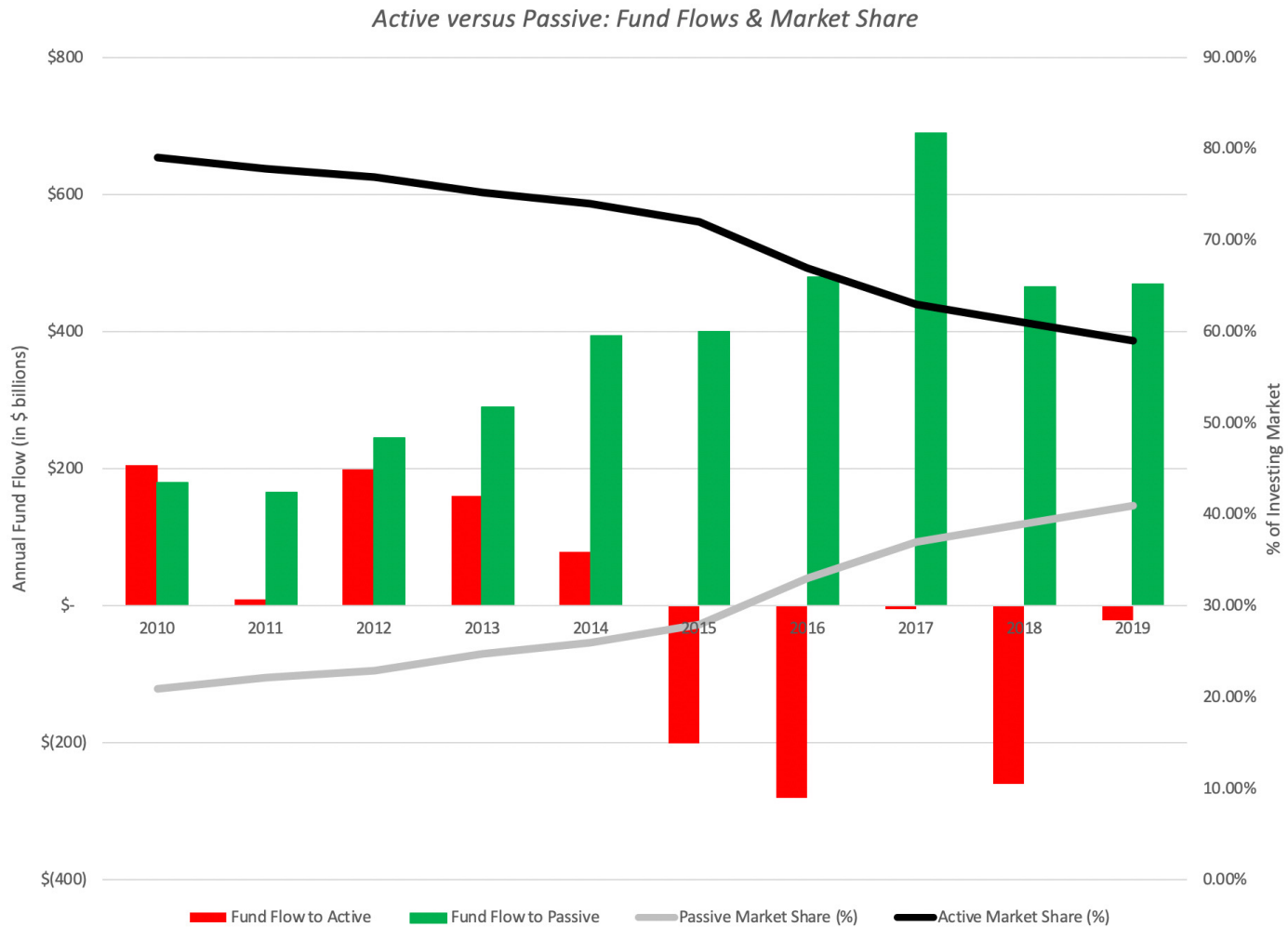
Australia	5.20%	6.01%	5.23%
Cook Islands	9.64%	14.25%	11.84%
New Zealand	5.20%	6.01%	5.23%

Blue: ERP on 7/1/20
 Red: ERP on 4/1/20
 Green: ERP on 1/1/20

Lesson 3: There is no smart money...

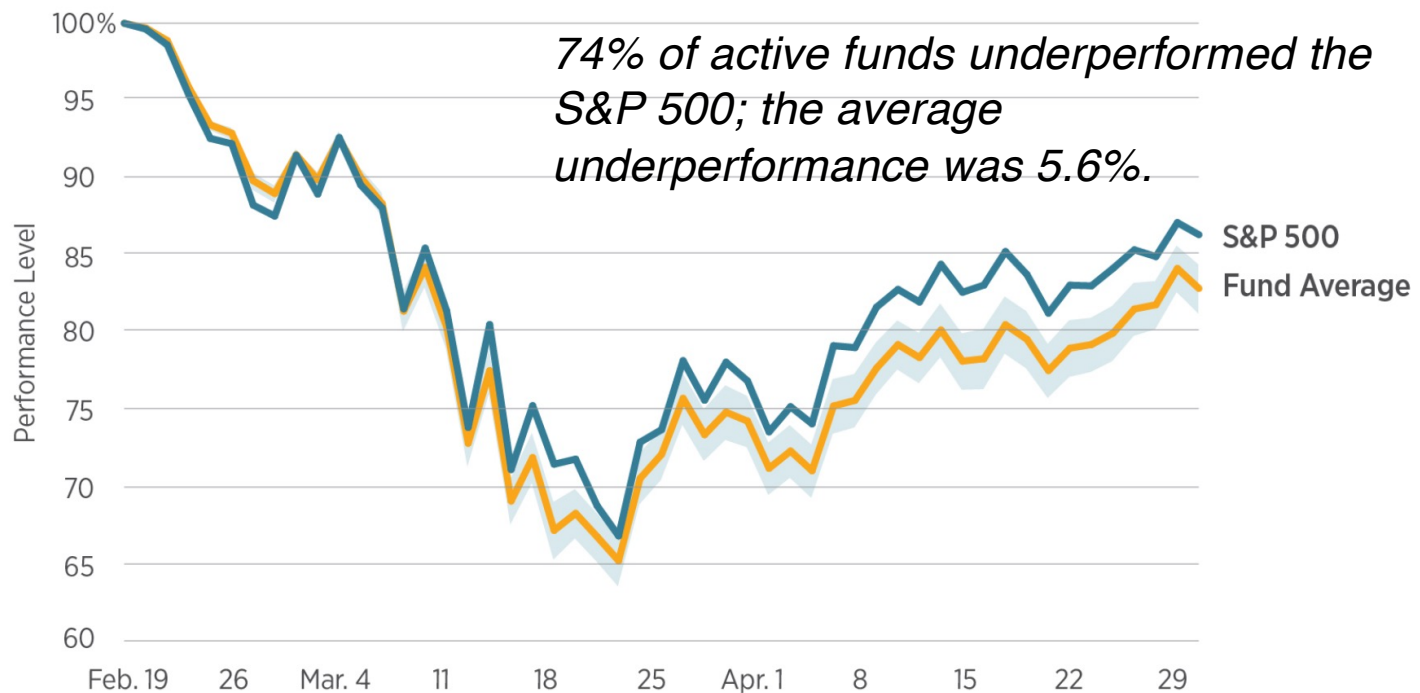
- In investing mythology, there are smart investors and stupid investors.
 - Smart investors sense when markets are going to turn, and get in sooner than others, and get out sooner than others. After every crisis, there are a few who are anointed as gurus. They are also much better at picking the right stocks to buy and sell
 - Stupid investors are uninformed, act on emotion, and panic quickly.
- Professional money managers and talking heads on financial TV land are smart investors. Retail investors are stupid investors.

One test: Active vs Passive



The Crisis Test: Active Mutual Funds in the depths of the crisis..

