



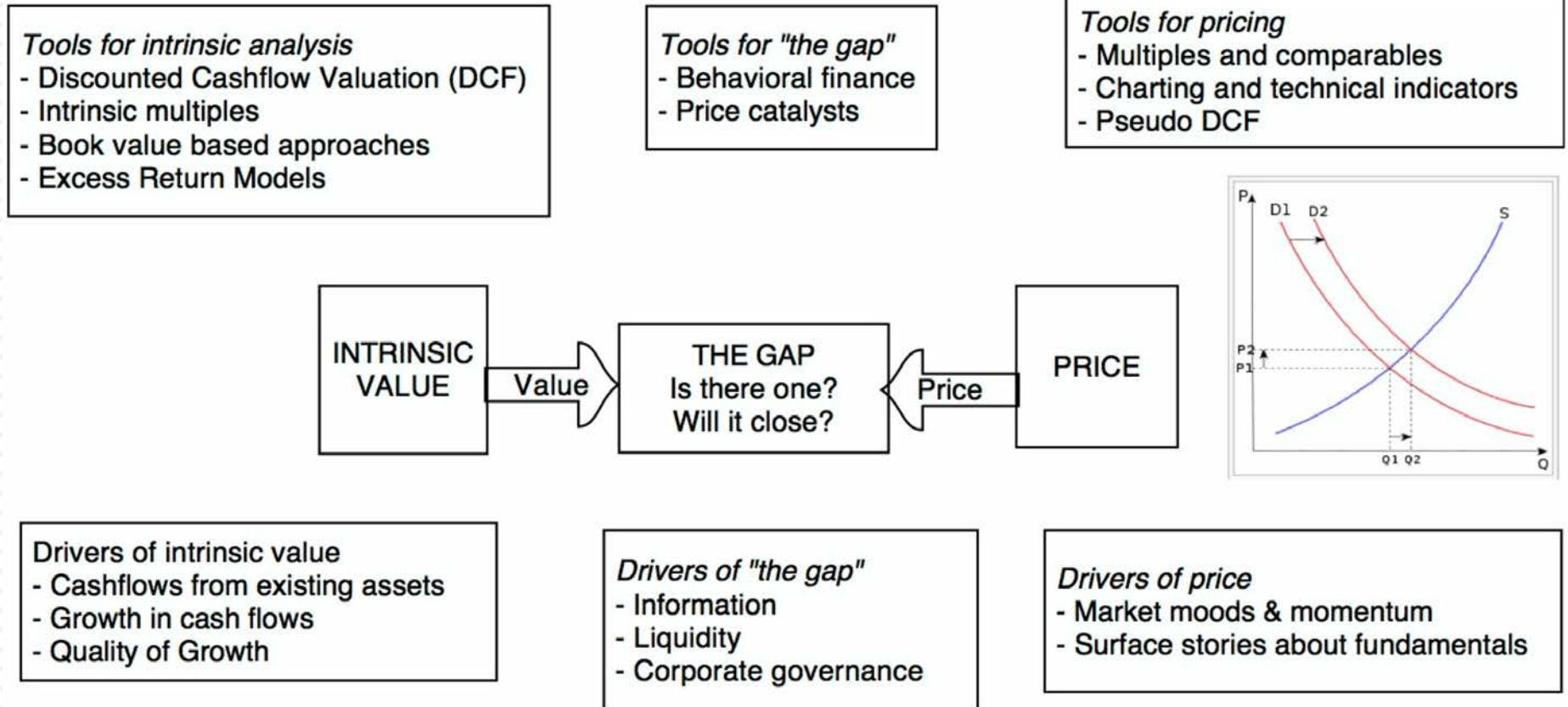
CRISIS AS A CRUCIBLE: A JEDI GUIDE TO  
INVESTMENT SERENITY!

Look forward, you must!

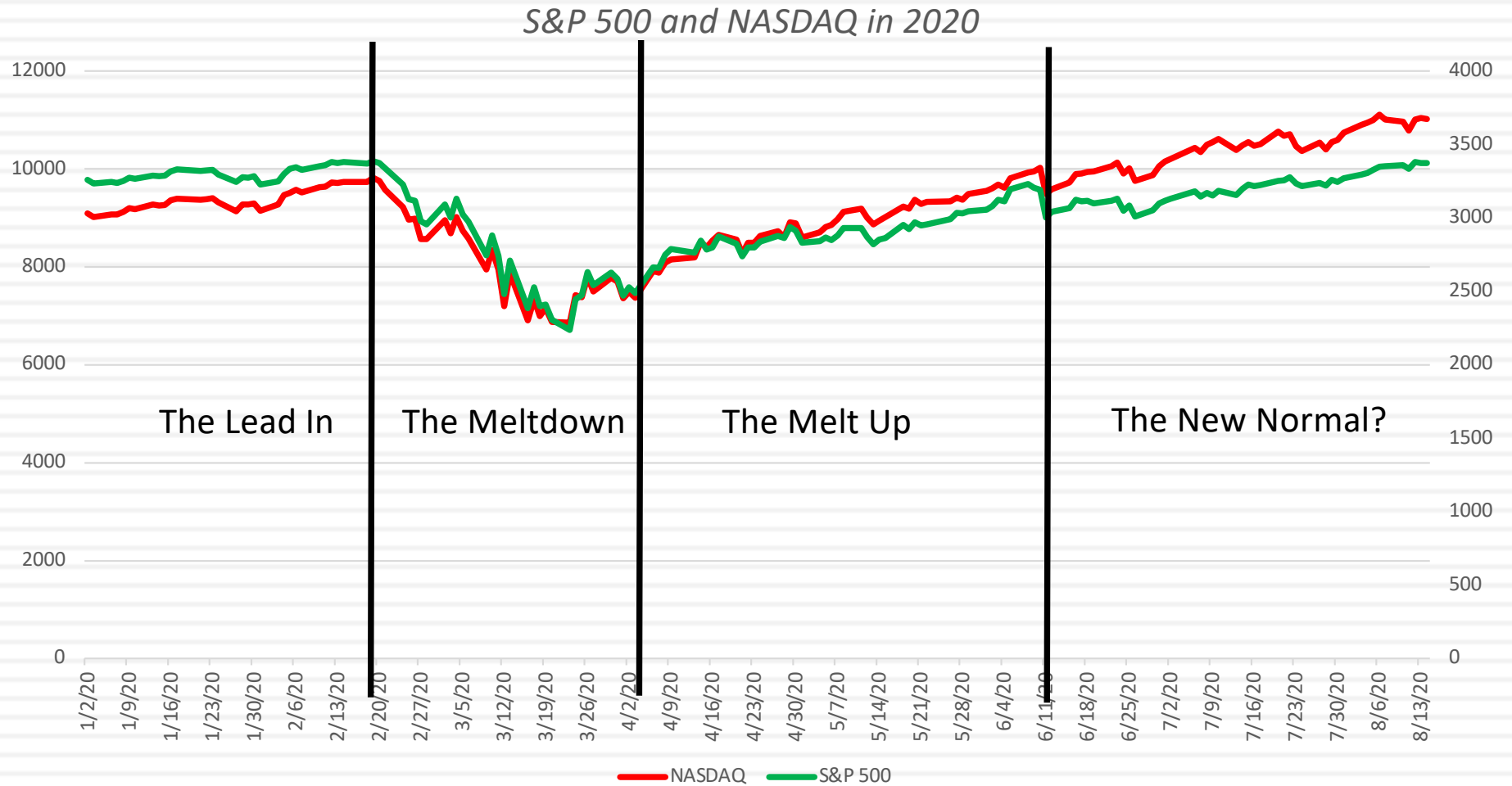


# Order in Chaos? The Macro Story

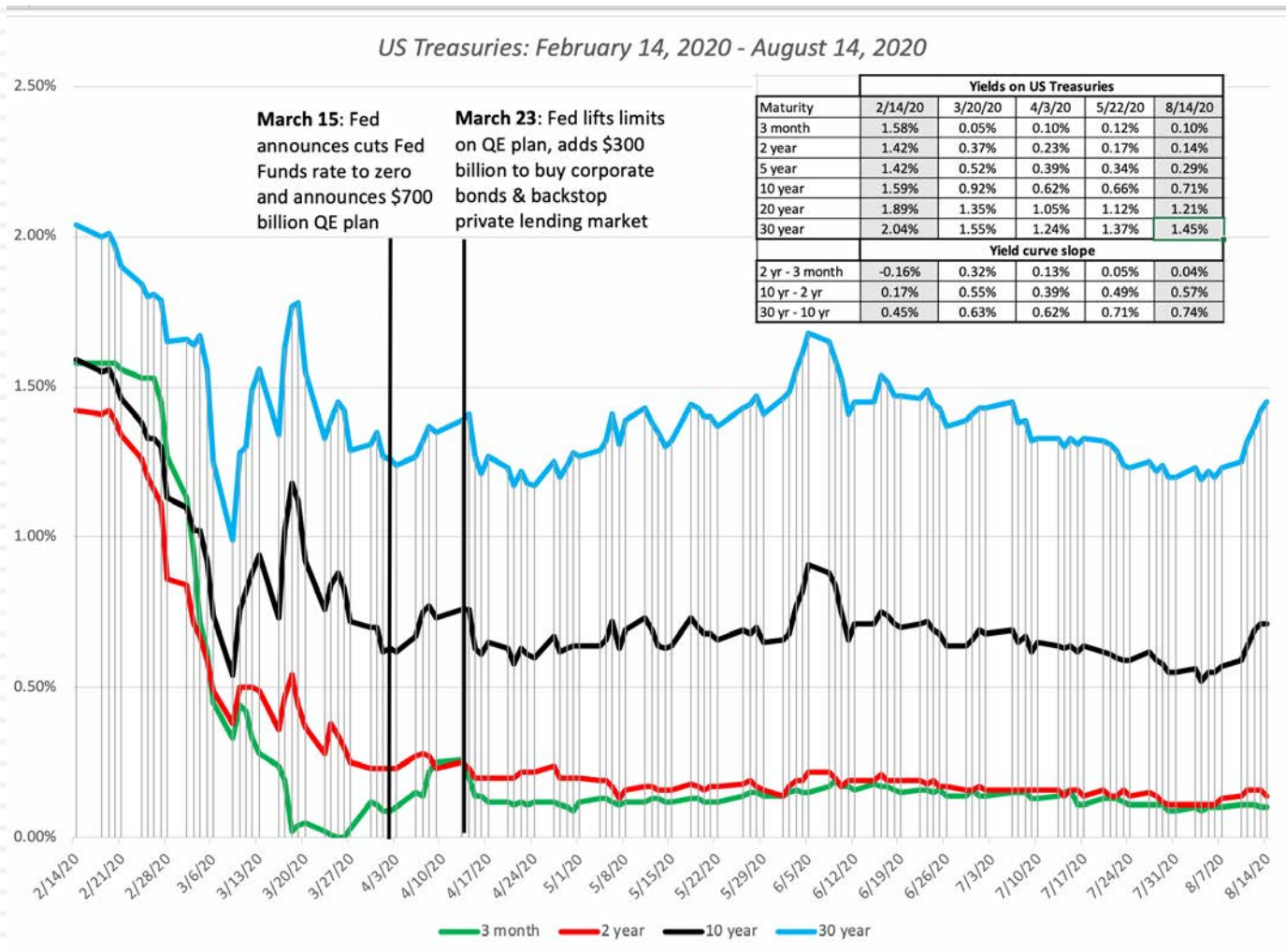
# Markets play a pricing game, but are not crazy



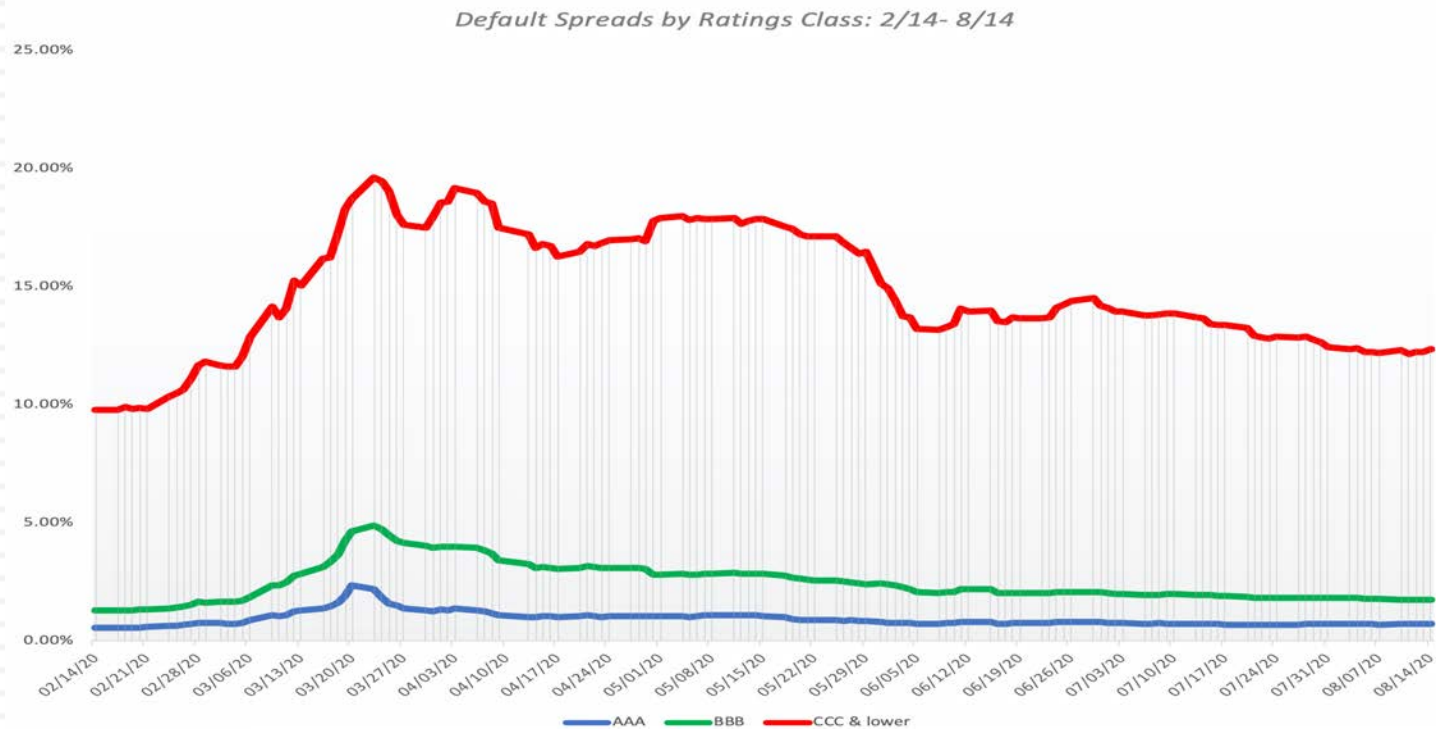
# US Equities, during the crisis...



