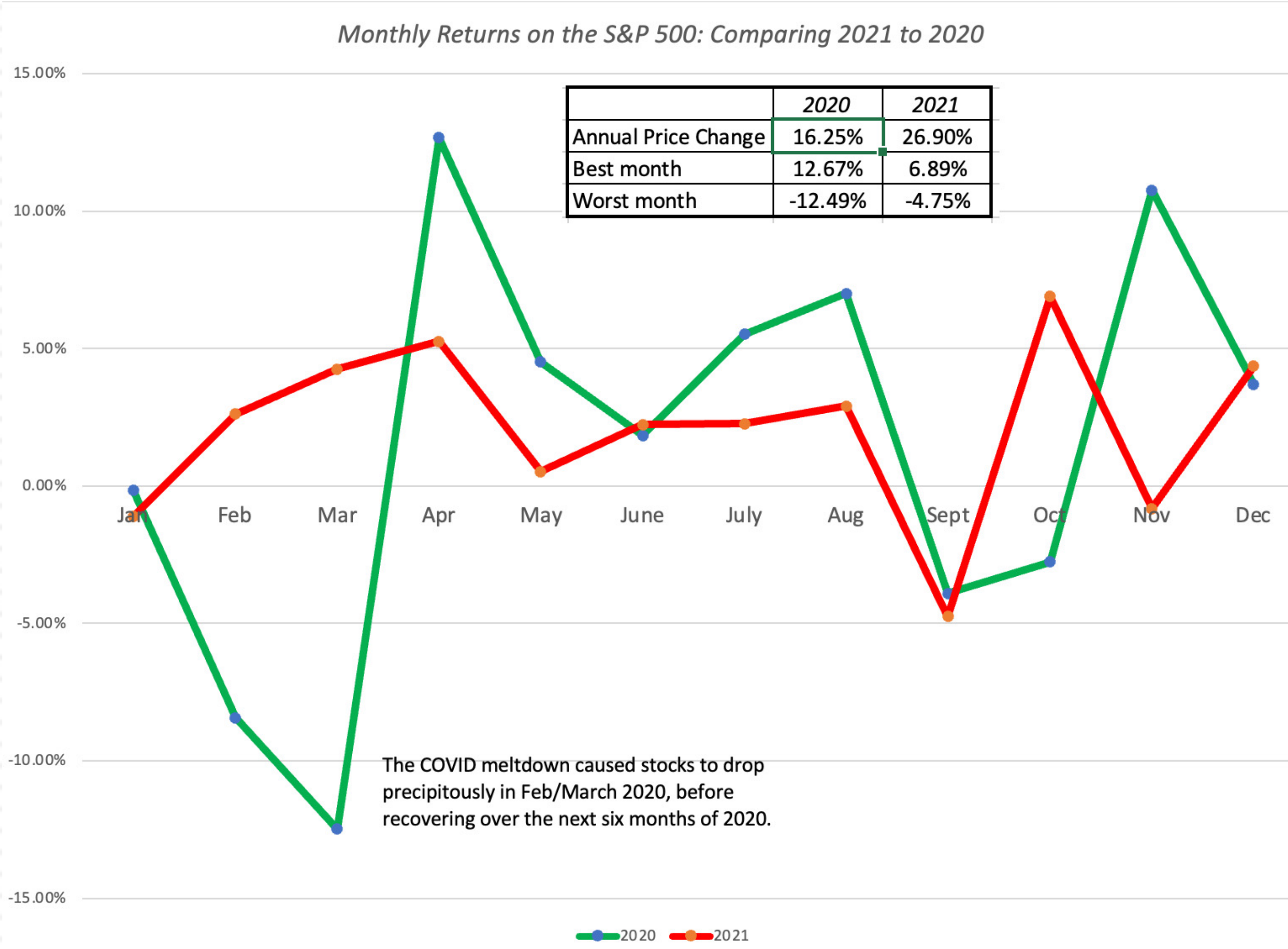
DATA UPDATE 2 FOR 2022: A WINNING YEAR FOR STOCKS, BUT…

Looking back and forward…

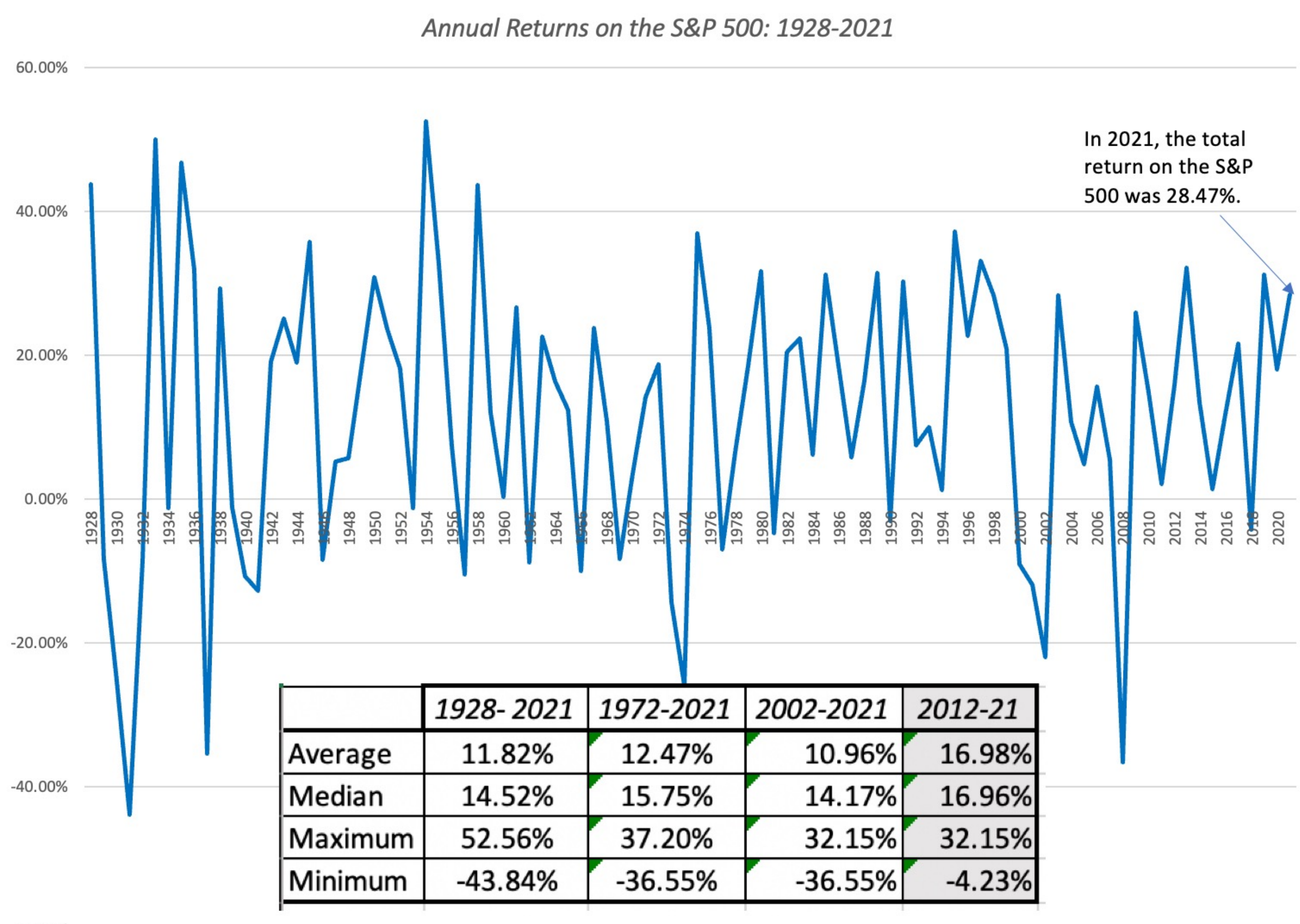
Déjà vu!

- Leading into 2021, the big questions facing investors were about how quickly economies would recover from COVID, with the assumption that the virus would fade during the year, and the pressures that the resulting growth would put on inflation.
- In a post at the start of 2021, I argued that while stocks entered the year at elevated levels, especially on historic metrics (such as PE ratios), they were priced to deliver reasonable returns, relative to very low risk free rates (with the treasury bond rate at 0.93% at the start of 2021).
- At the start of 2022, it feels like Groundhog Day, with the same questions about economic growth and inflation looming for the year, and the same judgment about stocks, i.e., that they look expensive.