Average Fund Performance vs. the S&P 500 During the COVID-19 Crisis

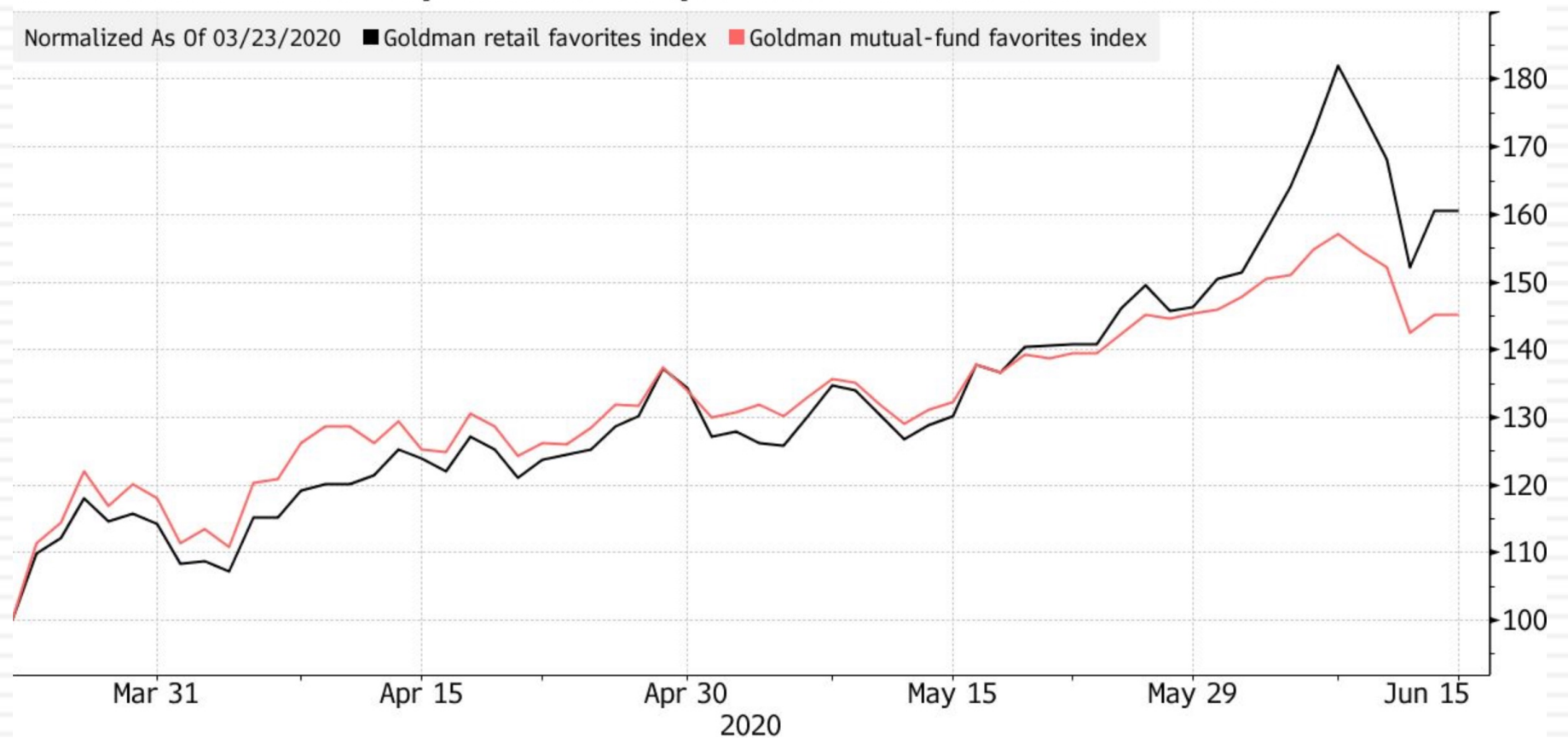


Notes: The figure plots the performance of the average equity mutual fund against the S&P 500 from February 20 to April 30, 2020. Both price indices are initialized at 100 on February 19, 2020 and are computed by compounding daily returns. The shaded blue area represents 95% confidence intervals.

And "dumb" money is beating "smart" money

All Hail Retail

Small investors' stock picks have outperformed mutual-fund favorites

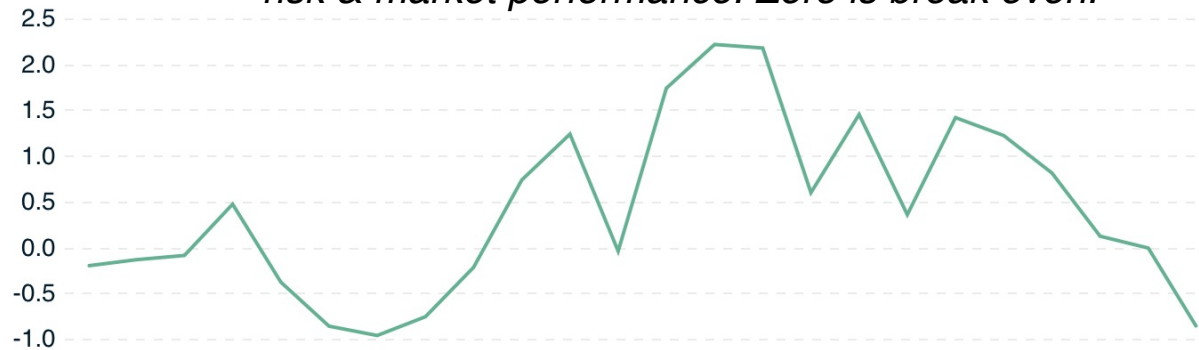


Source: Bloomberg

The Crisis Test: Hedge Funds

This is the cumulative excess return, after adjusting for risk & market performance. Zero is break even.

Time series



Cross-sectional details



Strategy

- All styles
- Long Short Equity
- Fund of Funds
- Global Macro
- Multi Strategy
- Fixed Income Arbitrage
- Emerging Markets
- Equity Market Neutral
- Event Driven
- Convertible Arbitrage
- Managed Futures
- Options Strategy
- Other

Average z-score of returns
Cumulative residual returns (%)
Cumulative returns (%)

The Robinhood Phenomenon

Smart vs Dumb Money

Pros' best stock picks beat retail money after weeks of underperformance

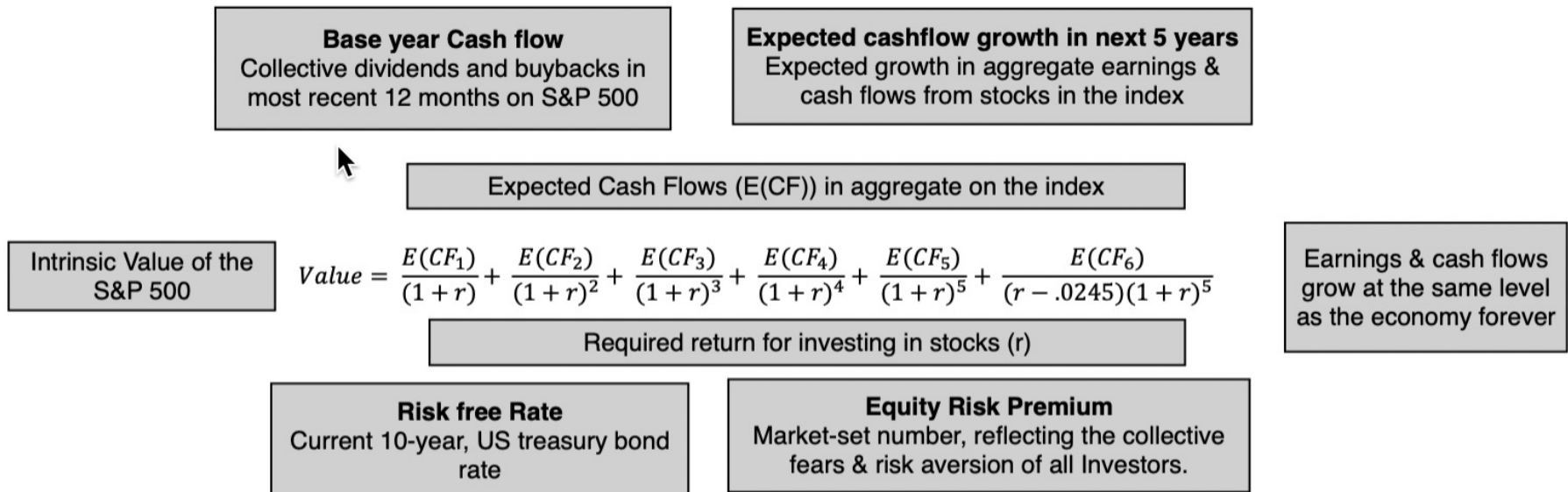


Source: Goldman Sachs, Bloomberg

A Different Classification

- Humble vs Arrogant: I think that investors are better grouped into humble and arrogant, with
 - ▣ Humble investors recognizing that success, when it comes, is as much a function of luck as it is of skill, and failure, when it too arrives, is part of investing and an occasion for learning.
 - ▣ Arrogant investors claim every investing win as a sign of their skill and view every loss as an affront, doubling down on their mistakes.
- If I had to pick someone to manage my money, the quality that I would value the most in making that choice is humility, since humble investors are less likely to overpromise and overcommit.