# Macro Review: US Treasuries

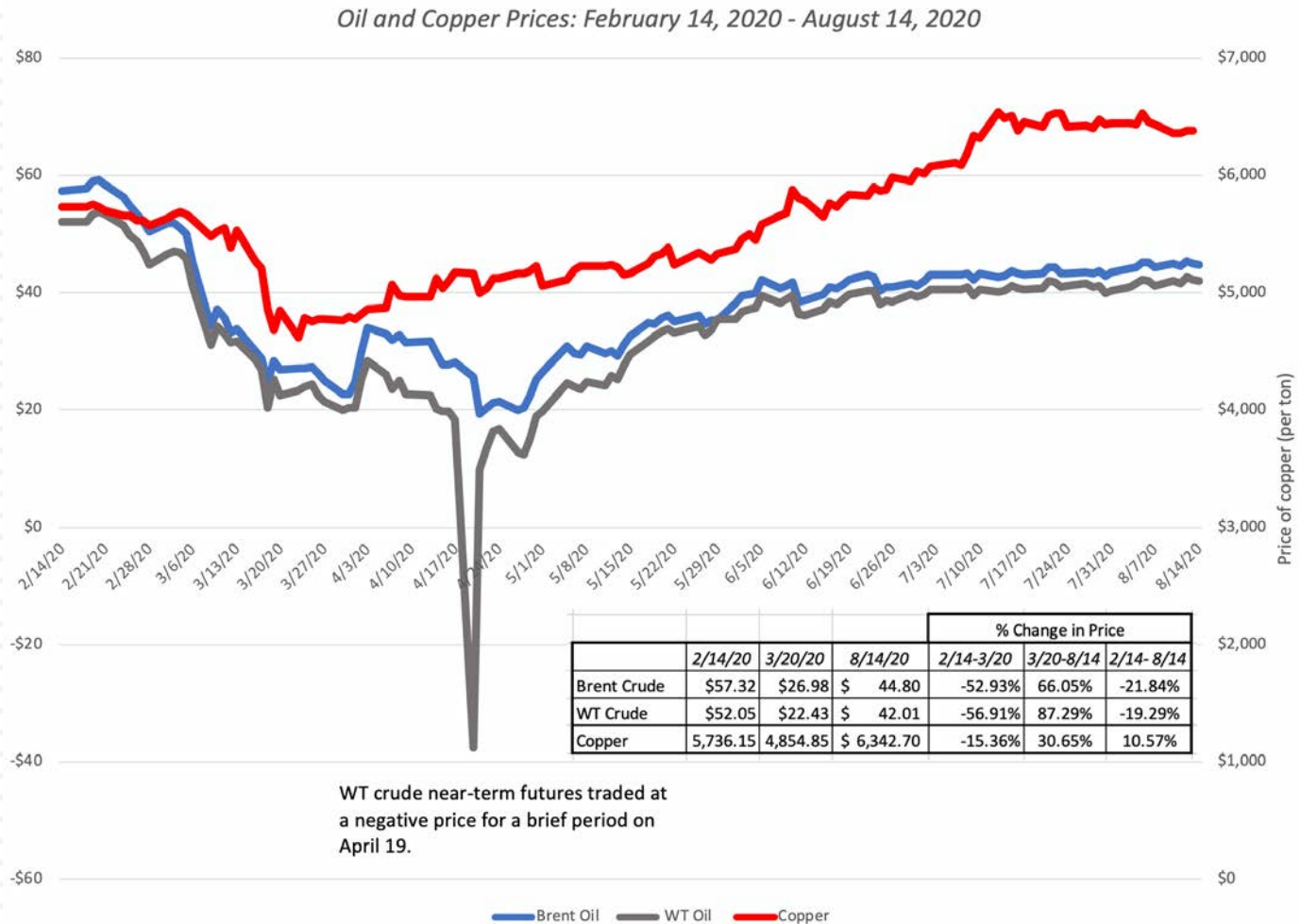


# The Price of Bond Market Risk: The COVID effect



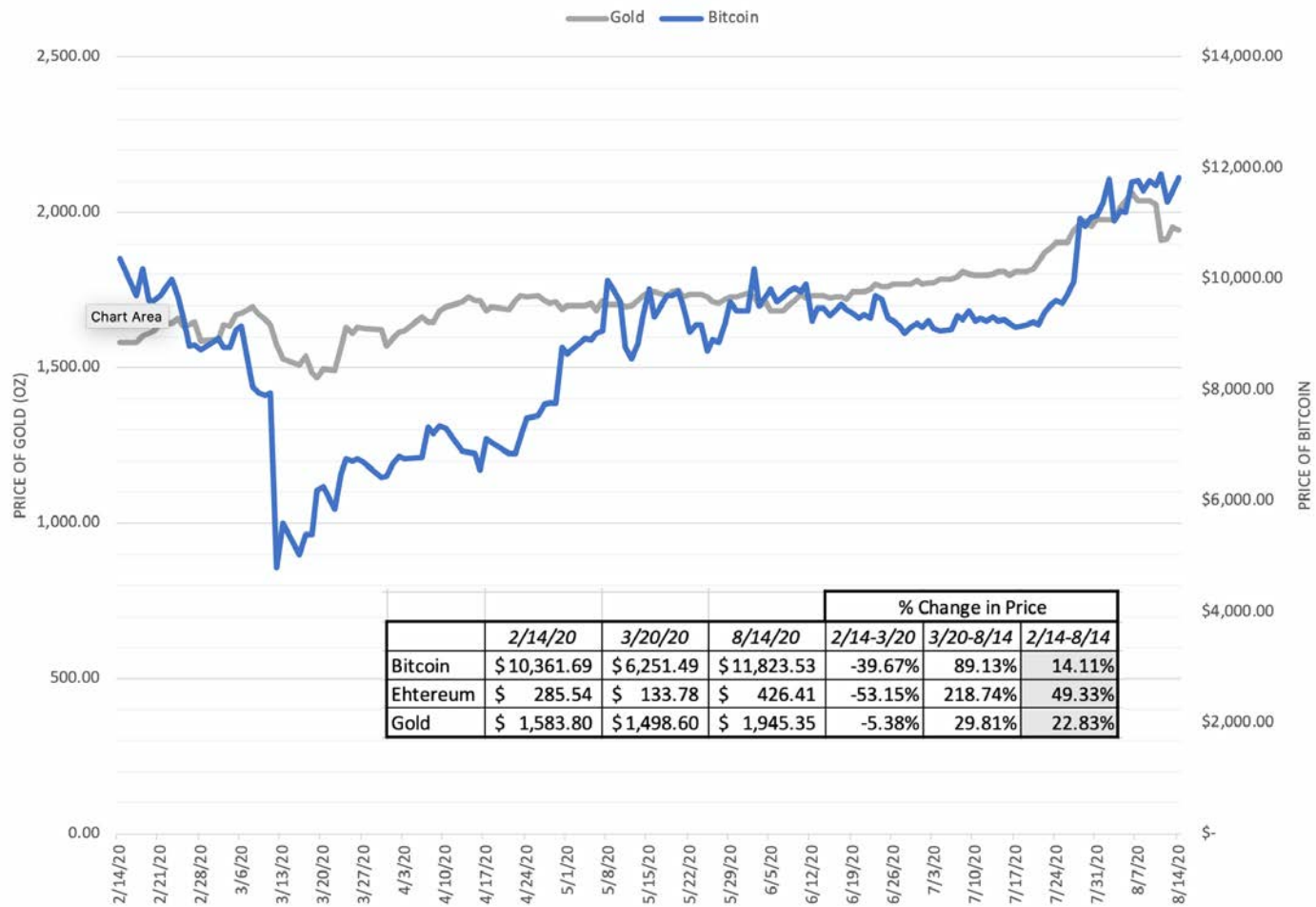
S&P Bond Rating	Yields and Spreads on Corporates						Change in default spread		
	Spread over 10-yr Treasury			Yield on Corporate			2/14-3/20	3/20-8/14	2/14 -8/14
	2/14/20	3/20/20	8/14/20	2/14/20	3/20/20	8/14/20			
AAA	0.69%	1.43%	0.74%	2.28%	2.35%	1.45%	0.74%	-0.69%	0.05%
AA	0.72%	2.64%	0.76%	2.31%	3.56%	1.47%	1.92%	-1.88%	0.04%
A	0.80%	3.15%	0.91%	2.39%	4.07%	1.62%	2.35%	-2.24%	0.11%
BBB	1.33%	3.73%	1.68%	2.92%	4.65%	2.39%	2.40%	-2.05%	0.35%
BB	1.93%	7.45%	3.42%	3.52%	8.37%	4.13%	5.52%	-4.03%	1.49%
B	3.40%	10.74%	5.11%	4.99%	11.66%	5.82%	7.34%	-5.63%	1.71%
CCC or lower	9.65%	17.81%	11.89%	11.24%	18.73%	12.60%	8.16%	-5.92%	2.24%

# Macro Review: Oil & Copper



# Macro Review: Gold & Bitcoin

Price of Gold & Bitcoin: Feb 14, 2020 - August 14, 2020





# 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	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
Africa	844	\$ 580,467	\$ 363,856	\$ 416,477	\$ 455,329	\$ (216,611)	\$ 52,621	\$ 38,851	\$ (125,139)	-37.32%	14.46%	9.33%	-21.56%
Australia & NZ	1,665	\$ 1,613,977	\$ 948,950	\$ 1,258,699	\$ 1,540,230	\$ (665,027)	\$ 309,749	\$ 281,531	\$ (73,747)	-41.20%	32.64%	22.37%	-4.57%
Canada	2,496	\$ 2,229,440	\$ 1,353,166	\$ 1,763,631	\$ 2,097,775	\$ (876,274)	\$ 410,465	\$ 334,144	\$ (131,664)	-39.30%	30.33%	18.95%	-5.91%
China	6,348	\$13,996,094	\$12,396,026	\$13,033,689	\$16,162,756	\$ (1,600,069)	\$ 637,663	\$ 3,129,067	\$ 2,166,661	-11.43%	5.14%	24.01%	15.48%
EU & Environs	5,563	\$13,611,699	\$ 9,226,315	\$10,992,480	\$13,077,435	\$ (4,385,384)	\$ 1,766,165	\$ 2,084,956	\$ (534,264)	-32.22%	19.14%	18.97%	-3.93%
Eastern Europe & Russia	517	\$ 824,836	\$ 498,861	\$ 639,042	\$ 686,946	\$ (325,975)	\$ 140,181	\$ 47,904	\$ (137,890)	-39.52%	28.10%	7.50%	-16.72%
India	3,333	\$ 2,205,941	\$ 1,520,879	\$ 1,584,046	\$ 2,007,518	\$ (685,062)	\$ 63,167	\$ 423,472	\$ (198,423)	-31.06%	4.15%	26.73%	-8.99%
Japan	3,807	\$ 6,031,796	\$ 4,458,917	\$ 5,369,361	\$ 5,945,226	\$ (1,572,879)	\$ 910,445	\$ 575,865	\$ (86,570)	-26.08%	20.42%	10.73%	-1.44%
Latin America & Caribbean	1,215	\$ 2,424,762	\$ 1,414,848	\$ 1,577,197	\$ 1,877,563	\$ (1,009,915)	\$ 162,349	\$ 300,366	\$ (547,200)	-41.65%	11.47%	19.04%	-22.57%
Middle East	1,504	\$ 3,102,408	\$ 2,578,565	\$ 2,906,678	\$ 3,041,760	\$ (523,843)	\$ 328,112	\$ 135,082	\$ (60,648)	-16.89%	12.72%	4.65%	-1.95%
Small Asia	8,793	\$ 5,146,057	\$ 3,607,804	\$ 4,329,250	\$ 5,173,937	\$ (1,538,254)	\$ 721,446	\$ 844,687	\$ 27,879	-29.89%	20.00%	19.51%	0.54%
UK	1,261	\$ 3,067,659	\$ 1,922,892	\$ 2,332,401	\$ 2,631,288	\$ (1,144,767)	\$ 409,509	\$ 298,887	\$ (436,371)	-37.32%	21.30%	12.81%	-14.22%
United States	6,623	\$35,563,273	\$23,829,663	\$31,007,415	\$35,651,806	\$(11,733,611)	\$ 7,177,752	\$ 4,644,391	\$ 88,533	-32.99%	30.12%	14.98%	0.25%
Global	43,970	\$90,398,411	\$64,120,740	\$77,210,365	\$90,349,568	\$(26,277,671)	\$13,089,625	\$13,139,203	\$ (48,843)	-29.07%	20.41%	17.02%	-0.05%

# 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	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
Communication Services	2,094	\$ 7,318,018	\$ 5,480,236	\$ 6,692,664	\$ 7,600,357	\$ (1,837,783)	\$ 1,212,428	\$ 907,693	\$ 282,338	-25.11%	22.12%	13.56%	3.86%
Consumer Discretionary	5,961	\$ 10,161,829	\$ 7,074,627	\$ 8,957,811	\$ 11,227,438	\$ (3,087,202)	\$ 1,883,184	\$ 2,269,627	\$ 1,065,609	-30.38%	26.62%	25.34%	10.49%
Consumer Staples	2,853	\$ 7,165,378	\$ 5,727,389	\$ 6,488,812	\$ 7,453,394	\$ (1,437,989)	\$ 761,424	\$ 964,582	\$ 288,016	-20.07%	13.29%	14.87%	4.02%
Energy	1,673	\$ 5,935,002	\$ 3,851,638	\$ 4,740,250	\$ 5,008,071	\$ (2,083,364)	\$ 888,612	\$ 267,821	\$ (926,931)	-35.10%	23.07%	5.65%	-15.62%
Financials	4,887	\$ 14,952,738	\$ 9,946,720	\$ 10,750,668	\$ 12,561,583	\$ (5,006,018)	\$ 803,948	\$ 1,810,915	\$ (2,391,154)	-33.48%	8.08%	16.84%	-15.99%
Health Care	3,978	\$ 8,914,843	\$ 6,859,450	\$ 8,831,226	\$ 9,861,810	\$ (2,055,394)	\$ 1,971,777	\$ 1,030,584	\$ 946,967	-23.06%	28.75%	11.67%	10.62%
Industrials	7,589	\$ 10,111,374	\$ 6,886,933	\$ 8,106,858	\$ 9,780,741	\$ (3,224,441)	\$ 1,219,924	\$ 1,673,884	\$ (330,632)	-31.89%	17.71%	20.65%	-3.27%
Information Technology	5,589	\$ 13,593,741	\$ 9,731,172	\$ 12,616,961	\$ 15,171,759	\$ (3,862,569)	\$ 2,885,790	\$ 2,554,798	\$ 1,578,019	-28.41%	29.66%	20.25%	11.61%
Materials	5,738	\$ 4,987,456	\$ 3,522,367	\$ 4,327,783	\$ 5,297,134	\$ (1,465,089)	\$ 805,416	\$ 969,351	\$ 309,679	-29.38%	22.87%	22.40%	6.21%
Real Estate	2,674	\$ 4,051,571	\$ 2,707,513	\$ 3,069,197	\$ 3,472,740	\$ (1,344,058)	\$ 361,684	\$ 403,543	\$ (578,831)	-33.17%	13.36%	13.15%	-14.29%
Utilities	922	\$ 3,205,899	\$ 2,332,261	\$ 2,627,550	\$ 2,913,938	\$ (873,638)	\$ 295,289	\$ 286,388	\$ (291,961)	-27.25%	12.66%	10.90%	-9.11%
All	43,970	\$ 90,398,411	\$ 64,120,740	\$ 77,210,365	\$ 90,349,568	\$ (26,277,671)	\$ 13,089,625	\$ 13,139,203	\$ (48,843)	-29.07%	20.41%	17.02%	-0.05%

# Global Equities: Industry Winners & Losers

Worst Performing Industries (% Change from 2/14 - 8/14)													
Industry	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
Air Transport	162	\$ 558,882	\$ 315,549	\$ 336,511	\$ 398,229	\$ (243,333)	\$ 20,961	\$ 61,719	\$ (160,653)	-43.54%	6.64%	18.34%	-28.75%
Oil/Gas (Production and Exploration)	716	\$ 694,262	\$ 319,661	\$ 475,380	\$ 510,217	\$ (374,601)	\$ 155,718	\$ 34,837	\$ (184,045)	-53.96%	48.71%	7.33%	-26.51%
Broadcasting	140	\$ 165,360	\$ 94,506	\$ 111,969	\$ 124,942	\$ (70,853)	\$ 17,462	\$ 12,974	\$ (40,417)	-42.85%	18.48%	11.59%	-24.44%
Reinsurance	35	\$ 180,669	\$ 98,290	\$ 115,462	\$ 138,178	\$ (82,379)	\$ 17,172	\$ 22,716	\$ (42,491)	-45.60%	17.47%	19.67%	-23.52%
Oil/Gas Distribution	199	\$ 645,242	\$ 355,860	\$ 470,198	\$ 498,102	\$ (289,382)	\$ 114,337	\$ 27,904	\$ (147,140)	-44.85%	32.13%	5.93%	-22.80%
Bank (Money Center)	629	\$ 6,848,003	\$ 4,654,423	\$ 4,743,941	\$ 5,339,003	\$ (2,193,580)	\$ 89,519	\$ 595,062	\$ (1,508,999)	-32.03%	1.92%	12.54%	-22.04%
Aerospace/Defense	234	\$ 1,219,941	\$ 674,526	\$ 785,600	\$ 953,949	\$ (545,415)	\$ 111,073	\$ 168,349	\$ (265,992)	-44.71%	16.47%	21.43%	-21.80%
Food Wholesalers	148	\$ 93,454	\$ 50,334	\$ 64,161	\$ 74,741	\$ (43,119)	\$ 13,827	\$ 10,580	\$ (18,713)	-46.14%	27.47%	16.49%	-20.02%
R. E. I. T.	808	\$ 2,221,416	\$ 1,336,600	\$ 1,601,579	\$ 1,788,662	\$ (884,816)	\$ 264,979	\$ 187,083	\$ (432,754)	-39.83%	19.82%	11.68%	-19.48%
Banks (Regional)	814	\$ 1,010,880	\$ 656,561	\$ 711,527	\$ 820,676	\$ (354,319)	\$ 54,967	\$ 109,149	\$ (190,204)	-35.05%	8.37%	15.34%	-18.82%
Best Performing Industries (% Change from 2/14 - 8/14)													
Industry	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
Software (Internet)	134	\$ 226,498	\$ 166,495	\$ 286,759	\$ 334,677	\$ (60,002)	\$ 120,263	\$ 47,918	\$ 108,179	-26.49%	72.23%	16.71%	47.76%
Precious Metals	796	\$ 420,064	\$ 298,000	\$ 484,265	\$ 589,203	\$ (122,064)	\$ 186,265	\$ 104,938	\$ 169,139	-29.06%	62.50%	21.67%	40.27%
Retail (Online)	310	\$ 2,457,799	\$ 1,991,678	\$ 2,635,736	\$ 3,408,840	\$ (466,120)	\$ 644,057	\$ 773,105	\$ 951,042	-18.96%	32.34%	29.33%	38.69%
Healthcare Information and Technolog	376	\$ 771,669	\$ 606,754	\$ 826,490	\$ 1,007,981	\$ (164,915)	\$ 219,737	\$ 181,491	\$ 236,313	-21.37%	36.22%	21.96%	30.62%
Computers/Peripherals	330	\$ 2,216,062	\$ 1,565,216	\$ 2,016,172	\$ 2,726,777	\$ (650,846)	\$ 450,956	\$ 710,605	\$ 510,715	-29.37%	28.81%	35.25%	23.05%
Drugs (Biotechnology)	1,019	\$ 1,407,221	\$ 1,133,704	\$ 1,542,409	\$ 1,703,644	\$ (273,517)	\$ 408,705	\$ 161,235	\$ 296,423	-19.44%	36.05%	10.45%	21.06%
Education	226	\$ 194,250	\$ 151,244	\$ 176,752	\$ 232,982	\$ (43,006)	\$ 25,508	\$ 56,230	\$ 38,732	-22.14%	16.87%	31.81%	19.94%
Transportation	262	\$ 548,154	\$ 415,193	\$ 483,871	\$ 650,643	\$ (132,961)	\$ 68,678	\$ 166,772	\$ 102,489	-24.26%	16.54%	34.47%	18.70%
Entertainment	658	\$ 1,116,132	\$ 843,839	\$ 1,083,809	\$ 1,304,003	\$ (272,293)	\$ 239,970	\$ 220,195	\$ 187,871	-24.40%	28.44%	20.32%	16.83%
Retail (Building Supply)	87	\$ 452,206	\$ 269,287	\$ 427,570	\$ 525,726	\$ (182,919)	\$ 158,283	\$ 98,156	\$ 73,520	-40.45%	58.78%	22.96%	16.26%



# A Reallocation of Value: The Micro Stories



# 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%
<b>2010-19</b>	<b>11.27%</b>	<b>16.67%</b>	<b>-5.39%</b>	<b>11.35%</b>	<b>17.09%</b>	<b>-5.75%</b>

*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 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	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
Bottom decile	2,519	\$ 2,339,988	\$ 1,920,120	\$ 2,053,995	\$ 2,261,128	\$ (419,868)	\$ 133,876	\$ 207,132	\$ (78,861)	-17.94%	6.97%	10.08%	-3.37%
2nd decile	2,519	\$ 2,764,493	\$ 1,978,590	\$ 2,213,875	\$ 2,528,795	\$ (785,903)	\$ 235,285	\$ 314,920	\$ (235,698)	-28.43%	11.89%	14.22%	-8.53%
3rd decile	2,519	\$ 4,210,236	\$ 2,977,746	\$ 3,384,512	\$ 3,889,018	\$ (1,232,490)	\$ 406,766	\$ 504,506	\$ (321,219)	-29.27%	13.66%	14.91%	-7.63%
4th decile	2,519	\$ 6,648,488	\$ 4,609,691	\$ 5,350,296	\$ 6,095,863	\$ (2,038,797)	\$ 740,605	\$ 745,567	\$ (552,625)	-30.67%	16.07%	13.94%	-8.31%
5th decile	2,519	\$ 7,225,991	\$ 5,049,156	\$ 5,850,496	\$ 6,826,111	\$ (2,176,835)	\$ 801,340	\$ 975,615	\$ (399,880)	-30.13%	15.87%	16.68%	-5.53%
6th decile	2,519	\$ 9,744,830	\$ 7,060,096	\$ 8,273,265	\$ 9,747,756	\$ (2,684,734)	\$ 1,213,169	\$ 1,474,491	\$ 2,926	-27.55%	17.18%	17.82%	0.03%
7th decile	2,519	\$ 15,360,691	\$ 11,303,437	\$ 13,702,515	\$ 16,039,798	\$ (4,057,254)	\$ 2,399,078	\$ 2,337,283	\$ 679,107	-26.41%	21.22%	17.06%	4.42%
8th decile	2,519	\$ 13,937,234	\$ 10,042,152	\$ 12,303,311	\$ 14,253,933	\$ (3,895,082)	\$ 2,261,159	\$ 1,950,622	\$ 316,699	-27.95%	22.52%	15.85%	2.27%
9th decile	2,519	\$ 10,059,418	\$ 7,328,993	\$ 9,062,315	\$ 10,665,146	\$ (2,730,425)	\$ 1,733,322	\$ 1,602,831	\$ 605,729	-27.14%	23.65%	17.69%	6.02%
Top decile	2,519	\$ 6,696,475	\$ 4,842,007	\$ 6,026,711	\$ 7,506,881	\$ (1,854,468)	\$ 1,184,704	\$ 1,480,170	\$ 810,406	-27.69%	24.47%	24.56%	12.10%
Negative Earnings	18,780	\$ 11,410,565	\$ 7,008,752	\$ 8,989,074	\$ 10,535,139	\$ (4,401,814)	\$ 1,980,323	\$ 1,546,065	\$ (875,426)	-38.58%	28.25%	17.20%	-7.67%