The Year that was.. For the market



Putting in historical context…



	1928- 2021	*1972-2021*	*2002-2021*	*2012-21*
Average	11.82%	12.47%	10.96%	16.98%
Median	14.52%	15.75%	14.17%	16.96%
Maximum	52.56%	37.20%	32.15%	32.15%
Minimum	-43.84%	-36.55%	-36.55%	-4.23%

Ranking 2021…

- Looking at the 94 years in this dataset, the returns in 2021 would have ranked 20th on the list, good, but not exceptional.

	Returns in the last			
	One-year	*Three-year*	*Five-year*	*Ten-year*
In 2021	*28.47%*	*98.95%*	*131.70%*	*356.47%*
Ranking (Best to Worst)	20	8	12	16
Number of periods	94	92	90	85

US Stocks: By sector

		Market Capitalization ($ millions)			% Change in Market Capitalization	
Sector	*Number of firms*	*12/31/19*	*12/31/20*	*12/31/21*	*In 2020*	*In 2021*
Communication Services	417	$ 3,371,773	$ 4,351,405	$ 5,079,818	29.05%	16.74%
Consumer Discretionary	733	$ 3,472,065	$ 5,583,897	$ 6,692,070	60.82%	19.85%
Consumer Staples	384	$ 2,454,394	$ 2,692,216	$ 3,047,027	9.69%	13.18%
Energy	453	$ 1,460,595	$ 968,963	$ 1,492,319	-33.66%	54.01%
Financials	1,240	$ 4,571,783	$ 4,465,770	$ 5,745,257	-2.32%	28.65%
Health Care	1,375	$ 4,348,829	$ 5,427,405	$ 6,440,358	24.80%	18.66%
Industrials	894	$ 3,127,559	$ 3,616,175	$ 4,220,043	15.62%	16.70%
Information Technology	1,006	$ 7,352,744	$10,965,094	$13,969,679	49.13%	27.40%
Materials	421	$ 821,552	$ 980,263	$ 1,221,080	19.32%	24.57%
Real Estate	273	$ 1,272,764	$ 1,278,390	$ 1,796,554	0.44%	40.53%
Utilities	117	$ 1,053,377	$ 1,045,855	$ 1,204,766	-0.71%	15.19%
All firms	7,316	$33,307,436	$41,375,445	$50,908,972	24.22%	23.04%

US Stocks: By PE Ratio Classes

		Market Capitalization ($ millions)			% Change in Market Capitalization	
PE Class	*Number of firms*	*12/31/19*	*12/31/20*	*12/31/21*	*In 2020*	*In 2021*
Bottom decile	230	$ 418,053	$ 387,192	$ 452,785	-7.38%	16.94%
2nd decile	231	$ 893,706	$ 802,320	$ 990,789	-10.23%	23.49%
3rd decile	230	$ 932,149	$ 876,238	$ 1,119,442	-6.00%	27.76%
4th decile	231	$ 3,193,657	$ 2,996,064	$ 3,609,221	-6.19%	20.47%
5th decile	231	$ 2,605,523	$ 2,594,516	$ 3,104,293	-0.42%	19.65%
6th decile	230	$ 3,815,575	$ 4,336,792	$ 5,328,326	13.66%	22.86%
7th decile	231	$ 5,396,983	$ 6,534,809	$ 8,528,164	21.08%	30.50%
8th decile	230	$ 5,226,996	$ 7,188,258	$ 9,559,883	37.52%	32.99%
9th decile	231	$ 3,693,927	$ 4,877,702	$ 6,203,579	32.05%	27.18%
Top decile	231	$ 2,502,625	$ 4,574,900	$ 5,242,755	82.80%	14.60%
Money Losing	5,010	$ 4,628,243	$ 6,206,654	$ 6,769,736	34.10%	9.07%