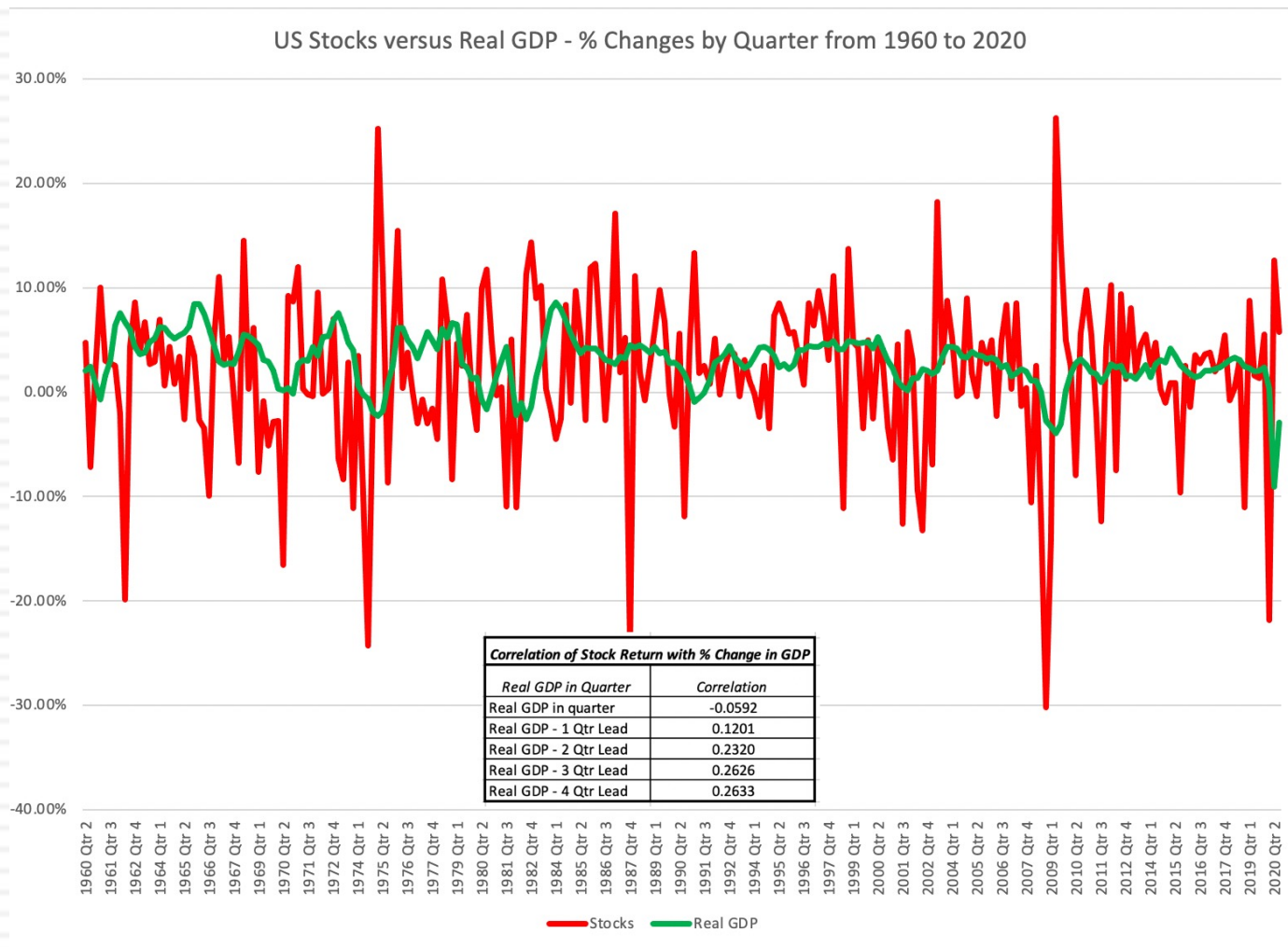
Lesson 4: The fundamentals matter, more than ever... in a crisis



Market Worries

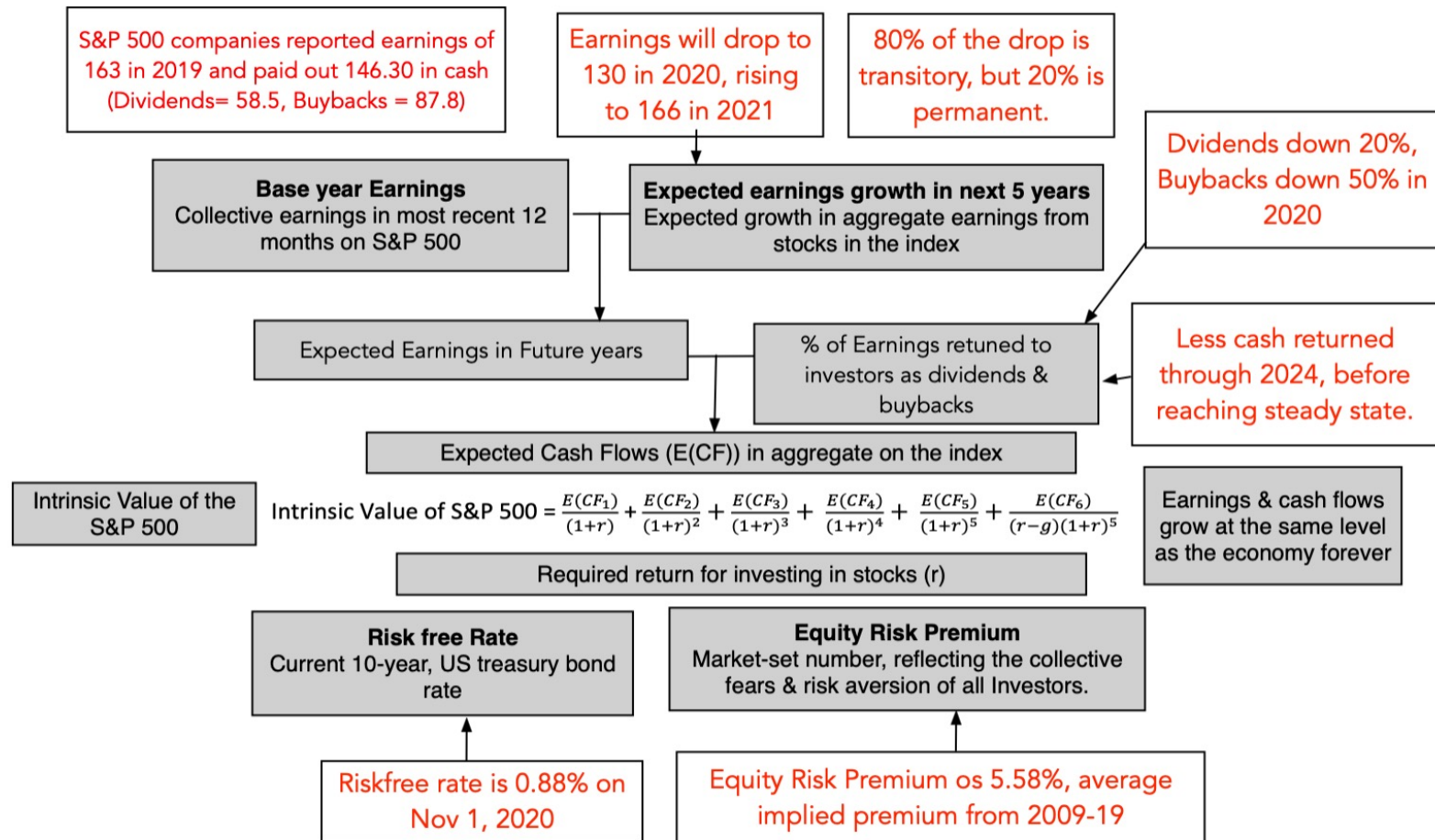
- Disconnect from economic news: For some, the skepticism comes from the disconnect with macroeconomic numbers that are abysmal, as unemployment claims climb into the tens of millions and consumer confidence hovers around historic lows. I will spend the first part of this section arguing that this reflects a fundamental misunderstanding of what markets try to do, and a misreading of history.
- In denial? For others, the question is whether markets are adequately reflecting the potential for long term damage to earnings and cash flows, as well as the cost of defaults, from this crisis. Since that answer to that question lies in the eyes of the beholder, I will provide a framework for converting your fears and hopes into numbers and a value for the market.