# Dividends and Market Returns

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%

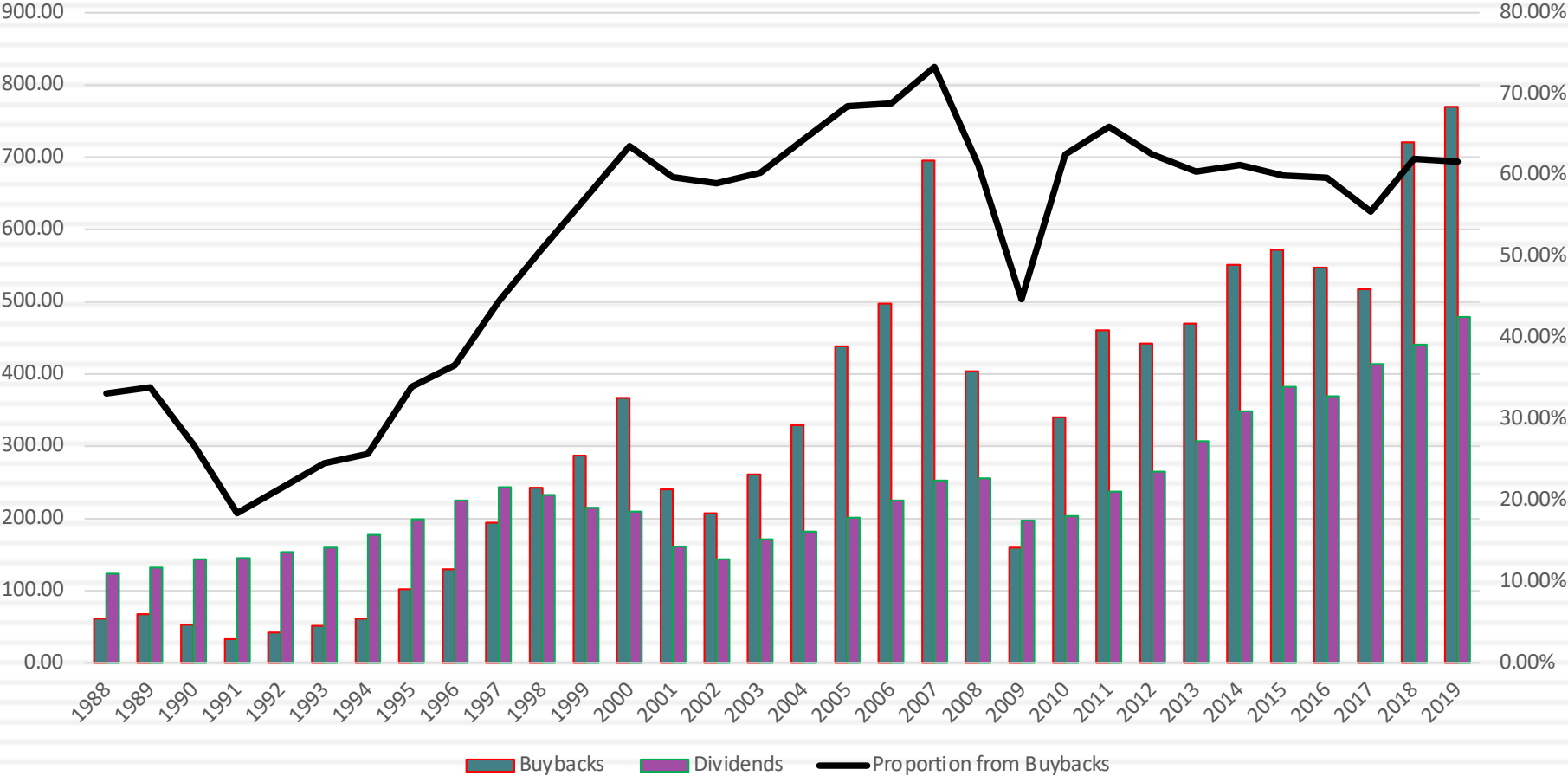
# Momentum and Damage

% Price Change (2/14/19-2/14/20)	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
Bottom decile	4,011	\$ 497,094	\$ 314,732	\$ 409,947	\$ 526,855	\$ (182,362)	\$ 95,215	\$ 116,908	\$ 29,762	-36.69%	30.25%	28.52%	5.99%
2nd decile	4,011	\$ 1,864,686	\$ 1,298,176	\$ 1,478,171	\$ 1,738,519	\$ (566,510)	\$ 179,996	\$ 260,348	\$ (126,167)	-30.38%	13.87%	17.61%	-6.77%
3rd decile	4,011	\$ 4,510,236	\$ 3,022,633	\$ 3,433,086	\$ 3,913,461	\$ (1,487,603)	\$ 410,453	\$ 480,375	\$ (596,775)	-32.98%	13.58%	13.99%	-13.23%
4th decile	4,011	\$ 5,271,090	\$ 3,569,938	\$ 4,100,573	\$ 4,738,696	\$ (1,701,151)	\$ 530,634	\$ 638,124	\$ (532,394)	-32.27%	14.86%	15.56%	-10.10%
5th decile	4,011	\$ 7,499,436	\$ 5,427,905	\$ 6,076,979	\$ 6,770,817	\$ (2,071,531)	\$ 649,074	\$ 693,838	\$ (728,618)	-27.62%	11.96%	11.42%	-9.72%
6th decile	4,011	\$ 7,894,593	\$ 5,500,007	\$ 6,318,254	\$ 7,390,057	\$ (2,394,586)	\$ 818,247	\$ 1,071,803	\$ (504,536)	-30.33%	14.88%	16.96%	-6.39%
7th decile	4,011	\$13,136,266	\$ 9,294,768	\$10,853,879	\$12,459,699	\$ (3,841,498)	\$ 1,559,112	\$ 1,605,820	\$ (676,567)	-29.24%	16.77%	14.79%	-5.15%
8th decile	4,011	\$20,543,948	\$14,320,642	\$17,310,244	\$19,967,731	\$ (6,223,306)	\$ 2,989,602	\$ 2,657,487	\$ (576,218)	-30.29%	20.88%	15.35%	-2.80%
9th decile	4,011	\$16,672,949	\$11,980,331	\$15,106,977	\$17,969,326	\$ (4,692,618)	\$ 3,126,645	\$ 2,862,349	\$ 1,296,377	-28.15%	26.10%	18.95%	7.78%
Top decile	4,012	\$ 8,946,736	\$ 6,463,096	\$ 8,673,039	\$11,041,075	\$ (2,483,640)	\$ 2,209,943	\$ 2,368,036	\$ 2,094,339	-27.76%	34.19%	27.30%	23.41%



# The Buyback Bogeyman...

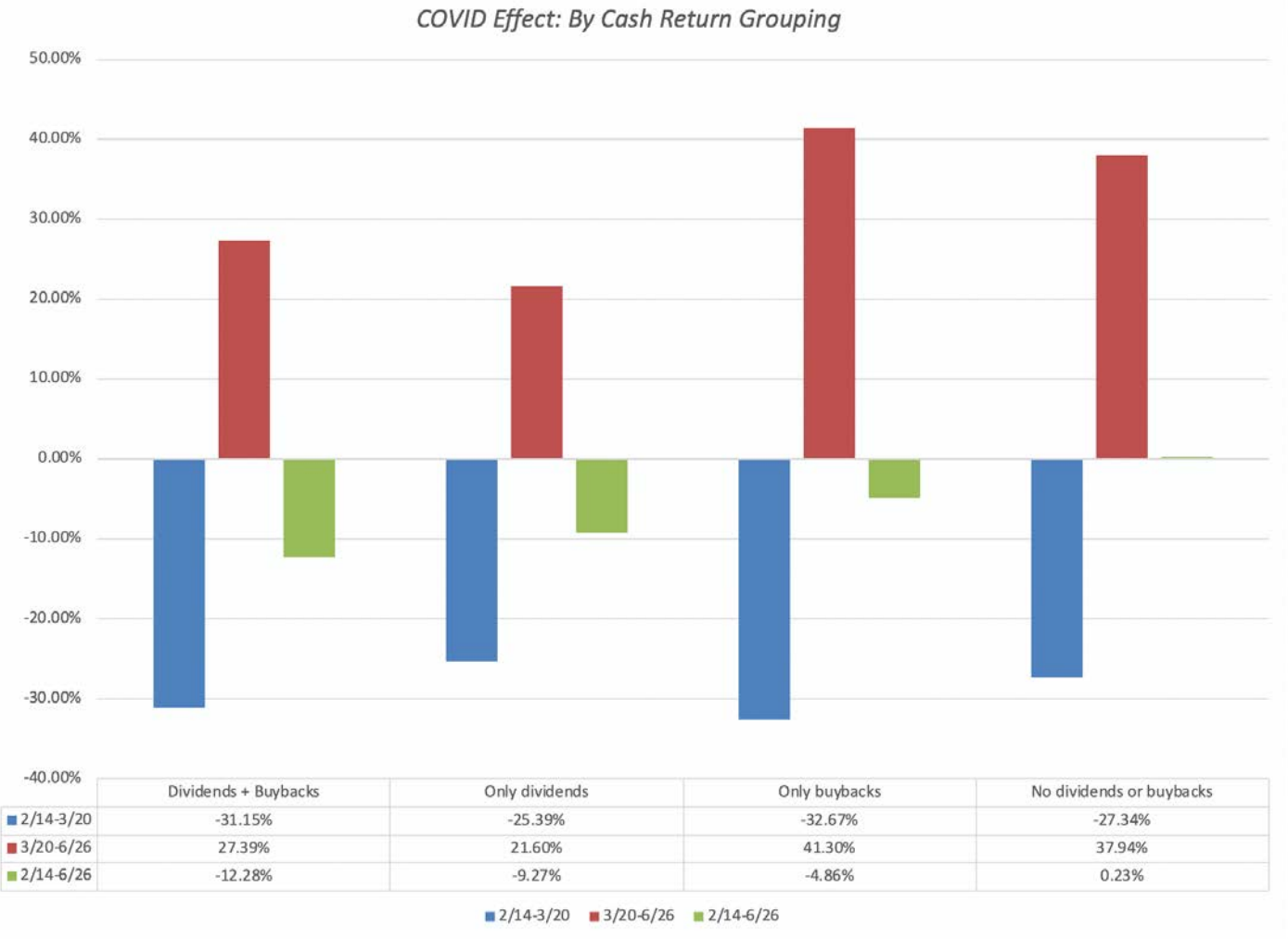
Dividends and Buybacks on S&P 500: 1988- 2019



# Cash Returns and the Crisis...

<i>(Dividends+Buybacks)/ Net Income</i>	<i>Number of firms</i>	<i>Market Cap (\$ millions)</i>			<i>Change in Market Cap (\$ millions)</i>			<i>% Change in Market Cap</i>		
		<i>2/14/20</i>	<i>3/20/20</i>	<i>6/26/20</i>	<i>2/14-3/20</i>	<i>3/20-6/26</i>	<i>2/14-6/26</i>	<i>2/14-3/20</i>	<i>3/20-6/26</i>	<i>2/14-6/26</i>
Bottom decile	1,919	\$ 2,967,674	\$ 2,150,563	\$ 2,839,196	\$ (817,111)	\$ 688,633	\$ (128,479)	-27.53%	32.02%	-4.33%
2nd decile	1,920	\$ 7,938,475	\$ 5,741,000	\$ 7,662,658	\$ (2,197,474)	\$ 1,921,657	\$ (275,817)	-27.68%	33.47%	-3.47%
3rd decile	1,920	\$ 6,104,819	\$ 4,432,951	\$ 5,863,841	\$ (1,671,867)	\$ 1,430,889	\$ (240,978)	-27.39%	32.28%	-3.95%
4th decile	1,920	\$ 8,044,613	\$ 5,632,176	\$ 7,393,756	\$ (2,412,437)	\$ 1,761,580	\$ (650,857)	-29.99%	31.28%	-8.09%
5th decile	1,920	\$ 8,667,724	\$ 6,133,595	\$ 7,924,867	\$ (2,534,129)	\$ 1,791,272	\$ (742,857)	-29.24%	29.20%	-8.57%
6th decile	1,920	\$ 8,978,606	\$ 6,446,483	\$ 8,015,325	\$ (2,532,122)	\$ 1,568,841	\$ (963,281)	-28.20%	24.34%	-10.73%
7th decile	1,920	\$11,138,692	\$ 8,053,634	\$ 9,840,747	\$ (3,085,058)	\$ 1,787,113	\$ (1,297,945)	-27.70%	22.19%	-11.65%
8th decile	1,920	\$ 8,495,881	\$ 6,387,028	\$ 7,615,372	\$ (2,108,853)	\$ 1,228,344	\$ (880,509)	-24.82%	19.23%	-10.36%
9th decile	1,920	\$ 5,686,394	\$ 4,101,973	\$ 4,915,426	\$ (1,584,421)	\$ 813,453	\$ (770,968)	-27.86%	19.83%	-13.56%
Top decile	1,920	\$ 5,172,790	\$ 3,471,244	\$ 4,283,611	\$ (1,701,546)	\$ 812,367	\$ (889,179)	-32.89%	23.40%	-17.19%

# A Test on Buybacks..



# Debt and Value



- The question of whether to borrow money is always a trade off between its tax benefits on the good side and the distress risk it exposes you to on the bad side.
- During this crisis, not surprisingly, companies that have borrowed more money, on a relative basis, have been more damaged than companies that are less indebted.

# The Debt Load..

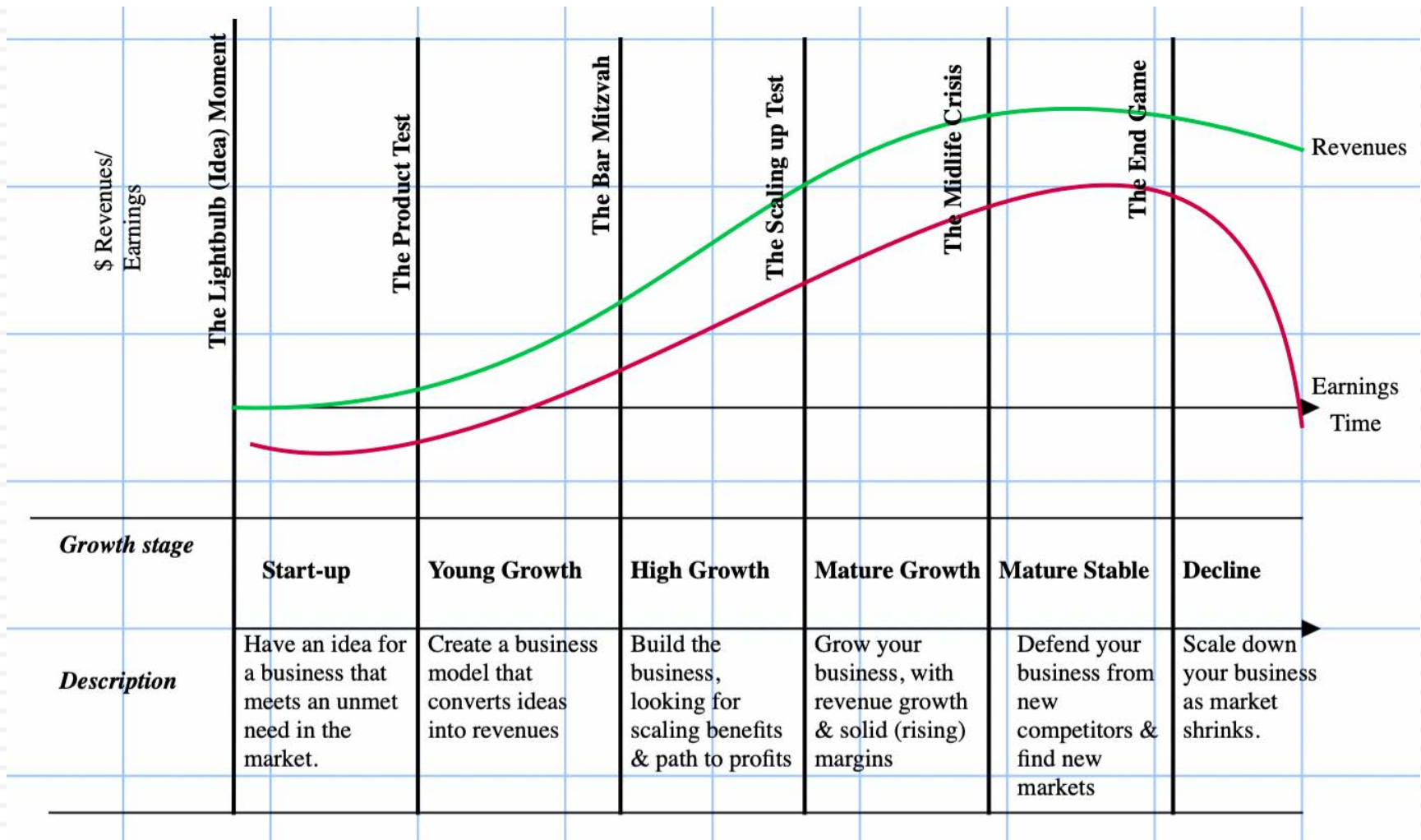
Net Debt/EBITDA	Number of firms	Market Cap (\$ Millions)				\$ Change in Market Cap				% Change in Market Cap			
		2/14/20	3/20/20	5/22/20	8/14/20	2/14 - 3/20	3/20- 5/22	5/22 - 8/14	2/14 - 8/14	2/14 - 3/20	3/20- 5/22	5/22 - 8/14	2/14 - 8/14
Bottom decile	2,685	\$ 2,618,921	\$ 2,035,474	\$ 2,389,694	\$ 2,948,824	\$ (583,447)	\$ 354,220	\$ 559,130	\$ 329,903	-22.28%	17.40%	23.40%	12.60%
2nd decile	2,685	\$ 5,243,727	\$ 4,012,622	\$ 5,054,528	\$ 6,007,582	\$ (1,231,105)	\$ 1,041,907	\$ 953,054	\$ 763,856	-23.48%	25.97%	18.86%	14.57%
3rd decile	2,685	\$ 8,718,018	\$ 6,641,688	\$ 8,186,586	\$ 9,696,229	\$ (2,076,329)	\$ 1,544,898	\$ 1,509,643	\$ 978,212	-23.82%	23.26%	18.44%	11.22%
4th decile	2,685	\$ 5,504,333	\$ 4,151,031	\$ 4,977,012	\$ 6,007,251	\$ (1,353,302)	\$ 825,981	\$ 1,030,238	\$ 502,918	-24.59%	19.90%	20.70%	9.14%
5th decile	2,685	\$ 15,072,419	\$ 11,366,442	\$ 13,963,127	\$ 16,313,340	\$ (3,705,977)	\$ 2,596,684	\$ 2,350,213	\$ 1,240,920	-24.59%	22.85%	16.83%	8.23%
6th decile	2,685	\$ 10,635,547	\$ 7,528,142	\$ 9,125,286	\$ 10,597,013	\$ (3,107,406)	\$ 1,597,145	\$ 1,471,727	\$ (38,535)	-29.22%	21.22%	16.13%	-0.36%
7th decile	2,685	\$ 11,153,680	\$ 7,692,609	\$ 9,274,882	\$ 10,647,627	\$ (3,461,070)	\$ 1,582,273	\$ 1,372,744	\$ (506,053)	-31.03%	20.57%	14.80%	-4.54%
8th decile	2,685	\$ 8,516,406	\$ 5,610,538	\$ 6,840,333	\$ 7,889,322	\$ (2,905,869)	\$ 1,229,796	\$ 1,048,989	\$ (627,084)	-34.12%	21.92%	15.34%	-7.36%
9th decile	2,685	\$ 6,261,111	\$ 3,974,639	\$ 4,716,189	\$ 5,365,426	\$ (2,286,472)	\$ 741,550	\$ 649,237	\$ (895,685)	-36.52%	18.66%	13.77%	-14.31%
Top decile	2,686	\$ 2,642,392	\$ 1,640,513	\$ 1,930,955	\$ 2,250,713	\$ (1,001,879)	\$ 290,443	\$ 319,758	\$ (391,678)	-37.92%	17.70%	16.56%	-14.82%
Negative EBITDA	17,119	\$ 14,031,856	\$ 9,467,041	\$ 10,751,771	\$ 12,626,241	\$ (4,564,815)	\$ 1,284,730	\$ 1,874,471	\$ (1,405,615)	-32.53%	13.57%	17.43%	-10.02%