Explaining the disconnect...

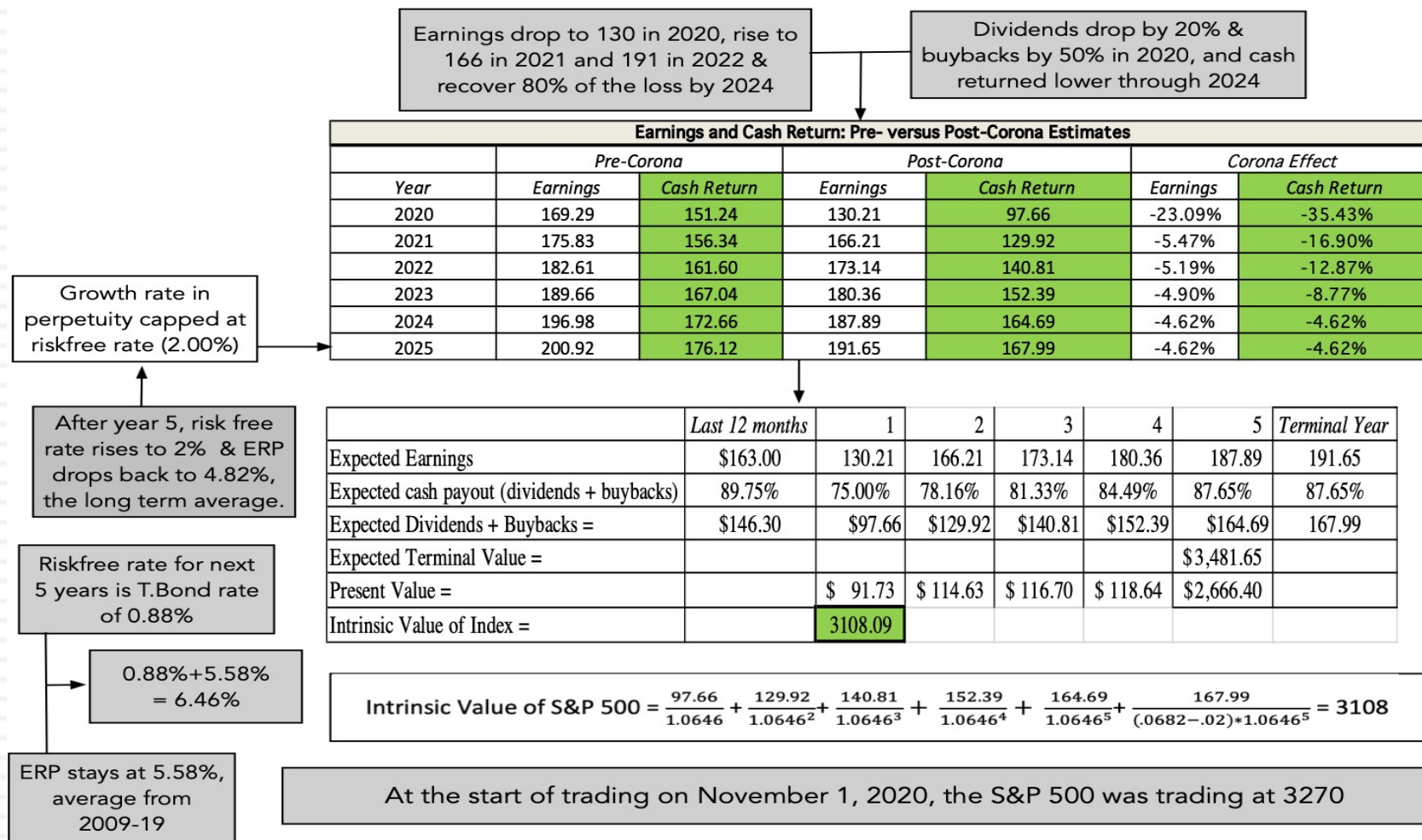


My Story for the Market

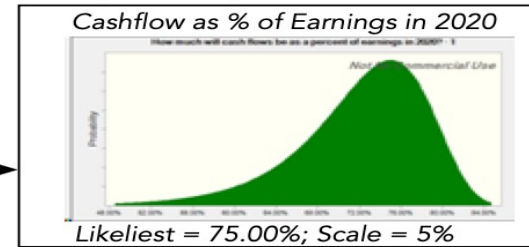
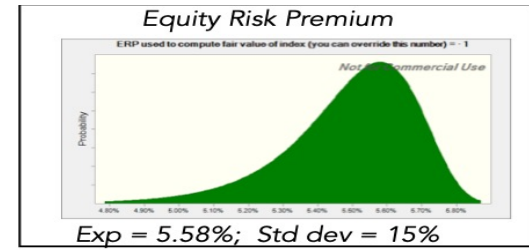
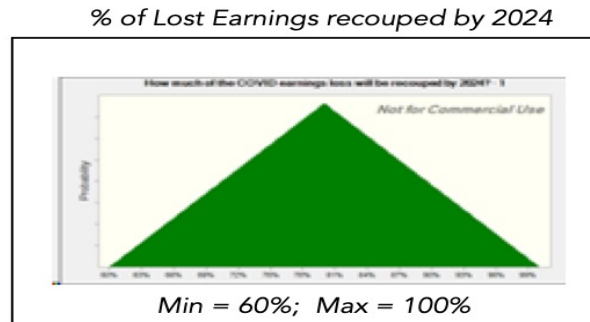
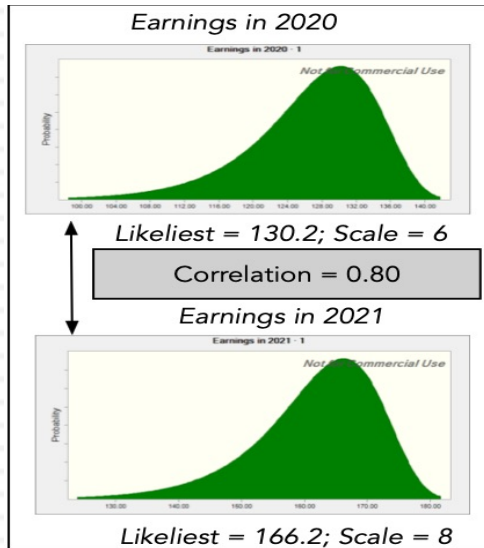
Valuing the S&P 500 on November 1, 2020