# And S&P Ratings...

S&P Entity Credit Rating	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
AAA	3	\$ 1,814,526	\$ 1,367,406	\$ 1,778,758	\$ 1,978,884	\$ (447,120)	\$ 411,352	\$ 200,126	\$ 164,358	-24.64%	30.08%	11.25%	9.06%
AA+	4	\$ 2,505,479	\$ 1,773,174	\$ 2,379,153	\$ 3,024,772	\$ (732,304)	\$ 605,979	\$ 645,620	\$ 519,294	-29.23%	34.17%	27.14%	20.73%
AA	18	\$ 2,067,352	\$ 1,525,975	\$ 1,784,903	\$ 1,906,233	\$ (541,377)	\$ 258,929	\$ 121,330	\$ (161,119)	-26.19%	16.97%	6.80%	-7.79%
AA-	44	\$ 5,607,498	\$ 4,274,061	\$ 5,079,076	\$ 5,921,638	\$ (1,333,437)	\$ 805,015	\$ 842,562	\$ 314,140	-23.78%	18.83%	16.59%	5.60%
A+	80	\$ 5,339,094	\$ 3,913,405	\$ 4,549,736	\$ 5,220,646	\$ (1,425,688)	\$ 636,331	\$ 670,910	\$ (118,447)	-26.70%	16.26%	14.75%	-2.22%
A	148	\$ 6,299,815	\$ 4,524,507	\$ 5,156,190	\$ 5,762,361	\$ (1,775,308)	\$ 631,683	\$ 606,171	\$ (537,454)	-28.18%	13.96%	11.76%	-8.53%
A-	195	\$ 7,257,289	\$ 4,929,525	\$ 5,878,130	\$ 6,709,967	\$ (2,327,764)	\$ 948,605	\$ 831,837	\$ (547,322)	-32.07%	19.24%	14.15%	-7.54%
BBB+	294	\$ 7,890,478	\$ 5,255,745	\$ 6,364,160	\$ 7,399,632	\$ (2,634,733)	\$ 1,108,414	\$ 1,035,473	\$ (490,846)	-33.39%	21.09%	16.27%	-6.22%
BBB	352	\$ 5,808,544	\$ 3,885,858	\$ 4,693,204	\$ 5,281,728	\$ (1,922,686)	\$ 807,346	\$ 588,524	\$ (526,816)	-33.10%	20.78%	12.54%	-9.07%
BBB-	298	\$ 4,018,231	\$ 2,402,110	\$ 2,997,919	\$ 3,425,267	\$ (1,616,121)	\$ 595,809	\$ 427,348	\$ (592,964)	-40.22%	24.80%	14.25%	-14.76%
BB+	179	\$ 1,709,044	\$ 1,031,971	\$ 1,372,217	\$ 1,664,986	\$ (677,073)	\$ 340,246	\$ 292,769	\$ (44,058)	-39.62%	32.97%	21.34%	-2.58%
BB	205	\$ 1,448,685	\$ 903,000	\$ 1,223,204	\$ 1,459,993	\$ (545,685)	\$ 320,204	\$ 236,789	\$ 11,308	-37.67%	35.46%	19.36%	0.78%
BB-	216	\$ 1,117,196	\$ 601,970	\$ 741,838	\$ 907,764	\$ (515,227)	\$ 139,868	\$ 165,926	\$ (209,432)	-46.12%	23.24%	22.37%	-18.75%
B+	142	\$ 572,597	\$ 306,129	\$ 464,283	\$ 683,437	\$ (266,468)	\$ 158,155	\$ 219,154	\$ 110,840	-46.54%	51.66%	47.20%	19.36%
B	140	\$ 269,866	\$ 142,413	\$ 187,250	\$ 231,332	\$ (127,453)	\$ 44,837	\$ 44,082	\$ (38,534)	-47.23%	31.48%	23.54%	-14.28%
B-	99	\$ 166,175	\$ 84,933	\$ 120,399	\$ 133,850	\$ (81,243)	\$ 35,466	\$ 13,451	\$ (32,326)	-48.89%	41.76%	11.17%	-19.45%
CCC+	63	\$ 64,922	\$ 27,125	\$ 39,951	\$ 53,186	\$ (37,797)	\$ 12,825	\$ 13,235	\$ (11,736)	-58.22%	47.28%	33.13%	-18.08%
CCC	14	\$ 6,735	\$ 3,509	\$ 2,349	\$ 3,165	\$ (3,226)	\$ (1,160)	\$ 816	\$ (3,569)	-47.90%	-33.05%	34.75%	-53.00%
CCC-	14	\$ 12,141	\$ 3,792	\$ 5,072	\$ 6,718	\$ (8,349)	\$ 1,279	\$ 1,646	\$ (5,424)	-68.77%	33.74%	32.46%	-44.67%
D	23	\$ 10,344	\$ 3,106	\$ 2,491	\$ 1,555	\$ (7,237)	\$ (615)	\$ (936)	\$ (8,788)	-69.97%	-19.80%	-37.57%	-84.96%



# The Corporate Life Cycle



# COVID: Young versus Old

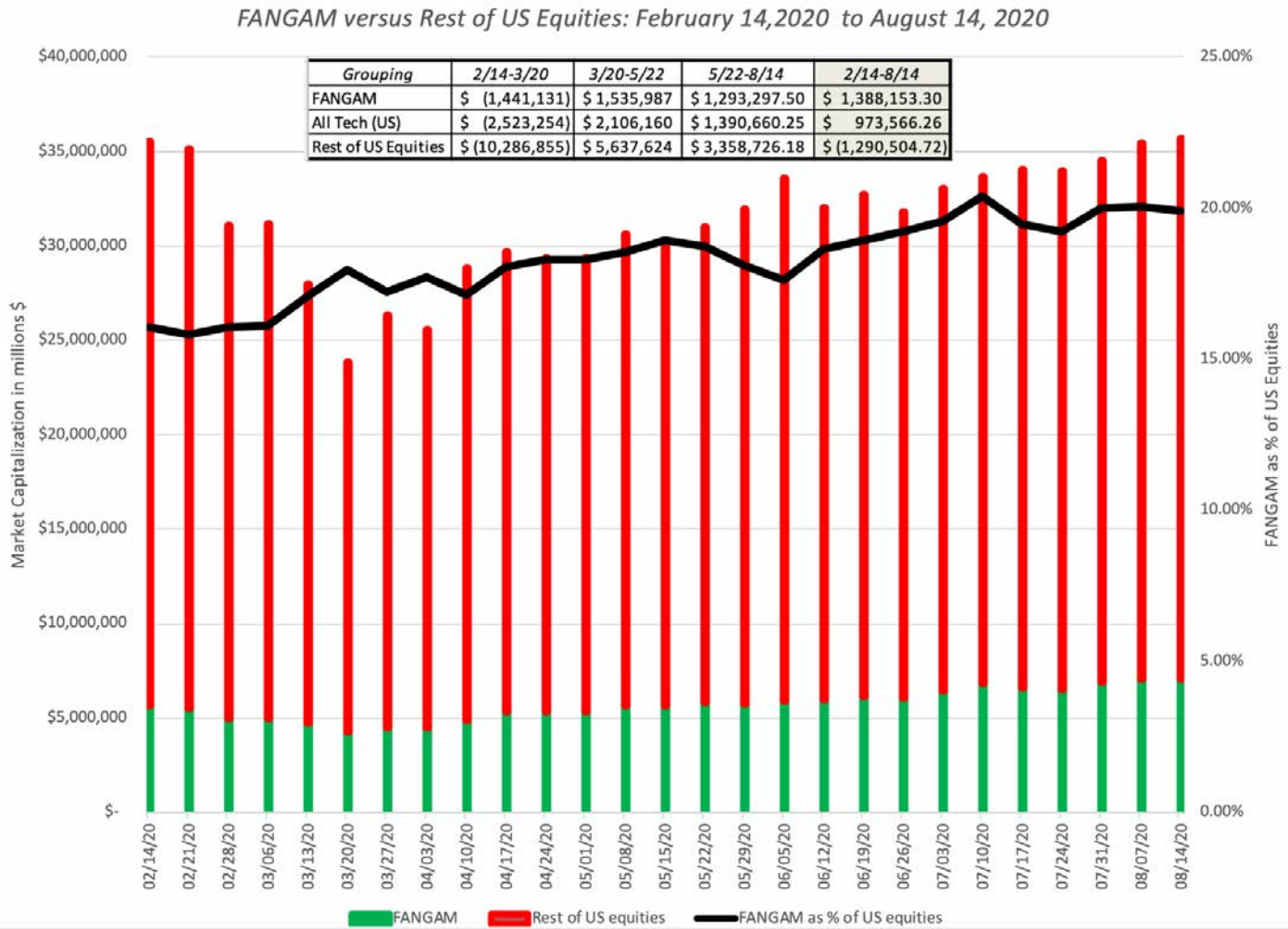
Age of company	Number of firms	Market Cap (\$ Millions)				\$ Change in Market Cap				% Change in Market Cap			
		2/14/20	3/20/20	5/22/20	8/14/20	2/14 - 3/20	3/20 - 5/22	5/22 - 8/14	2/14 - 8/14	2/14 - 3/20	3/20 - 5/22	5/22 - 8/14	2/14 - 8/14
Bottom decile	3,712	\$ 2,698,650	\$ 1,869,458	\$ 2,472,348	\$ 2,961,005	\$ (829,192)	\$ 602,890	\$ 488,657	\$ 262,355	-30.73%	32.25%	19.76%	9.72%
2nd decile	3,836	\$ 3,350,085	\$ 2,389,512	\$ 2,971,885	\$ 3,595,908	\$ (960,573)	\$ 582,373	\$ 624,023	\$ 245,823	-28.67%	24.37%	21.00%	7.34%
3rd decile	3,185	\$ 4,046,398	\$ 3,006,664	\$ 3,834,212	\$ 4,789,015	\$ (1,039,733)	\$ 827,548	\$ 954,803	\$ 742,618	-25.70%	27.52%	24.90%	18.35%
4th decile	3,949	\$ 8,658,784	\$ 6,597,980	\$ 7,863,953	\$ 9,256,879	\$ (2,060,804)	\$ 1,265,974	\$ 1,392,925	\$ 598,095	-23.80%	19.19%	17.71%	6.91%
5th decile	4,403	\$ 6,732,948	\$ 5,198,361	\$ 6,320,021	\$ 7,610,835	\$ (1,534,587)	\$ 1,121,660	\$ 1,290,814	\$ 877,887	-22.79%	21.58%	20.42%	13.04%
6th decile	3,856	\$ 4,924,936	\$ 3,644,831	\$ 4,230,347	\$ 5,020,670	\$ (1,280,105)	\$ 585,516	\$ 790,322	\$ 95,734	-25.99%	16.06%	18.68%	1.94%
7th decile	4,087	\$ 9,070,705	\$ 6,429,646	\$ 7,979,016	\$ 9,447,799	\$ (2,641,058)	\$ 1,549,370	\$ 1,468,783	\$ 377,095	-29.12%	24.10%	18.41%	4.16%
8th decile	3,822	\$ 8,935,720	\$ 6,088,135	\$ 7,577,142	\$ 8,738,365	\$ (2,847,585)	\$ 1,489,008	\$ 1,161,223	\$ (197,355)	-31.87%	24.46%	15.33%	-2.21%
9th decile	3,960	\$ 10,417,079	\$ 7,208,036	\$ 8,526,124	\$ 9,887,293	\$ (3,209,042)	\$ 1,318,087	\$ 1,361,170	\$ (529,785)	-30.81%	18.29%	15.96%	-5.09%
Top decile	3,945	\$ 27,706,077	\$ 18,916,104	\$ 22,188,000	\$ 25,094,122	\$ (8,789,973)	\$ 3,271,896	\$ 2,906,122	\$ (2,611,955)	-31.73%	17.30%	13.10%	-9.43%



# 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	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
Bottom decile	1,422	\$ 6,269,298	\$ 3,307,541	\$ 4,084,068	\$ 4,567,027	\$ (2,961,758)	\$ 776,528	\$ 482,959	\$ (1,702,271)	-47.24%	23.48%	11.83%	-27.15%
2nd decile	1,420	\$ 9,852,982	\$ 6,726,627	\$ 7,679,547	\$ 8,544,768	\$ (3,126,355)	\$ 952,920	\$ 865,221	\$ (1,308,214)	-31.73%	14.17%	11.27%	-13.28%
3rd decile	1,425	\$ 8,535,682	\$ 5,505,306	\$ 6,378,173	\$ 7,311,712	\$ (3,030,375)	\$ 872,867	\$ 933,539	\$ (1,223,970)	-35.50%	15.86%	14.64%	-14.34%
4th decile	1,417	\$ 11,647,079	\$ 8,113,032	\$ 9,562,531	\$ 10,703,109	\$ (3,534,047)	\$ 1,449,499	\$ 1,140,579	\$ (943,970)	-30.34%	17.87%	11.93%	-8.10%
5th decile	1,430	\$ 11,053,101	\$ 7,976,953	\$ 9,389,850	\$ 10,660,656	\$ (3,076,148)	\$ 1,412,897	\$ 1,270,806	\$ (392,445)	-27.83%	17.71%	13.53%	-3.55%
6th decile	1,419	\$ 10,162,251	\$ 7,281,962	\$ 8,731,904	\$ 9,999,634	\$ (2,880,289)	\$ 1,449,942	\$ 1,267,730	\$ (162,617)	-28.34%	19.91%	14.52%	-1.60%
7th decile	1,414	\$ 9,163,122	\$ 6,749,448	\$ 8,373,046	\$ 10,125,381	\$ (2,413,674)	\$ 1,623,598	\$ 1,752,334	\$ 962,259	-26.34%	24.06%	20.93%	10.50%
8th decile	1,430	\$ 6,692,737	\$ 5,011,051	\$ 6,307,952	\$ 7,588,977	\$ (1,681,686)	\$ 1,296,901	\$ 1,281,026	\$ 896,241	-25.13%	25.88%	20.31%	13.39%
9th decile	1,425	\$ 8,105,604	\$ 6,452,557	\$ 8,298,728	\$ 10,334,221	\$ (1,653,048)	\$ 1,846,172	\$ 2,035,493	\$ 2,228,617	-20.39%	28.61%	24.53%	27.49%
Top decile	1,427	\$ 3,164,340	\$ 2,374,336	\$ 3,408,682	\$ 4,580,311	\$ (790,004)	\$ 1,034,346	\$ 1,171,630	\$ 1,415,971	-24.97%	43.56%	34.37%	44.75%

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

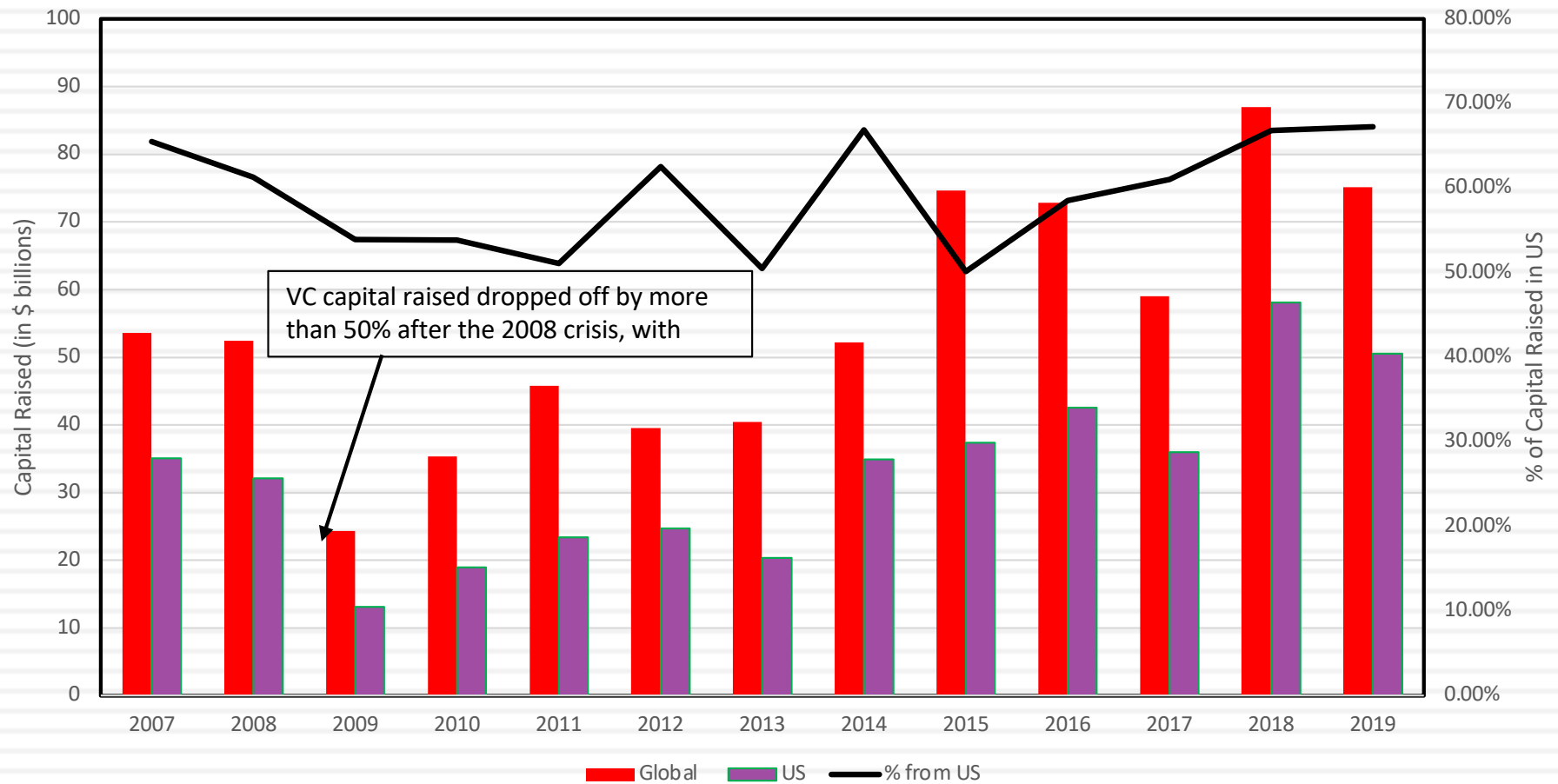




# A Unifying Theory: The Resilience of Risk Capital

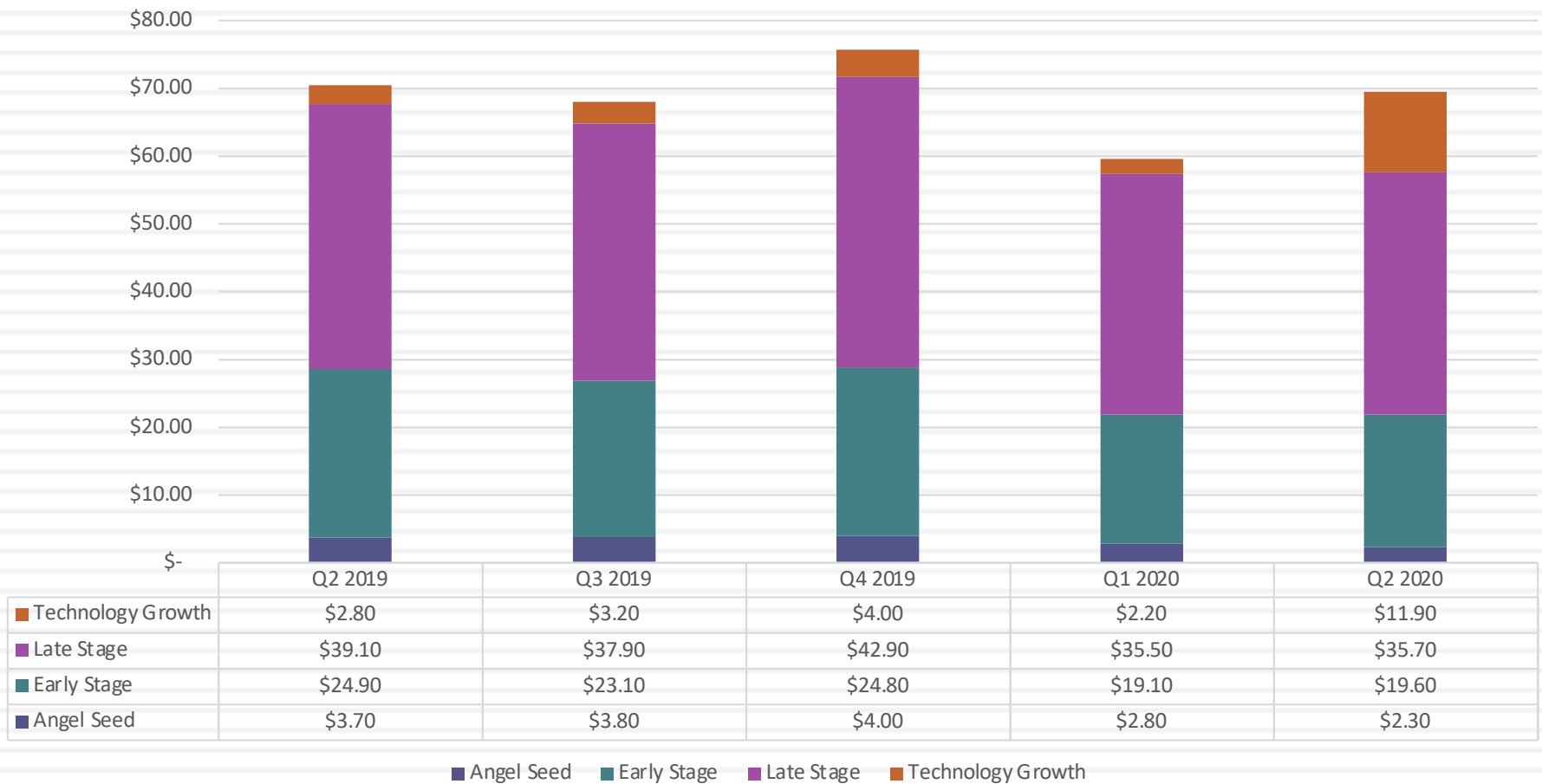
# Venture Capital: Historical Perspective