My Valuation of the Index



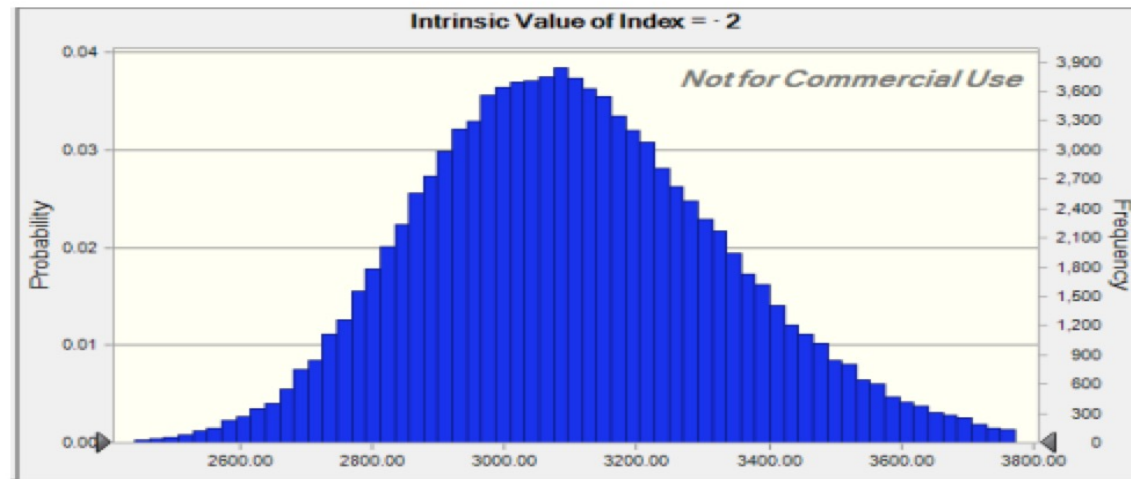
Facing up to uncertainty



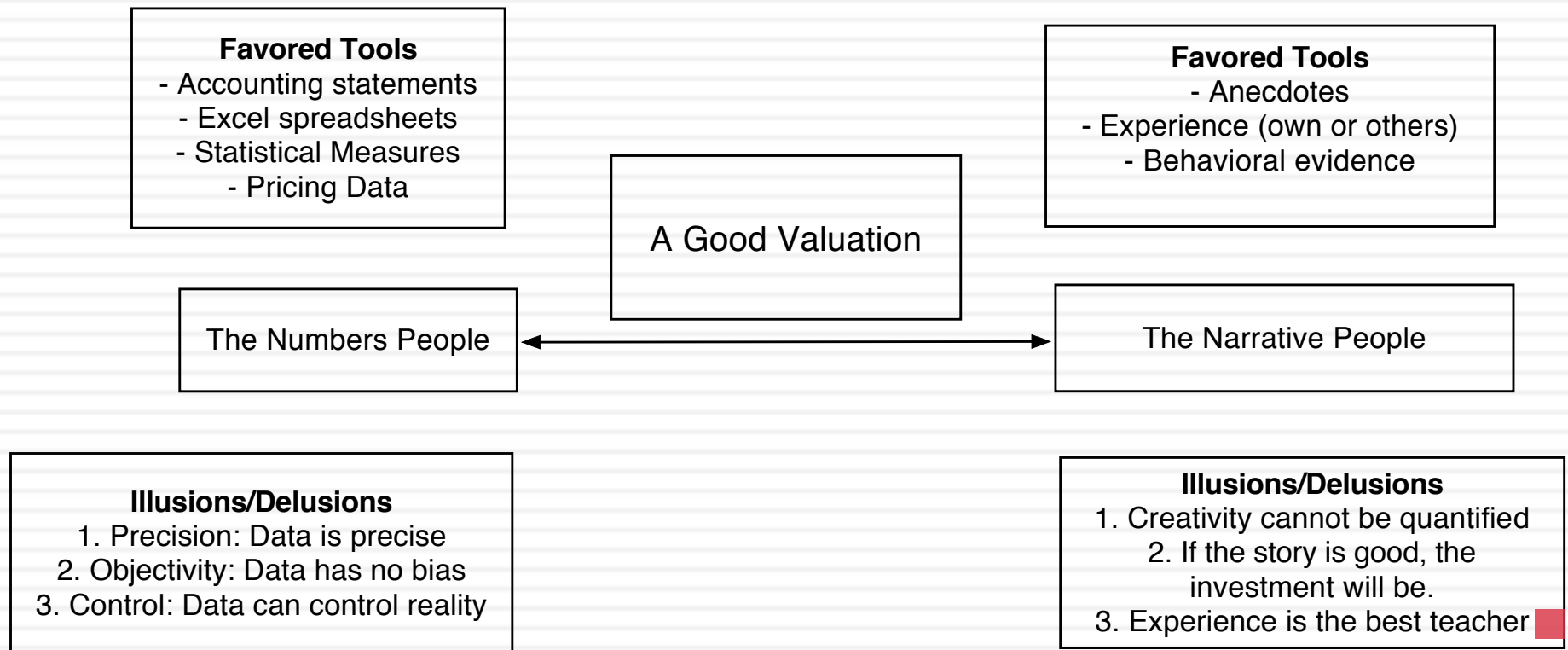
Correlation = -.5

If earnings are lower than expected, less cash will be returned

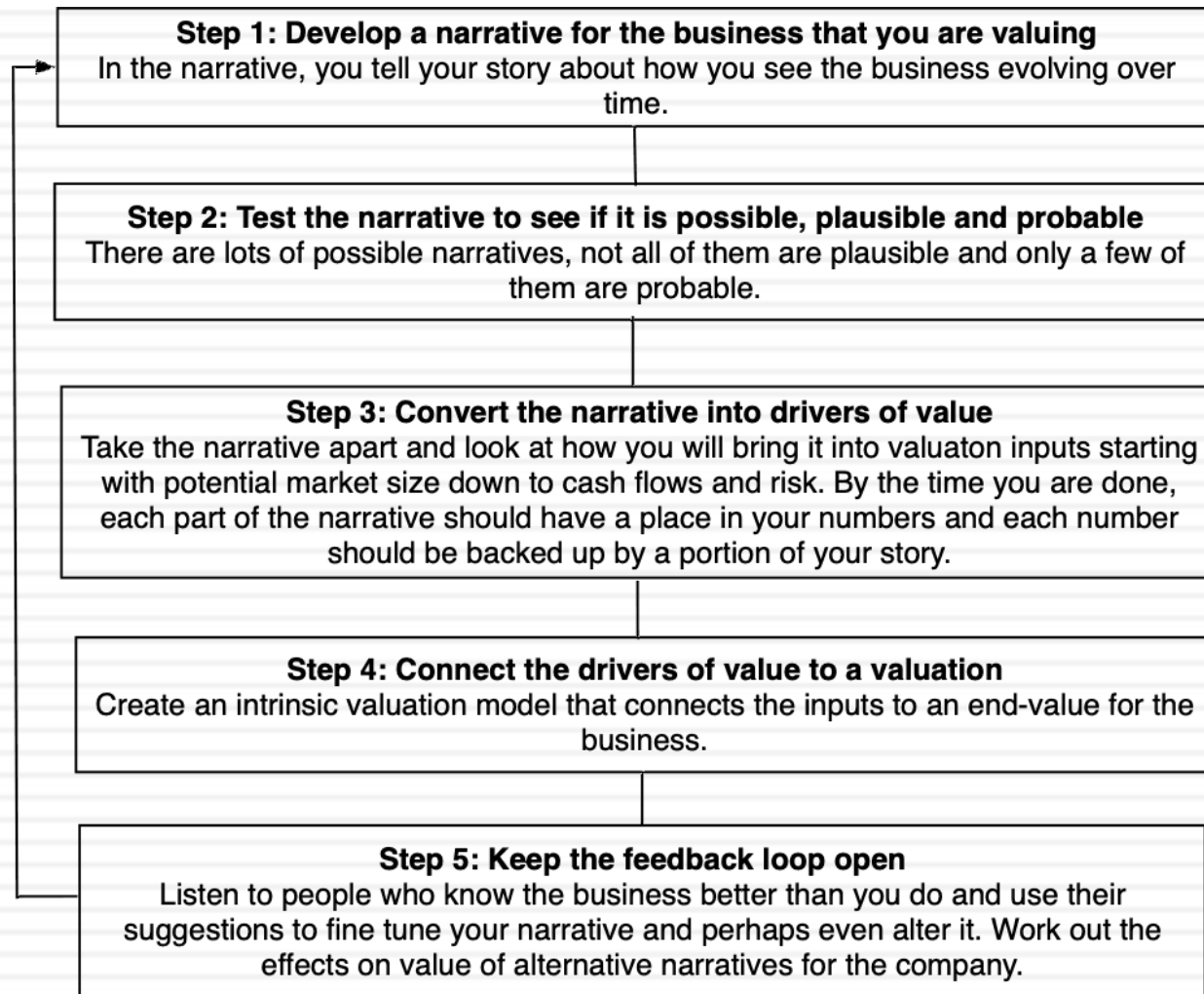
Percentile	Forecast values
0%	2203.59
10%	2817.08
20%	2906.30
30%	2973.67
40%	3033.43
50%	3091.51
60%	3150.60
70%	3217.16
80%	3299.18
90%	3415.91
100%	4495.29



Lesson 5: Stories + Numbers



From story to numbers and beyond..



Tesla

Silence is golden!

With the wind behind its back, Tesla has consolidated its hold on the electric car market and will continue to grow that market, at the expense of conventional car makers. Pushing its production towards 2 million cars by 2030, it will also be able to deliver higher margins than conventional auto companies in steady state. The rise in its market capitalization has reduced its cost of capital and the chance of failure. While Tesla will be able to invest less than other auto companies to add to capacity, its need to ramp up production will require more capital, creating negative cash flows in the near years. While other revenue sources (green energy, driverless cars in ride sharing) will supplement revenues, it will remain at its core an electric car company.

The Assumptions

	<i>Base year</i>	<i>Years 1-5</i>	<i>Years 6-10</i>		<i>After year 10</i>	<i>Link to story</i>
Revenues (a)	\$ 24,578	25.00% → 1.75%			1.75%	Growth in EV market & Tesla's early mover advantage work in its favor.
Operating margin (b)	1.60%	1.60% → 12.00%			12.00%	Continued economies of scale & brand
Tax rate	25.00%	25.00% → 25.00%			25.00%	Global tax rate
Reinvestment (c)		Sales to capital ratio 3.00		RIR =	17.50%	Capacity build up allows for less reinvestment in the near years.
Return on capital	1.59%	Marginal ROIC =	34.86%		10.00%	Cost of entry will limit competition.
Cost of capital (d)		7.00% → 7.40%			7.40%	Moves to median company cost of capital

The Cash Flows

	<i>Revenues</i>	<i>Operating Margin</i>	<i>EBIT</i>	<i>EBIT (1-t)</i>	<i>Reinvestment</i>	<i>FCFF</i>
1	\$ 30,723	3.68%	\$ 1,132	\$ 849	\$ 2,048	\$ (1,199)
2	\$ 38,403	5.76%	\$ 2,213	\$ 1,660	\$ 2,560	\$ (900)
3	\$ 48,004	7.84%	\$ 3,764	\$ 2,823	\$ 3,200	\$ (377)
4	\$ 60,005	9.92%	\$ 5,953	\$ 4,465	\$ 4,000	\$ 464
5	\$ 75,006	12.00%	\$ 9,001	\$ 6,751	\$ 5,000	\$ 1,750
6	\$ 90,270	12.00%	\$ 10,832	\$ 8,124	\$ 7,632	\$ 492
7	\$ 104,442	12.00%	\$ 12,533	\$ 9,400	\$ 7,086	\$ 2,314
8	\$ 115,983	12.00%	\$ 13,918	\$ 10,438	\$ 5,770	\$ 4,668
9	\$ 123,406	12.00%	\$ 14,809	\$ 11,107	\$ 3,711	\$ 7,395
10	\$ 125,566	12.00%	\$ 15,068	\$ 11,301	\$ 1,080	\$ 10,221
Terminal year	\$ 127,763	12.00%	\$ 15,332	\$ 11,499	\$ 2,012	\$ 9,486

The Value

Terminal value	\$ 167,901		
PV(Terminal value)	\$ 84,402		
PV (CF over next 10 years)	\$ 12,988		
Value of operating assets =	\$ 97,390		
Adjustment for distress	\$ 4,869	Probability of failure =	10.00%
- Debt & Minority Interests	\$ 14,708		
+ Cash & Other Non-operating assets	\$ 6,514		
Value of equity	\$ 84,326		
- Value of equity options	\$ 8,822		
Number of shares	177.00		
Value per share	\$ 426.58	Stock was trading at =	\$581.00

When a crisis hits, the dark side beckons...

- During a crisis, you will be told that you can no longer value companies with fundamentals, and that you have to play the trading game.
 - ▣ If your concept of valuation is downloading last year's financials for a company into a spread sheet and then using historical growth rates, with some mean reversion thrown in, to forecast future numbers, they are right.
 - ▣ If your notion of valuation is more dynamic and forward-looking, it is precisely at times like these that you need to go back to basics.
- More importantly, your story for the company matters more than ever before, since the numbers can no longer be used as a crutch.

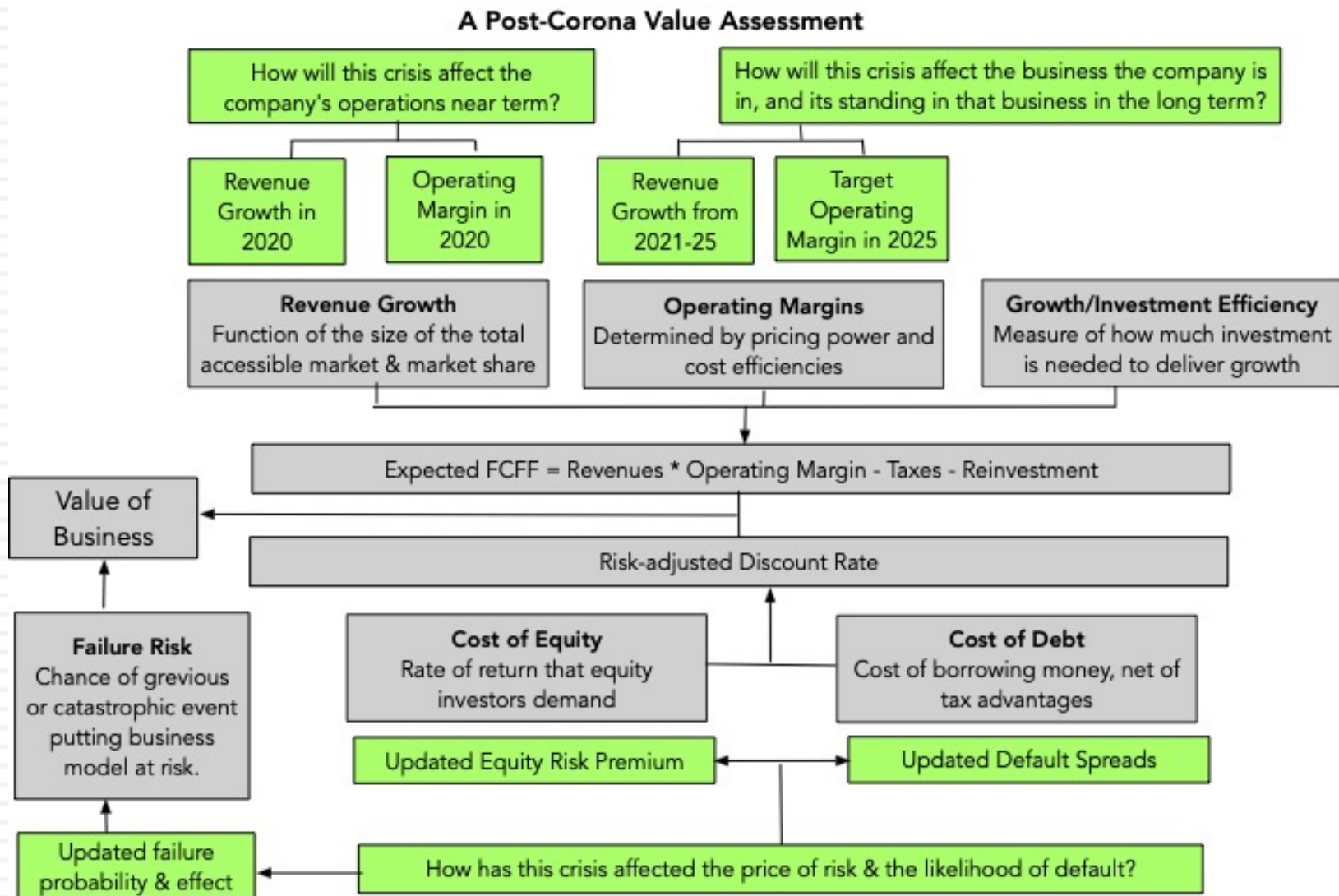
How crises affect stories...