Capital Raised by Venture Capital: US and Global: 2007-2019

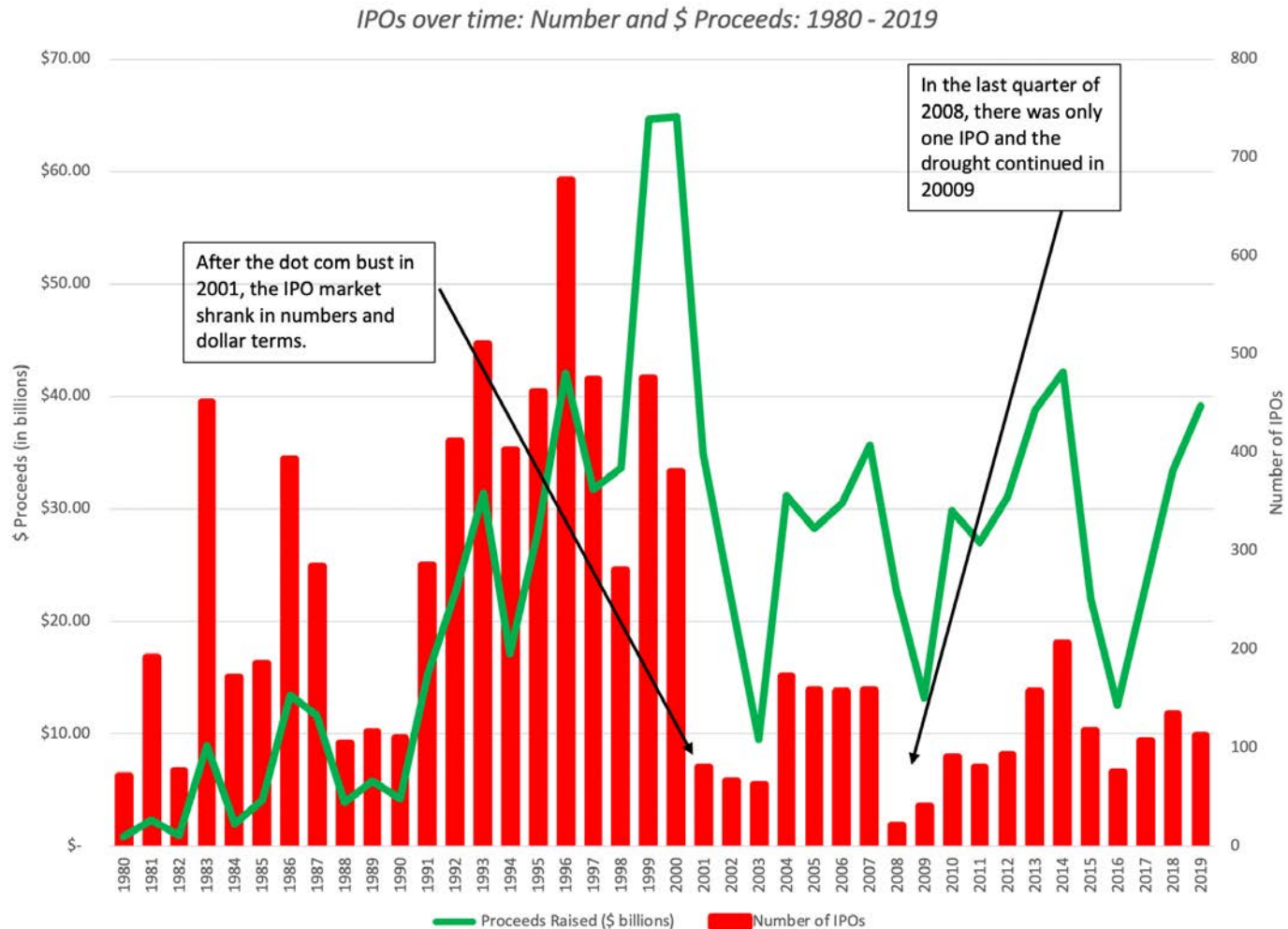


# Venture Capital: The COVID effect

VC Investing: By Type

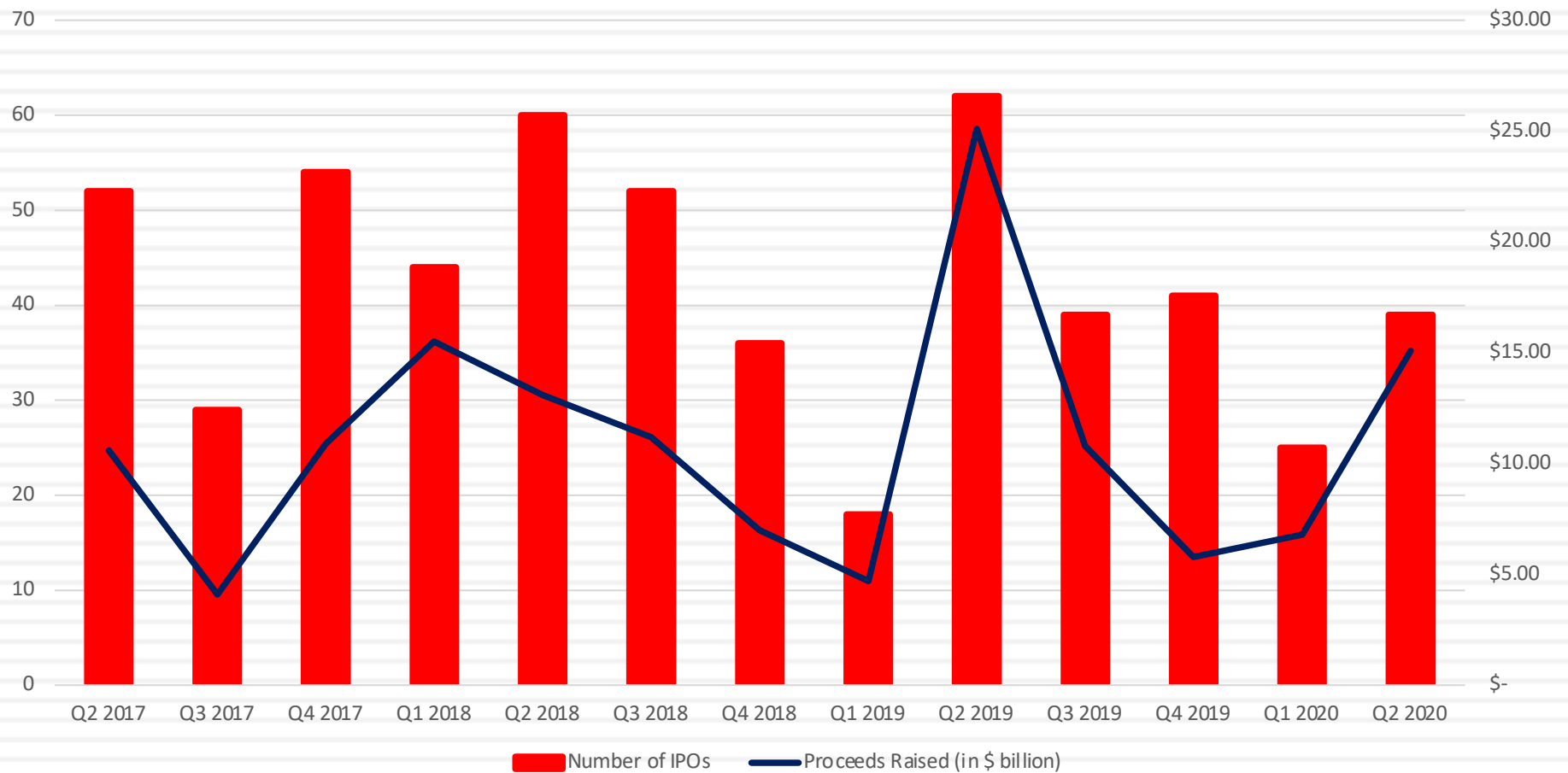


# IPOs: A Historical Perspective

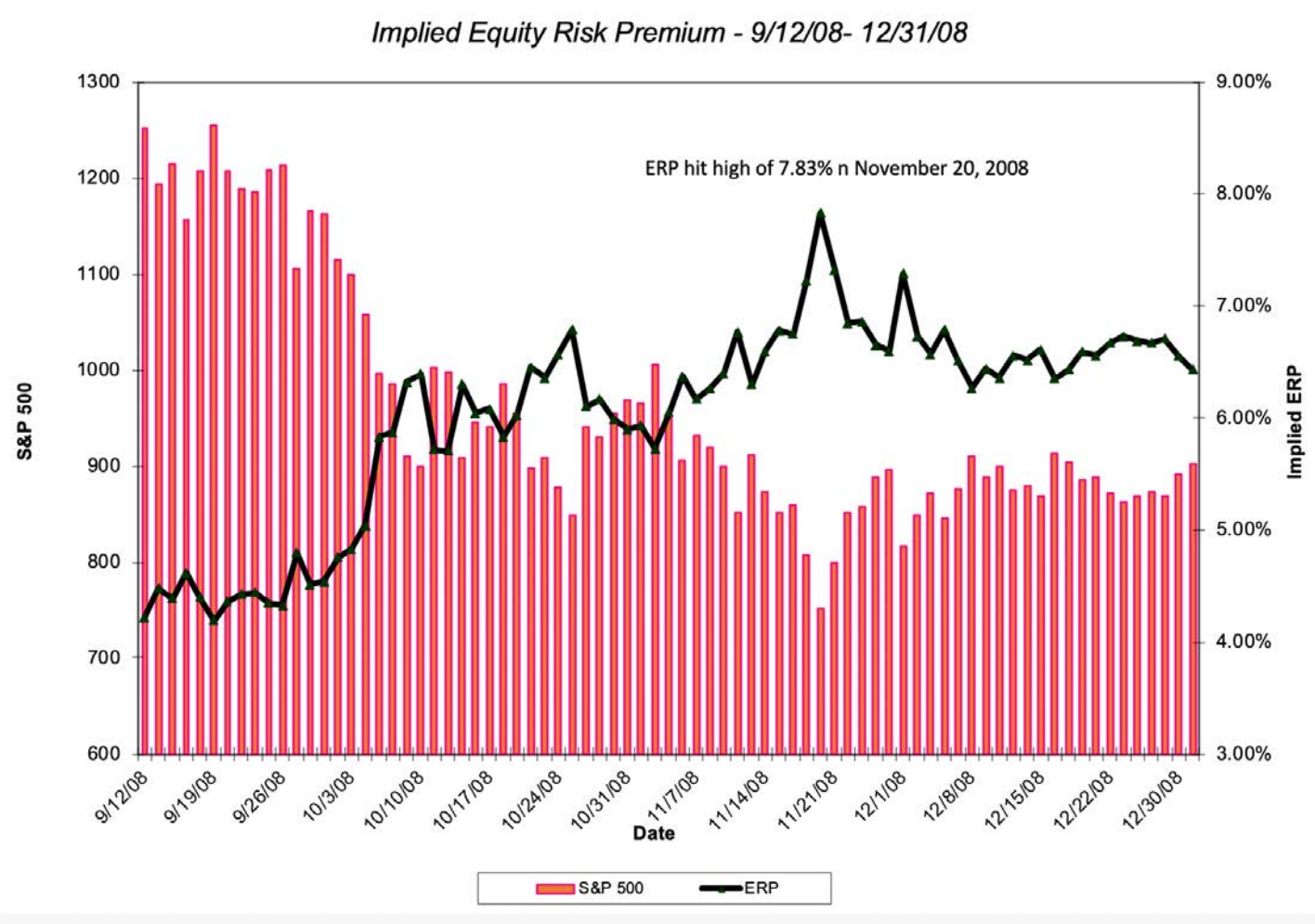


# IPOs: The COVID effect

IPOs by Quarter: Including COVID quarters

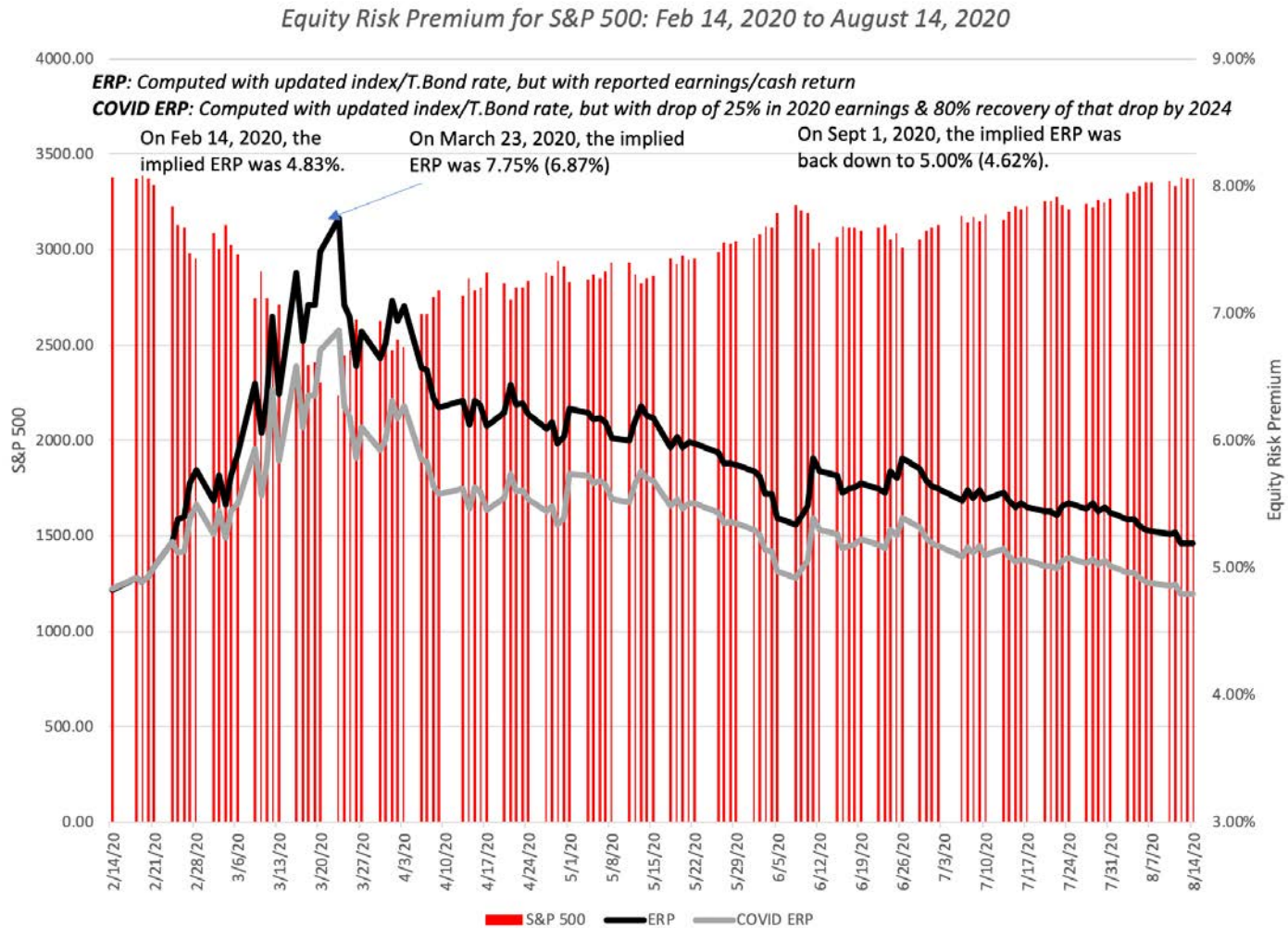


# The Price of Equity Risk: The 2008 Crisis





# 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%

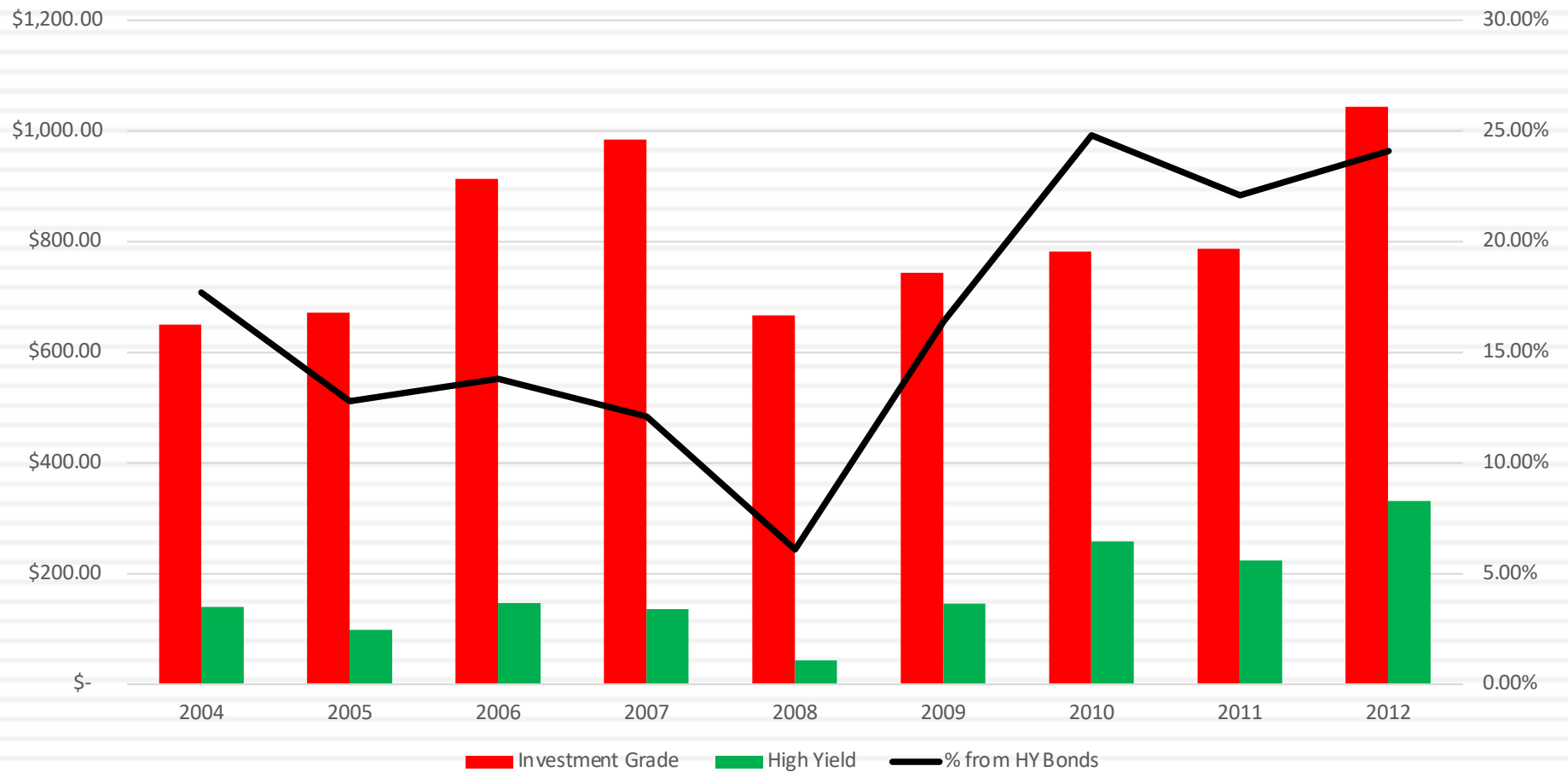
Bangladesh	8.75%	12.60%	10.52%
Cambodia	10.63%	16.08%	13.32%
China	5.89%	7.30%	6.26%
Fiji	8.75%	12.60%	10.52%
Hong Kong	5.69%	7.12%	6.12%
India	7.08%	9.49%	8.46%
Indonesia	7.08%	9.49%	8.03%
Japan	5.89%	7.30%	6.26%
Korea	5.69%	6.92%	5.96%
Laos	NA	8.21%	6.99%
Macao	5.80%	7.12%	6.12%
Malaysia	6.38%	8.21%	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