- Stories can expand: For some companies, a crisis can expand stories
 - By allowing them to reach new customers and devise new business models that have staying power (Zoom, Peloton)
 - By being in the right place at the right time (Moderna)
 - By handicapping or damaging the competition (Tesla, Airbnb)
- Stories can contract: For other companies, a crisis can shrink stories
 - By making their markets smaller (cruise lines definitely, airlines maybe)..
 - By being in the wrong place at the wrong time (commodity companies)
- And the risk of failure becomes real and un-ignorable: And for all companies, a crisis can increase the likelihood of failure (story break).

A Roadmap to Story Telling & Valuation in a crisis

1. Separate the near term from the long term: During a crisis, the near-term effects are likely to be both large and unpredictable (negative for most companies, but positive for a few). Estimate the near term effects on earnings and cash flows, using all of the information you have and bringing in views on how the macro economy will evolve.
2. Revisit your story for the company: Evaluate how your story for the company has changed as a result of the crisis, and play out its effect on your long term value inputs (revenue growth, margins and reinvestment)
3. Bring in failure risk: For your story to play out, the company has to survive. Incorporate, as best as you can, the likelihood that your company will not make it through.

A Post-Corona Version



Tesla

The Payoff to Flexibility

Jul-20

With the wind behind its back, Tesla has consolidated its hold on the electric car market and will continue to grow that market, at the expense of conventional car makers. As the crisis handicaps its more indebted, slower moving competitors, Tesla will consolidate its hold on the electric car market and push its production towards 2.5 million cars by 2030, it will also be able to deliver higher margins than conventional auto companies in steady state, using software sales to compliment auto sales. The drop in risk free rates has reduced its cost of capital and the chance of failure. Tesla's more flexible investment policies will allow it to be more efficient in generating growth. While other revenue sources (green energy, driverless cars in ride sharing) will supplement revenues, it will remain at its core an electric car

The Assumptions

	Base year	Years 1-5	Years 6-10		After year 10	Link to story
Revenues (a)	\$ 26,022	33.00%	→ 0.67%		0.67%	Growth in EV market & Tesla's early mover advantage work in its favor.
Operating margin (b)	4.07%	4.07%	→ 10.25%		10.25%	Continued economies of scale & brand
Tax rate	25.00%	25.00%	→ 25.00%		25.00%	Global tax rate
Reinvestment (c)		Sales to capital ratio 3.00		RIR =	6.70%	Capacity build up allows for less reinvestment in the near years.
Return on capital	3.90%	Marginal ROIC =	26.47%		10.00%	Cost of entry will limit competition.
Cost of capital (d)		6.04%	→ 6.00%		6.00%	Moves to median company cost of capital

The Cash Flows

	Revenues	Operating Margin	EBIT	EBIT (1-t)	Reinvestment	FCFF
1	\$ 34,609	5.31%	\$ 1,836	\$ 1,377	\$ 2,862	\$ (1,485)
2	\$ 46,030	6.54%	\$ 3,011	\$ 2,258	\$ 3,807	\$ (1,549)
3	\$ 61,220	7.78%	\$ 4,762	\$ 3,571	\$ 5,063	\$ (1,492)
4	\$ 81,423	9.01%	\$ 7,339	\$ 5,505	\$ 6,734	\$ (1,230)
5	\$ 108,293	10.25%	\$ 11,100	\$ 8,325	\$ 8,957	\$ (632)
6	\$ 137,027	10.25%	\$ 14,045	\$ 10,534	\$ 14,367	\$ (3,833)
7	\$ 164,526	10.25%	\$ 16,864	\$ 12,648	\$ 13,749	\$ (1,101)
8	\$ 186,904	10.25%	\$ 19,158	\$ 14,368	\$ 11,189	\$ 3,179
9	\$ 200,242	10.25%	\$ 20,525	\$ 15,394	\$ 6,669	\$ 8,725
10	\$ 201,583	10.25%	\$ 20,662	\$ 15,497	\$ 671	\$ 14,826
Terminal year	\$ 202,934	10.25%	\$ 20,801	\$ 15,601	\$ 1,045	\$ 14,555

The Value

Terminal value	\$ 273,083		
PV(Terminal value)	\$ 152,086		
PV (CF over next 10 years)	\$ 6,497		
Value of operating assets =	\$ 158,583		
Adjustment for distress	\$ 7,929	Probability of failure =	10.00%
- Debt & Minority Interests	\$ 15,200		
+ Cash & Other Non-operating assets	\$ 8,080		
Value of equity	\$ 143,534		
- Value of equity options	\$ 31,546		
Number of shares	179.50		
Value per share	\$ 623.89	Stock was trading at =	\$1,366.00

The Streaming Story

With its technology and ease of use, Zoom is uniquely positioned to take advantage of a boom in online business/other meetings, driven partly by increased comfort on the part of managers with the technology and partly by costs. The Corona Virius will accelerate this shift to online meetings, increasing the overall market size, and while competitors will emerge, the networking benefits that Zoom builds up will allow it to keep a significant market share. Along the way, Zoom's margins will converge on the lofty margins earned by business and application software companies and the cost of capital will decline to reflect the fact that once mature it will be a diversified business services company, giving it the cost of capital of a mature company (at today's riskfree rate of 0.67%).

The Assumptions

	Base year	Years 1-5	Years 6-10		After year 10	Link to story
Revenues (a)	\$ 623	50.00%	0.67%		0.67%	
Operating margin (b)	9.70%	9.70%	22.25%		22.25%	
Tax rate	25.00%	25.00%	25.00%		25.00%	
Reinvestment (c)		Sales to capital ratio 3.25		RIR =	6.70%	
Return on capital	23.66%	Marginal ROIC =	74.66%		10.00%	
Cost of capital (d)		7.39%	6.00%		6.00%	

The Cash Flows

	Revenues	Operating Margin	EBIT	EBIT (1-t)	Reinvestment	FCFF
1	\$ 934	12.21%	\$ 114	\$ 86	\$ 96	\$ (10)
2	\$ 1,401	14.72%	\$ 206	\$ 155	\$ 144	\$ 11
3	\$ 2,102	17.23%	\$ 362	\$ 272	\$ 215	\$ 56
4	\$ 3,152	19.74%	\$ 622	\$ 467	\$ 323	\$ 144
5	\$ 4,729	22.25%	\$ 1,052	\$ 789	\$ 485	\$ 304
6	\$ 6,626	22.25%	\$ 1,474	\$ 1,106	\$ 584	\$ 522
7	\$ 8,632	22.25%	\$ 1,921	\$ 1,441	\$ 617	\$ 824
8	\$ 10,393	22.25%	\$ 2,313	\$ 1,734	\$ 542	\$ 1,193
9	\$ 11,488	22.25%	\$ 2,556	\$ 1,917	\$ 337	\$ 1,580
10	\$ 11,565	22.25%	\$ 2,573	\$ 1,930	\$ 24	\$ 1,906
Terminal year	\$ 11,643	22.25%	\$ 2,591	\$ 1,943	\$ 130	\$ 1,813