# Corporate Bond Issuance: The 2008 Crisis

Corporate Bond Issuances: The 2008 Crisis

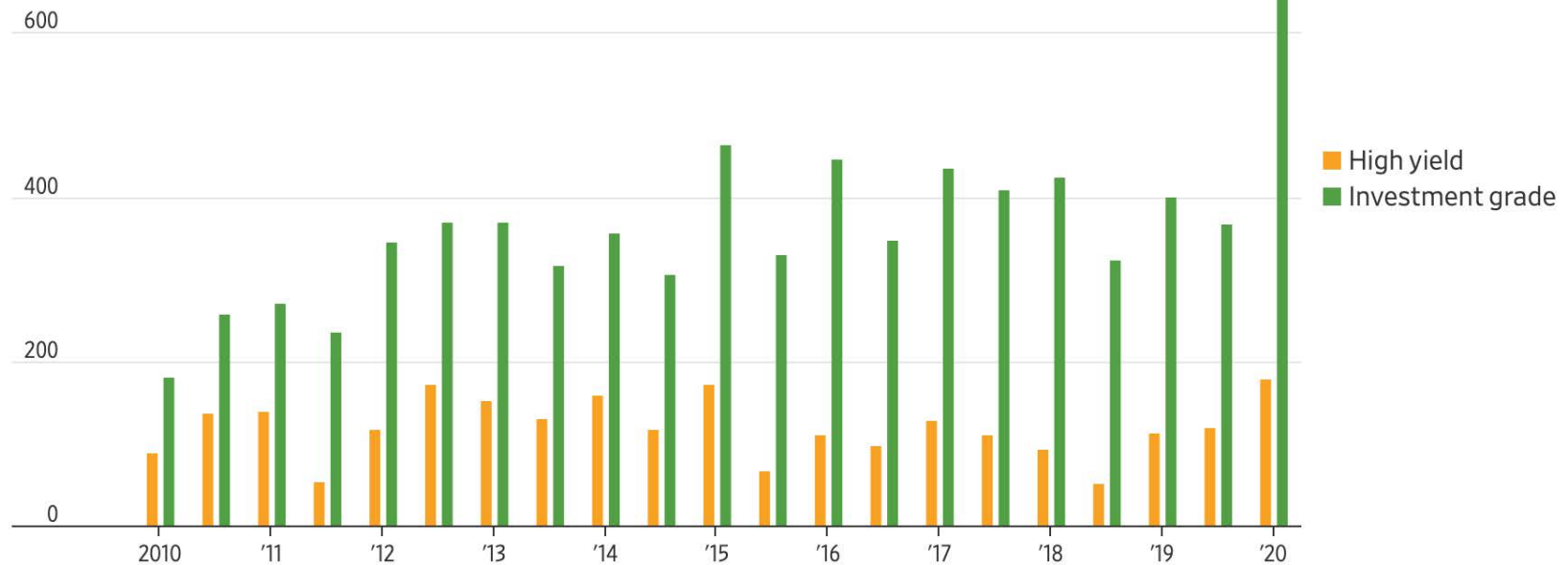


# Corporate Bond Issuance: The COVID effect

Corporate bond issuance\*

\$800 billion

*High yield bond issuances hit an all-time high in June 2020*

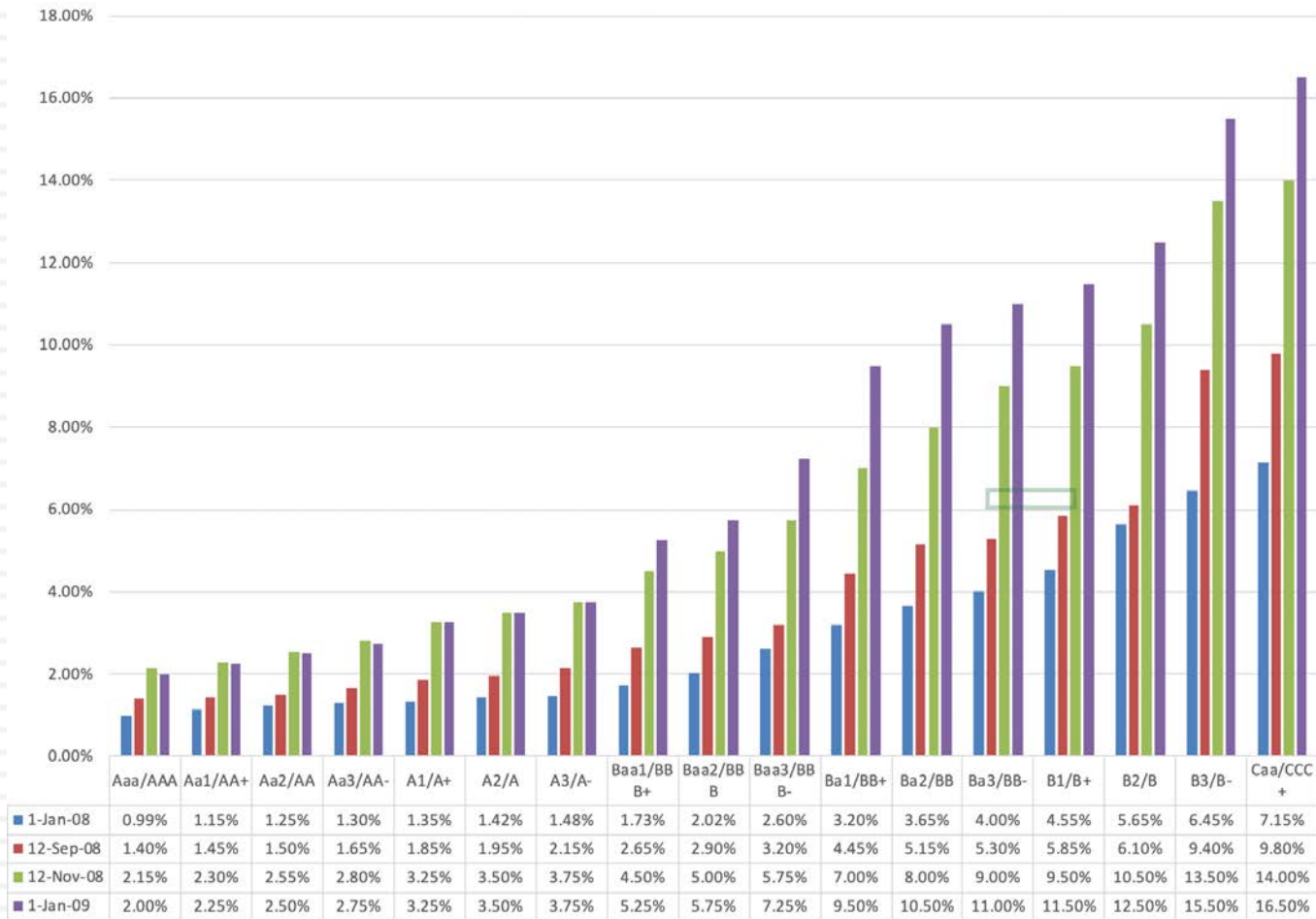


\*Deal value, half-year data

Source: Dealogic

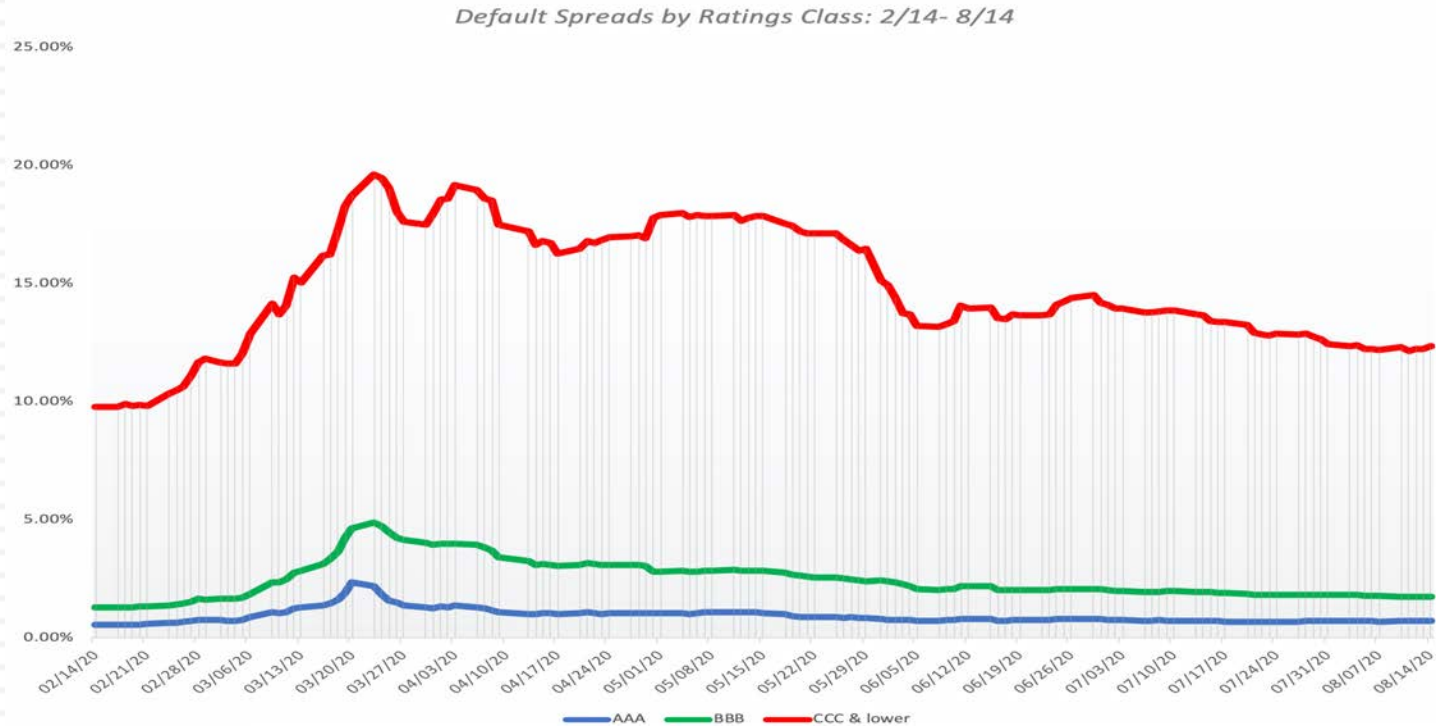
# The Price of Bond Market Risk: The 2008 Crisis

Default Spreads during the 2008 Crisis





# The Price of Bond Market Risk: The COVID effect

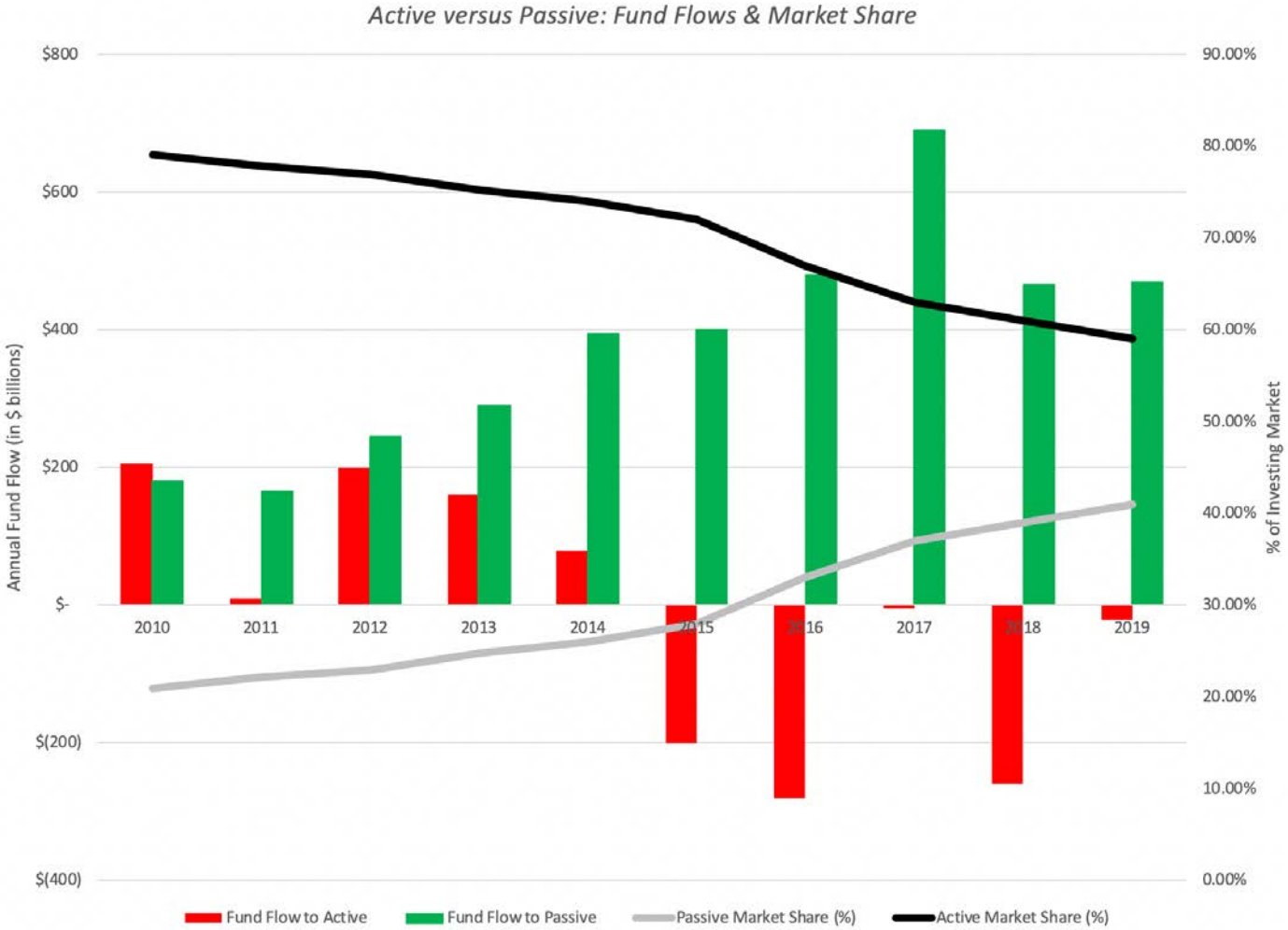


S&P Bond Rating	Yields and Spreads on Corporates						Change in default spread		
	Spread over 10-yr Treasury			Yield on Corporate			2/14-3/20	3/20-8/14	2/14 -8/14
	2/14/20	3/20/20	8/14/20	2/14/20	3/20/20	8/14/20			
AAA	0.69%	1.43%	0.74%	2.28%	2.35%	1.45%	0.74%	-0.69%	0.05%
AA	0.72%	2.64%	0.76%	2.31%	3.56%	1.47%	1.92%	-1.88%	0.04%
A	0.80%	3.15%	0.91%	2.39%	4.07%	1.62%	2.35%	-2.24%	0.11%
BBB	1.33%	3.73%	1.68%	2.92%	4.65%	2.39%	2.40%	-2.05%	0.35%
BB	1.93%	7.45%	3.42%	3.52%	8.37%	4.13%	5.52%	-4.03%	1.49%
B	3.40%	10.74%	5.11%	4.99%	11.66%	5.82%	7.34%	-5.63%	1.71%
CCC or lower	9.65%	17.81%	11.89%	11.24%	18.73%	12.60%	8.16%	-5.92%	2.24%



# The Humbling of Smart Money

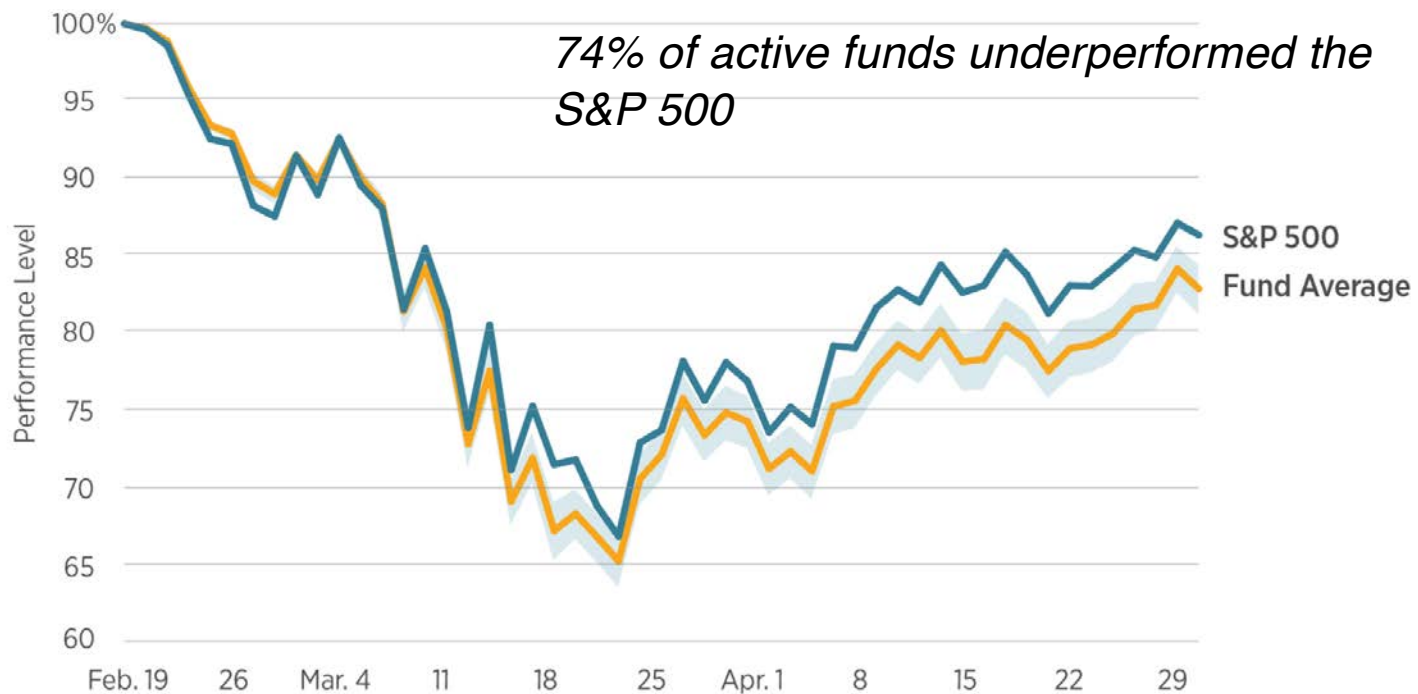
# The Lead In: Active versus Passive





# The Crisis Test: Active Mutual Funds

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

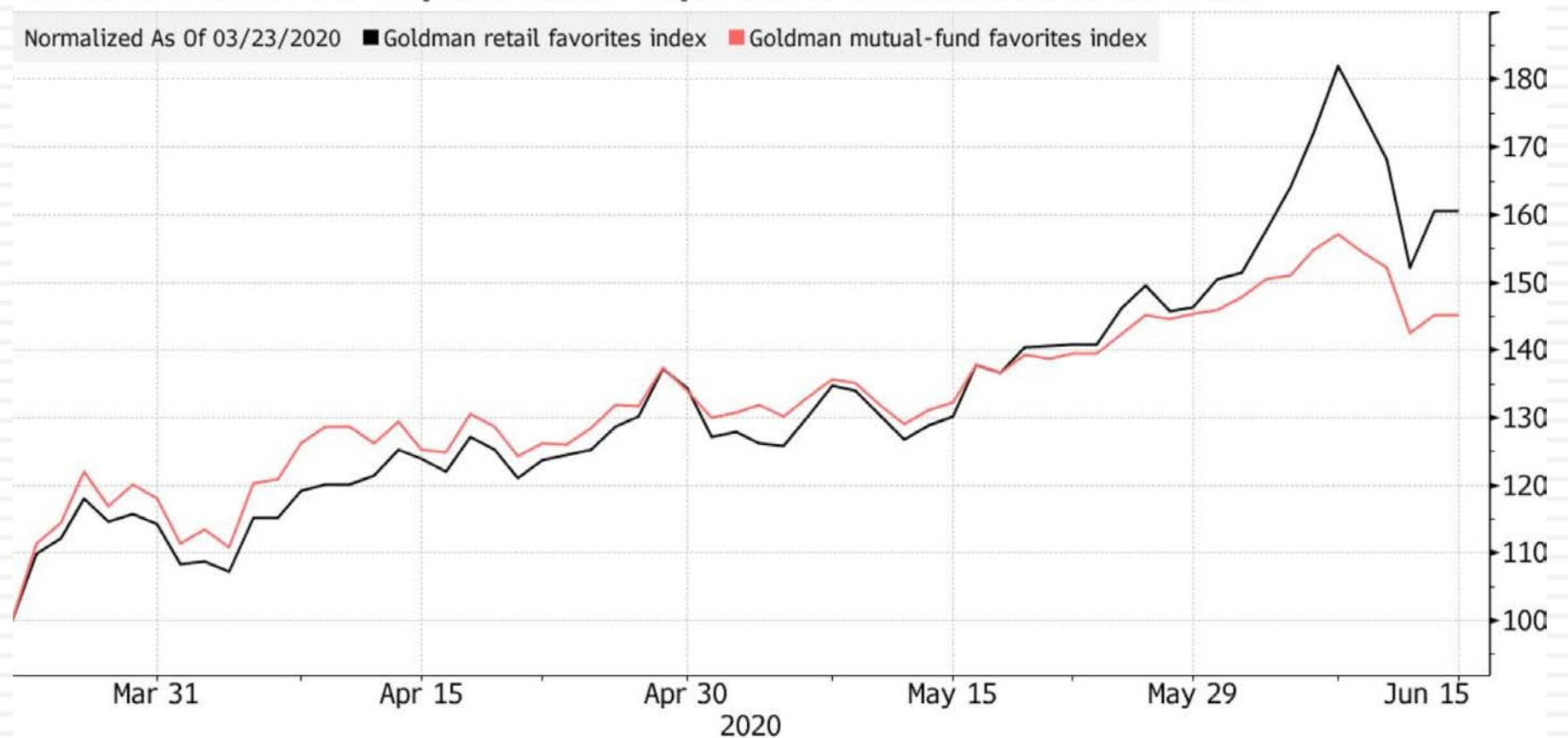


Notes: The figure plots the performance of the average equity mutual fund against the S&P 500 from February 20 to April 30, 2020. Both price indices are initialized at 100 on February 19, 2020 and are computed by compounding daily returns. The shaded blue area represents 95% confidence intervals.

# 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



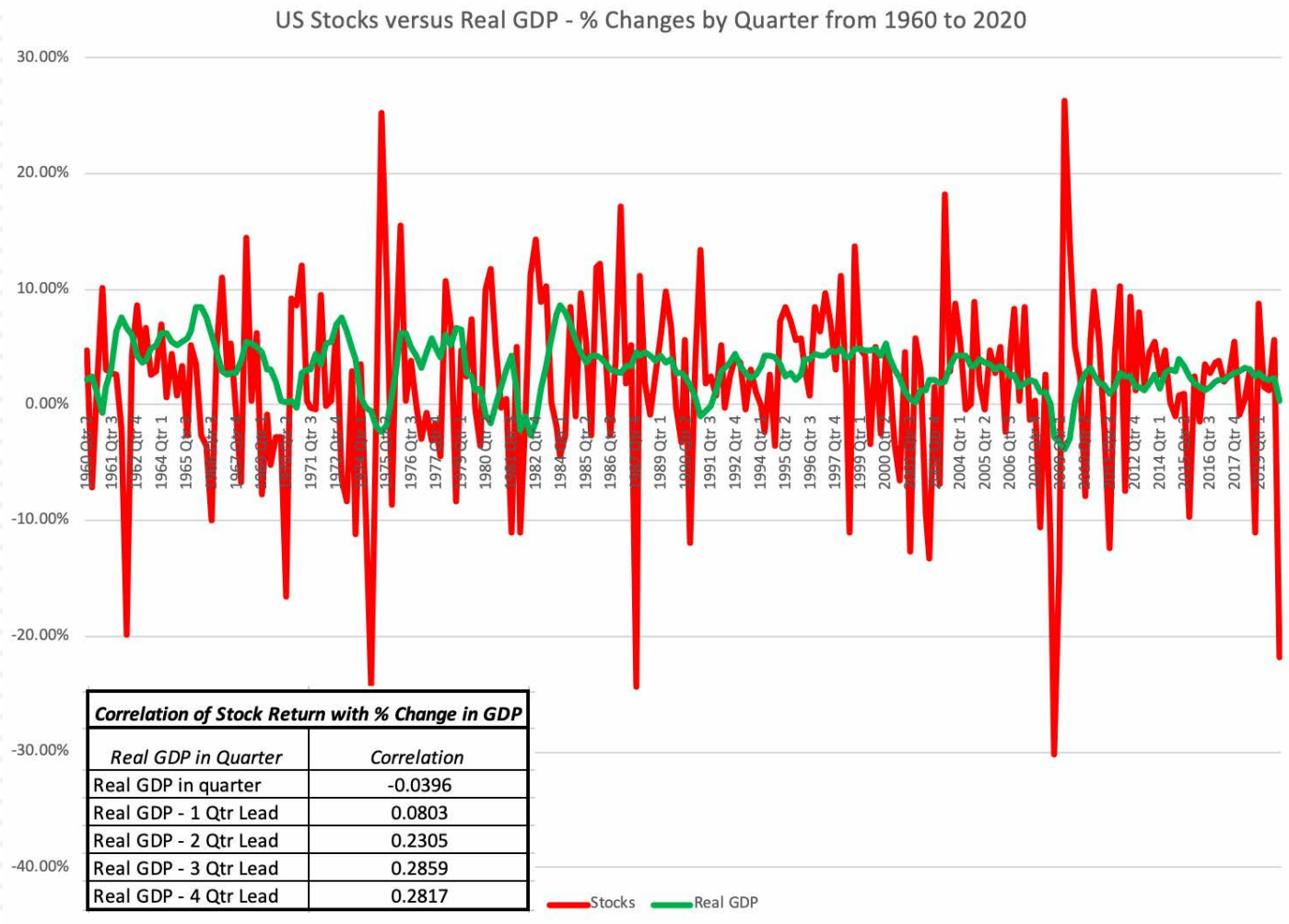
# The Robinhood Phenomenon



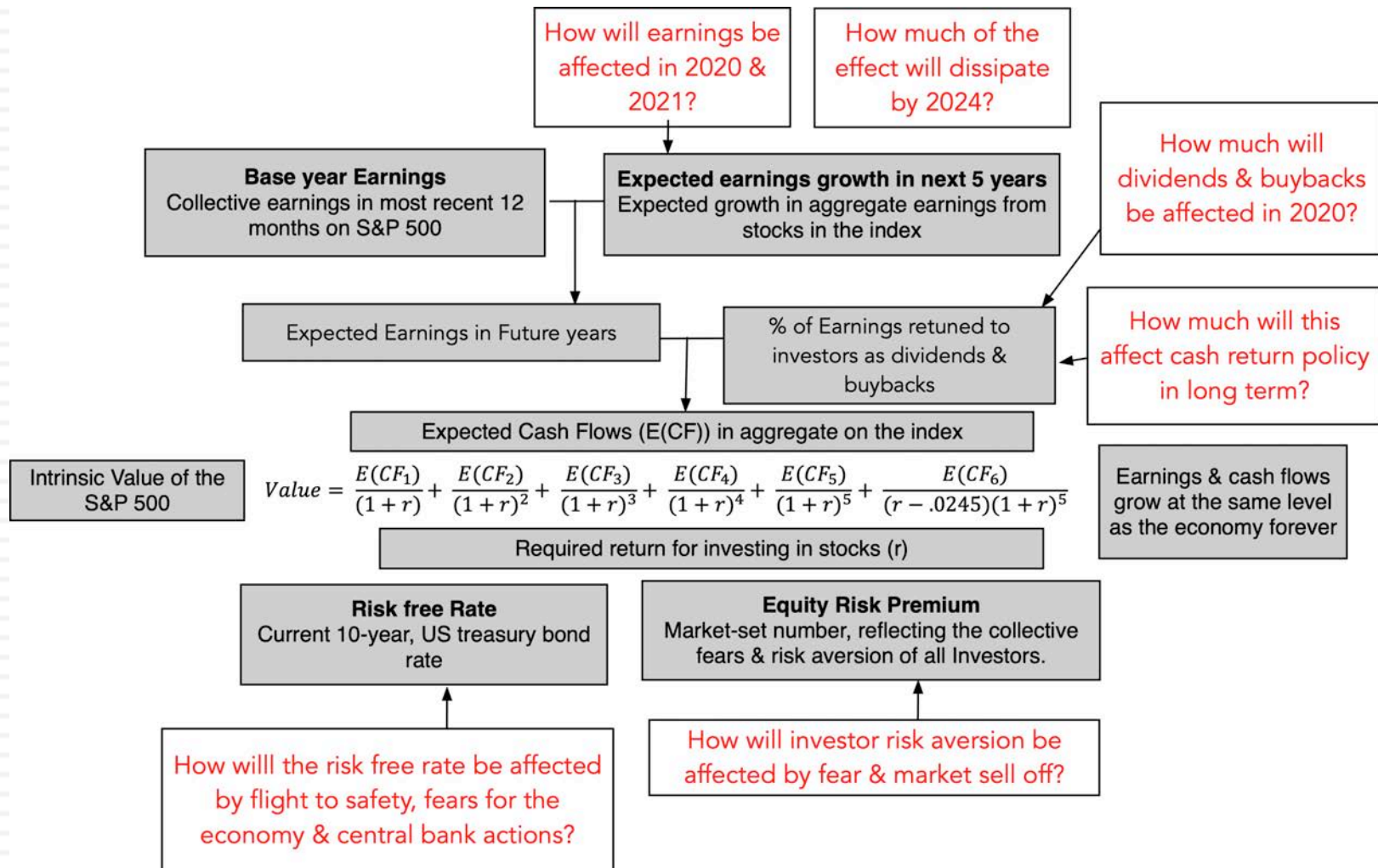


# Crazy like a fox? Market Assessments

# Markets vs the Economy: Explaining the disconnect...



# Value Drivers for the Index





# 1. Earnings

Ed Yardeni (6/1/20)		Analyst Consensus (6/1/20)		Thomson Reuters (6/1/20)	
Year	Earnings on Index	Year	Earnings on Index	Year	Earnings on Index
2019	163	2019	162.97	2019	162.93
2020	120	2020	125.79	2020	125.22
2021	150	2021	164.04	2021	163.67

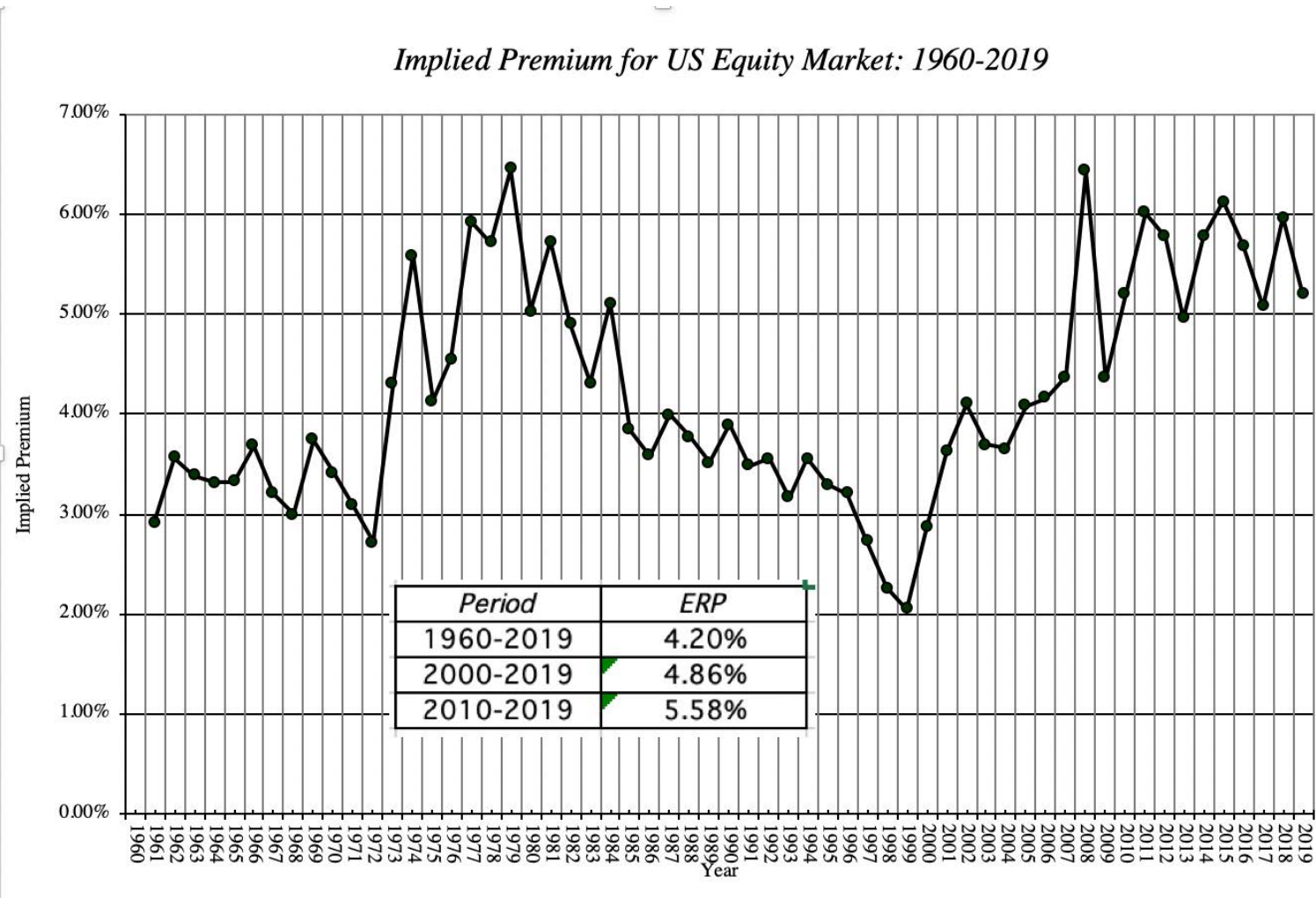
Market Strategists Forecasts for S&P 500 Earnings in 2020		
Firm	Strategist	2020 EPS Estimate
Bank of America Merrill Lynch	Savita Subramanian	\$115.00
Barclays	Maneesh Deshpande	\$119.00
BMO	Brian Belski	Suspended
BTIG	Julian Emanuel	\$127.00
Canaccord Genuity	Tony Dwyer	\$128.00
CFRA	Sam Stovall	\$162.37
Citigroup	Tobias Levkovich	\$125.00
Credit Suisse	Jonathan Golub	\$125.00
Deutsche Bank	Binky Chadha	\$133.00
Goldman Sachs	David Kostin	\$110.00
JPMorgan Chase	Dubravko Lakos-Bujas	\$150.00
Morgan Stanley	Mike Wilson	\$130.00
Oppenheimer	John Stoltzfus	Suspended
RBC	Lori Calvasina	\$135.00
UBS	Francois Trahan	\$140.00
Wells Fargo Investment Institute	Darrell Cronk	\$115.00
<b>Average</b>		<b>\$129.60</b>
<b>Median</b>		<b>\$127.50</b>
<b>High</b>		<b>\$162.37</b>
<b>Low</b>		<b>\$110.00</b>