The Value

Terminal value	\$ 34,011		
PV(Terminal value)	\$ 17,331		
PV (CF over next 10 years)	\$ 3,721		
Value of operating assets =	\$ 21,052		
Adjustment for distress	\$ -	Probability of failure =	0.00%
- Debt & Minority Interests	\$ 119		
+ Cash & Other Non-operating assets	\$ 855		
Value of equity	\$ 21,789		
- Value of equity options	\$ 868		
Number of shares	276.40		
Value per share	\$ 75.69	Stock was trading at =	\$113.75

The Story

Boeing is in deep trouble. Already exposed to significant pain because of its mishandling of the Boeing 737 Max, which caused revenues to plummet in 2019, the company is facing a mountain of pain with the Corona Virus decimating the airline business (Boeing's customers). I assume more pain the year to come, with revenues dropping even with the 737 Max returning to the fold and increased losses. After that, I assume that there will be higher growth, as airlines start playing catch up and buy more aircraft from a duopoly. I assume that margins will revert back to pre-2018 levels over the next 5 years and that during the next year, Boeing is exposed to a risk of failure, not so much because it will go out of business (it is too big to fail) but from needing a bailout from the government that is large enough to wipe out equity (as was the case with GM in 2009).

The Assumptions

	Base year	Years 1-5	Years 6-10		After year 10	Link to story
Revenues (a)	\$ 76,559	15.00%	→ 2.00%		2.00%	
Operating margin (b)	-2.75%	-2.75%	→ 9.60%		9.60%	
Tax rate	25.00%	25.00%	→ 25.00%		25.00%	
Reinvestment (c)		Sales to capital ratio 3.79		RIR =	20.00%	
Return on capital	-10.42%	Marginal ROIC =	74.72%		10.00%	
Cost of capital (d)		9.25%	→ 7.50%		7.50%	

The Cash Flows

	Revenues	Operating Margin	EBIT	EBIT (1-t)	Reinvestment	FCFF
1	\$ 68,903	-5.00%	\$ (3,445)	\$ (3,445)	\$ (2,019)	\$ (1,426)
2	\$ 79,239	4.73%	\$ 3,751	\$ 3,675	\$ 2,726	\$ 949
3	\$ 91,124	9.60%	\$ 8,749	\$ 6,562	\$ 3,135	\$ 3,427
4	\$ 104,793	9.60%	\$ 10,061	\$ 7,546	\$ 3,605	\$ 3,941
5	\$ 120,512	9.60%	\$ 11,571	\$ 8,678	\$ 4,146	\$ 4,532
6	\$ 135,455	9.60%	\$ 13,005	\$ 9,754	\$ 3,941	\$ 5,813
7	\$ 148,730	9.60%	\$ 14,280	\$ 10,710	\$ 3,501	\$ 7,209
8	\$ 159,439	9.60%	\$ 15,308	\$ 11,481	\$ 2,824	\$ 8,657
9	\$ 166,773	9.60%	\$ 16,012	\$ 12,009	\$ 1,934	\$ 10,075
10	\$ 170,108	9.60%	\$ 16,333	\$ 12,249	\$ 880	\$ 11,370
Terminal year	\$ 173,510	9.60%	\$ 16,659	\$ 12,494	\$ 2,499	\$ 9,996

The Value

Terminal value	\$ 181,737		
PV(Terminal value)	\$ 78,764		
PV (CF over next 10 years)	\$ 29,119		
Value of operating assets =	\$ 107,883		
Adjustment for distress	\$ 10,788	Probability of failure =	20.00%
- Debt & Minority Interests	\$ 28,580		
+ Cash & Other Non-operating assets	\$ 10,030		
Value of equity	\$ 78,545		
- Value of equity options	\$ -		
Number of shares	566.00		
Value per share	\$ 138.77	Stock was trading at =	\$127.68

Company	Base Year Numbers	Valuation Story	Valuation Inputs	Value per Share (Simulation)		Pricing per share	
Facebook	Revenues = \$75 B	User Base pays off: Immense & Intense user base allows for continued ad growth & new business potential.	Rev Growth = 10%	10th:	\$ 267.77		
	EBIT = \$27.9 B		Target Margin = 40%	25th:	\$ 293.89	Price =	\$262.59
	Oper. margin =44.3%		Sales to capital = 2.64	Median:	\$ 327.68	Under/Over =	Under valued
	Rev Growth (LTM) = 13.02%		Cost of capital = 6.08%	75th:	\$ 364.79	% under/over	-19.86%
				90th:	\$ 398.85	IRR	7.16%
Amazon	Revenues = \$ 322 B	Disruption Platform rolls on: Continue to expand into new businesses, delaying profitability to deliver higher growth.	Rev Growth = 20%	10th:	\$1,479.65		
	EBIT = \$16.7 B		Target Margin = 12%	25th:	\$ 1,969.46	Price =	\$3,260.48
	Oper. margin = 7.99%		Sales to capital = 1.94	Median:	\$ 2,778.22	Under/Over =	Over valued
	Rev Growth (LTM) = 31.58%		Cost of capital = 6.11%	75th:	\$ 3,617.74	% under/over	17.36%
				90th:	\$ 4,295.58	IRR	5.77%
Netflix	Revenues = \$ 22.6 B	Streaming Player: Wiith new competitors, will continue to add subscribers, but struggle to control content costs.	Value/Existing Subscriber = \$446.	10th:	\$ 312.79		
	# Subscribers = 192.3 mil		Growth in Subscribers = 12%	25th:	\$ 372.49	Price =	\$484.53
	Growth in LTM = 27.3%		Growth in Content Costs = 5%	Median:	\$ 445.53	Under/Over =	Over valued
	Cost/New Subscriber = \$103		Cost of capital (Existing)= 6.5%	75th:	\$ 519.34	% under/over	8.75%
	Content Cost = \$9.95 B		Cost of capital (New) = 7.5%	90th:	\$ 585.58	IRR	6.16%
Google/ Alphabet	Revenues = \$166 B	More than a Search Engine: While the search box will continue to be the money-maker, other bets will start to pay off in growth.	Rev Growth = 8%	10th:	\$ 1,165.57		
	EBIT = \$33.4 B		Target Margin = 24%	25th:	\$ 1,267.31	Price =	\$1,544.61
	Oper. margin = 23.8%		Sales to capital = 2.64	Median:	\$ 1,406.96	Under/Over =	Over valued
	Rev Growth (LTM) = 5.22%		Cost of capital = 6.25%	75th:	\$ 1,551.26	% under/over	9.78%
				90th:	\$ 1,676.02	IRR	5.87%
Apple	Revenues = \$274 B	Cash Machine revs up: The iPhone will keep the cash machine going up, but services business will be growth driver.	Rev Growth = 8%	10th:	\$ 285.67		
	EBIT = \$52.6 B		Target Margin = 26%	25th:	\$ 312.28	Price =	\$462.83
	Oper. margin = 25.9%		Sales to capital =4.00	Median:	\$ 350.22	Under/Over =	Over valued
	Rev Growth (LTM) = 7.07%		Cost of capital = 6.58%	75th:	\$ 390.66	% under/over	32.15%
				90th:	\$ 425.04	IRR	5.30%
Microsoft	Revenues = \$143 B	Old company Reborn: Cloud/software business mix will continue to deliver growth with high margins.	Rev Growth = 12%	10th:	\$ 143.98		
	EBIT = \$52.6 B		Target Margin = 40%	25th:	\$ 157.81	Price =	\$209.70
	Oper. margin =40.1%		Sales to capital = 1.44	Median:	\$ 176.66	Under/Over =	Over valued
	Rev Growth (LTM) = 13.65%		Cost of capital = 7.11%	75th:	\$ 196.77	% under/over	18.70%
				90th:	\$ 214.83	IRR	6.32%