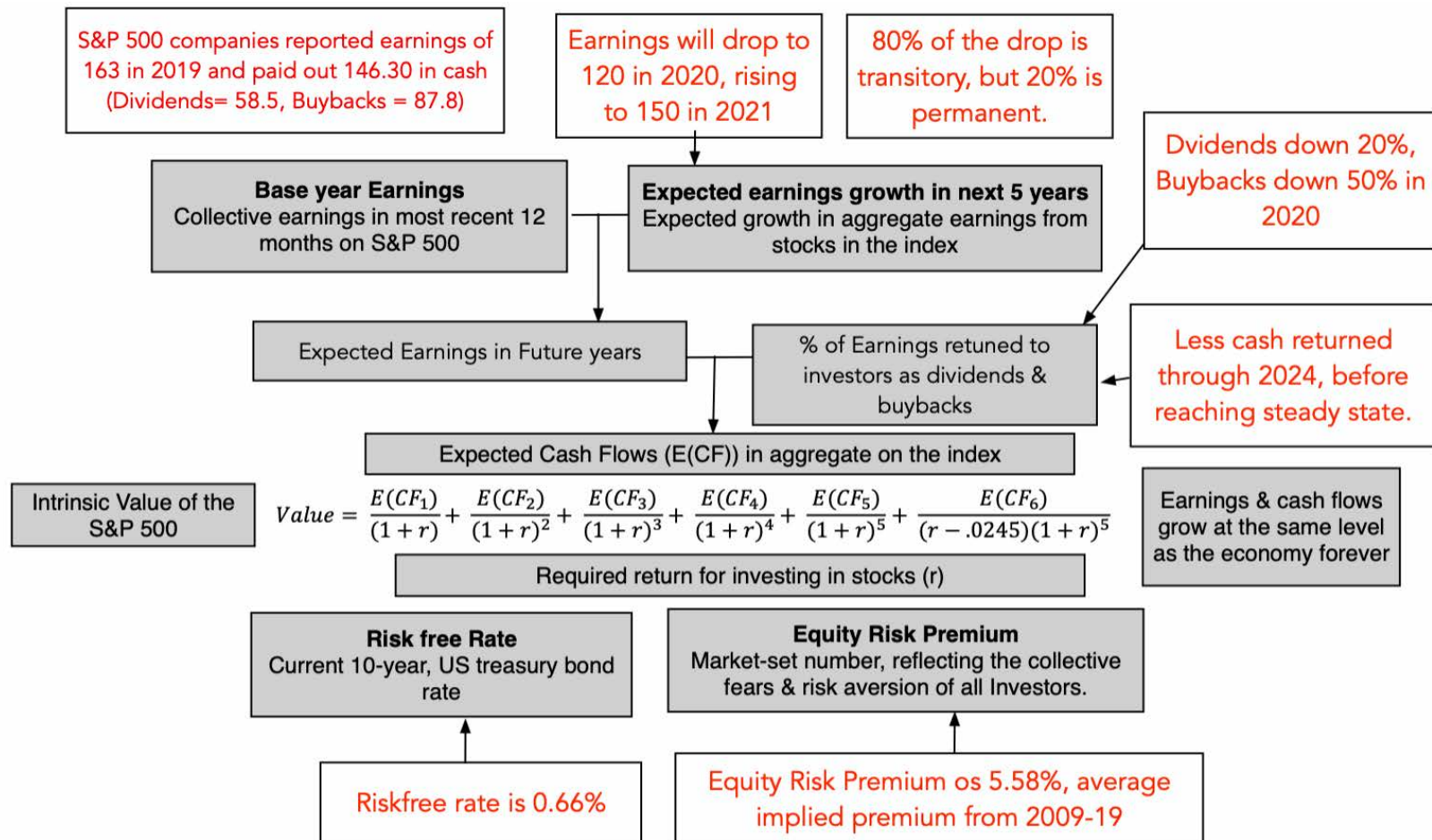
## 2. Cash Flows

Year	S&P 500				Cash Returned as % of Earnings	Cash Returned as % of Market Cap
	Market value	Earnings	Dividends	Buybacks		
2001	1148.09	38.85	15.74	14.34	77.43%	2.62%
2002	879.82	46.04	15.96	13.87	64.78%	3.39%
2003	1111.91	54.69	17.88	13.70	57.74%	2.84%
2004	1211.92	67.68	19.01	21.59	59.99%	3.35%
2005	1248.29	76.45	22.34	38.82	80.01%	4.90%
2006	1418.30	87.72	25.04	48.12	83.40%	5.16%
2007	1468.36	82.54	28.14	67.22	115.53%	6.49%
2008	903.25	49.51	28.45	39.07	136.37%	7.47%
2009	1115.00	56.86	21.97	15.46	65.82%	3.36%
2010	1257.64	83.77	22.65	32.88	66.28%	4.42%
2011	1257.60	96.44	26.53	44.75	73.91%	5.67%
2012	1426.19	96.82	31.25	44.65	78.39%	5.32%
2013	1848.36	104.92	34.90	53.23	84.00%	4.77%
2014	2058.90	116.16	39.55	62.44	87.79%	4.95%
2015	2043.94	100.48	43.41	64.94	107.83%	5.30%
2016	2238.82	106.26	45.70	62.32	101.66%	4.82%
2017	2673.61	124.51	48.93	60.85	88.17%	4.11%
2018	2506.85	152.78	54.39	96.11	98.51%	6.00%
2019	3230.78	163.00	58.50	87.81	89.76%	4.53%
				Median	83.40%	4.82%
				High	136.37%	7.47%
				Low	57.74%	2.84%

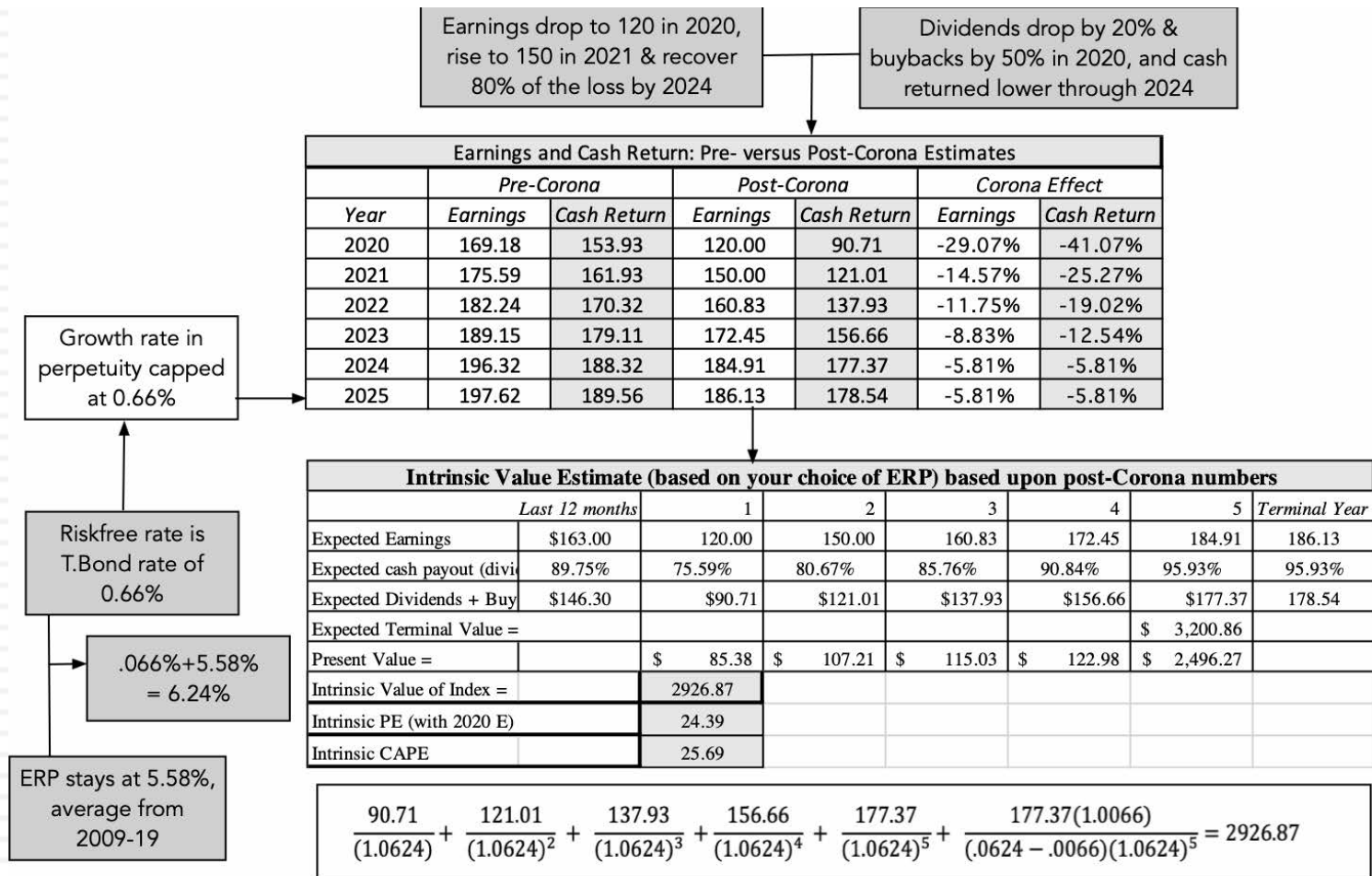
# 3. Equity Risk Pricing



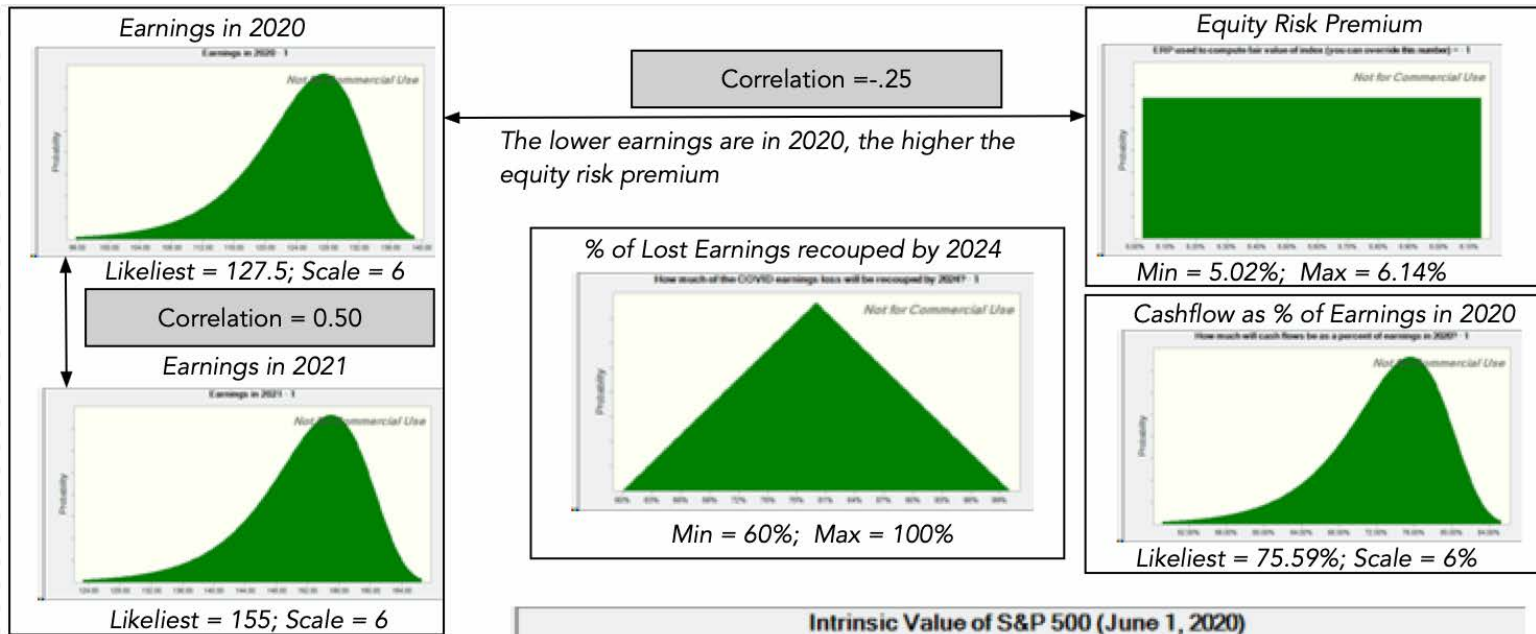
# My Story for the Market



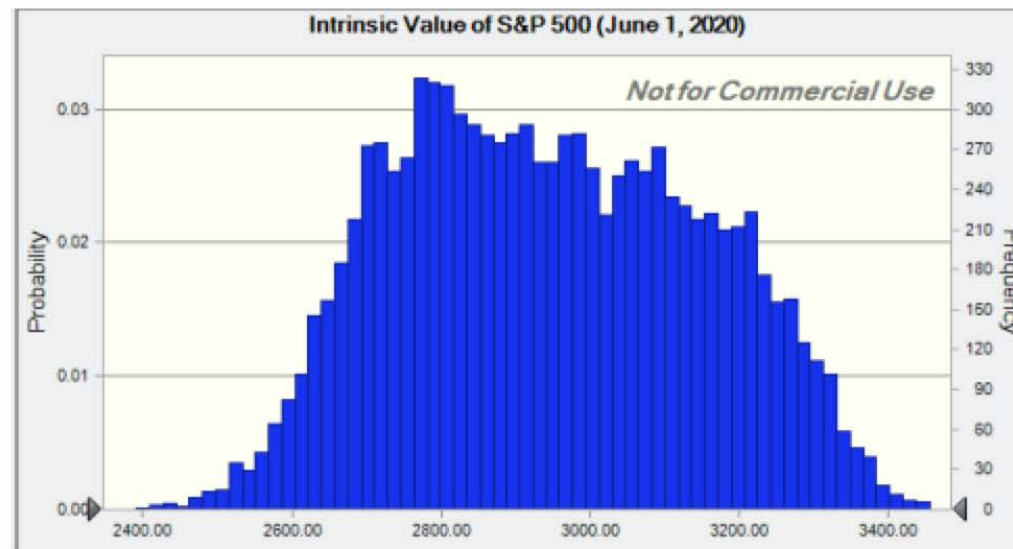
# My Valuation of the Index



# Facing up to uncertainty



Percentile	Forecast values
0%	2277.04
10%	2685.17
20%	2752.07
30%	2809.79
40%	2870.31
50%	2932.91
60%	2999.98
70%	3072.14
80%	3144.45
90%	3226.31
100%	3455.33

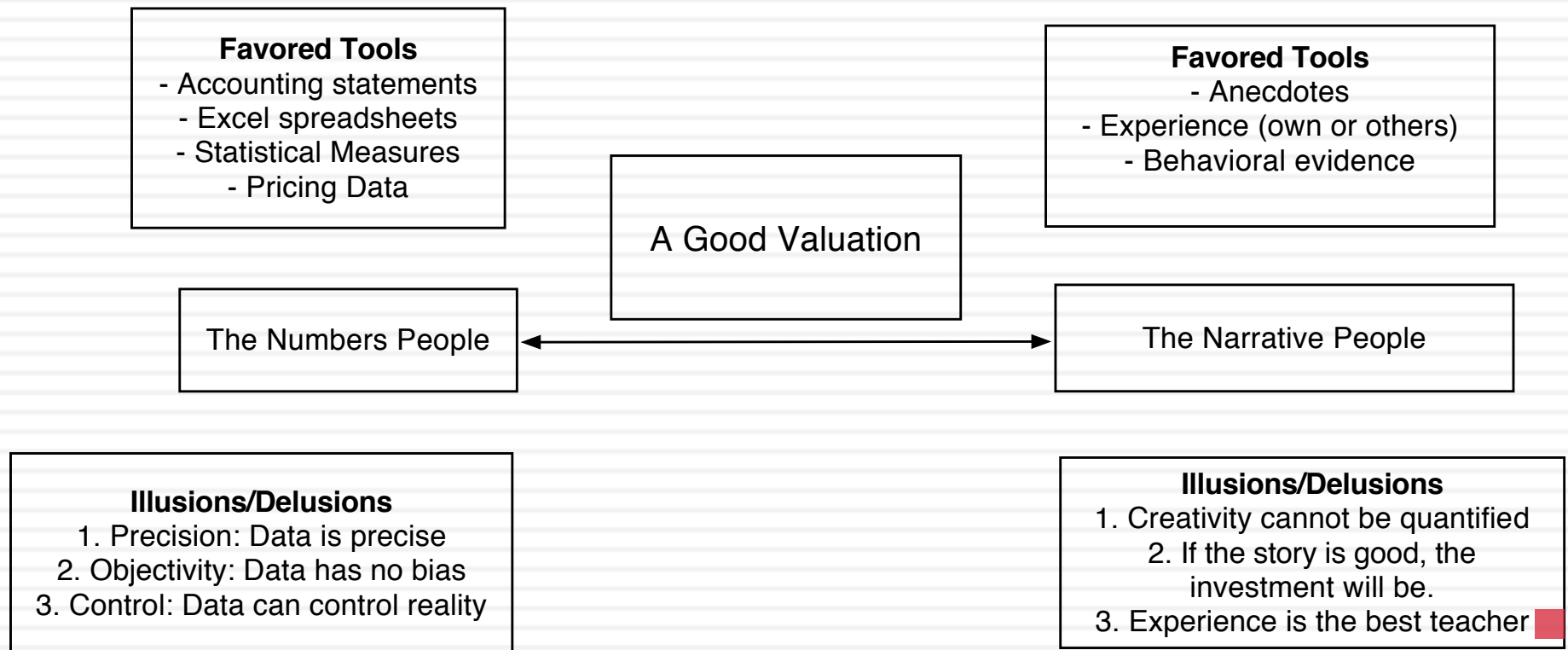




# Company Valuation: Tell your story



# Lesson 5: Stories + Numbers





## 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*

	Base year	Years 1-5	Years 6-10		After year 10	Link to story
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

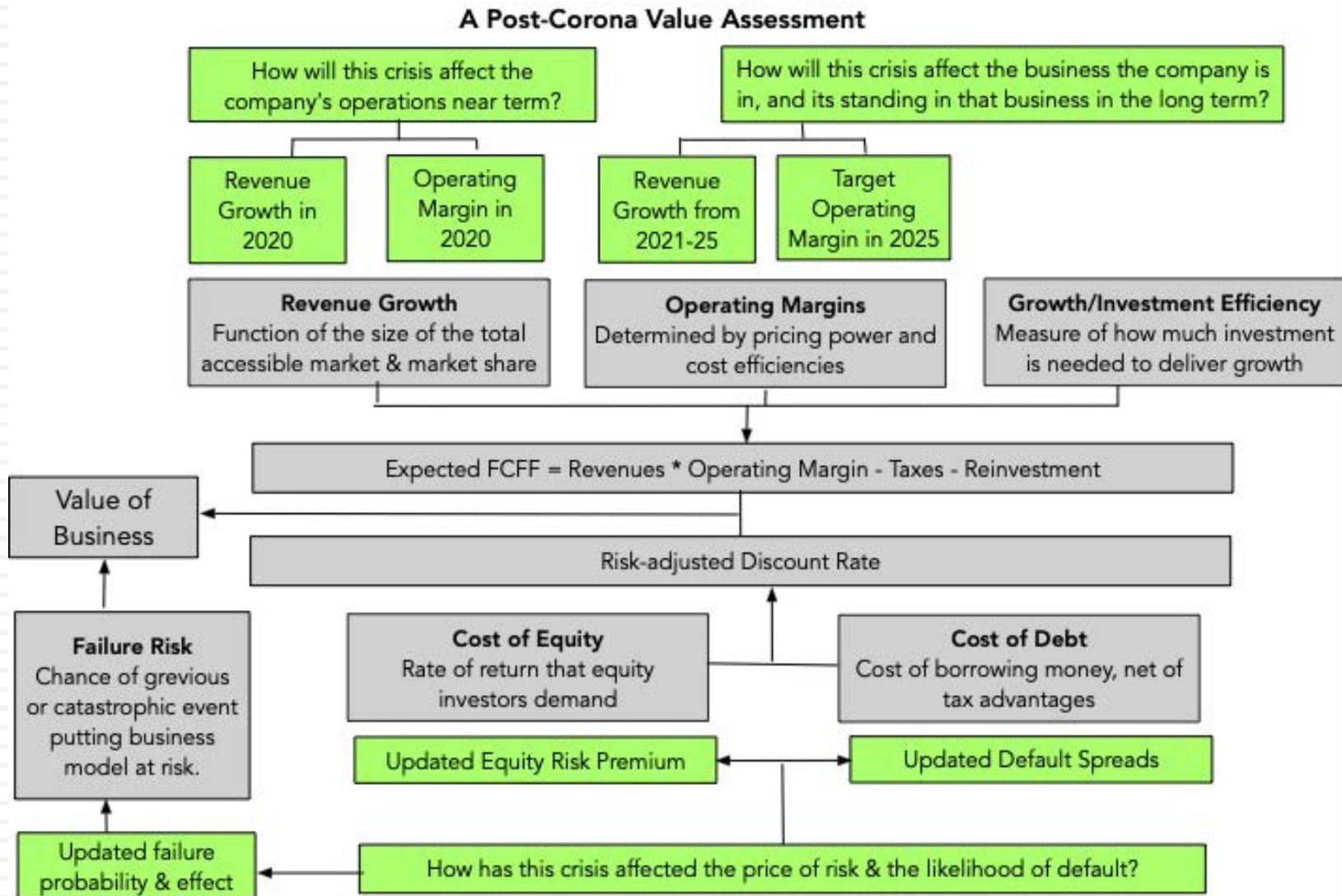
### *The Cash Flows*

	Revenues	Operating Margin	EBIT	EBIT (1-t)	Reinvestment	FCFF
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 & Mnority 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

# 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 & Mnority 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



Company	Base Year Numbers	Valuation Story	Valuation Inputs	Value per Share (Simulation)		Pricing per share	
Facebook	Revenues = \$75 B	<b>User Base pays off:</b> 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	<b>Disruption Platform rolls on:</b> 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	<b>Streaming Player:</b> 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	<b>More than a Search Engine:</b> 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	<b>Cash Machine revs up:</b> 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	<b>Old company Reborn:</b> 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%