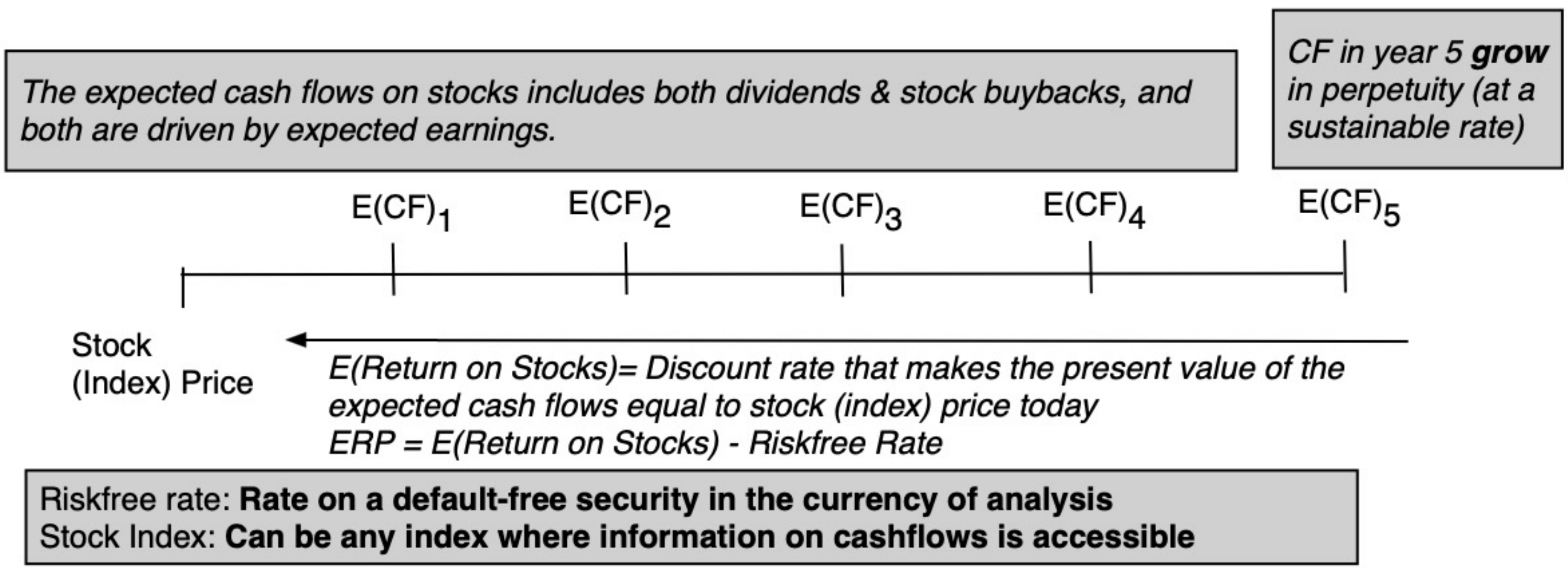
US Stocks: By Age

		Market Capitalization ($ millions)			% Change in Market Capitalization	
Corporate Age (Young to Old)	*Number of firms*	*12/31/19*	*12/31/20*	*12/31/21*	*In 2020*	*In 2021*
Bottom decile	585	$ 506,952	$ 872,286	$ 993,217	72.06%	13.86%
2nd decile	655	$ 723,377	$ 1,694,089	$ 1,776,659	134.19%	4.87%
3rd decile	526	$ 377,491	$ 788,284	$ 851,816	108.82%	8.06%
4th decile	698	$ 1,362,530	$ 2,603,414	$ 3,283,164	91.07%	26.11%
5th decile	601	$ 3,375,864	$ 4,230,196	$ 5,465,342	25.31%	29.20%
6th decile	723	$ 2,732,565	$ 4,034,106	$ 4,897,469	47.63%	21.40%
7th decile	615	$ 2,966,080	$ 3,418,719	$ 3,990,162	15.26%	16.72%
8th decile	673	$ 7,152,171	$ 9,222,158	$12,147,815	28.94%	31.72%
9th decile	641	$ 5,195,789	$ 5,812,955	$ 6,942,868	11.88%	19.44%
Top decile	642	$ 8,221,621	$ 7,947,369	$ 9,743,187	-3.34%	22.60%

Beyond the US: Geographical Breakdown

Geographical Region		*Market Capitalization ($ millions)*			*% Change in Market Capitalization*	
	Number of firms	*12/31/19*	*12/31/20*	*12/31/21*	*In 2020*	*In 2021*
Africa and Middle East	2,276	$ 3,855,110	$ 3,937,324	$ 4,478,410	2.13%	13.74%
Australia & NZ	1,658	$ 1,533,367	$ 1,803,838	$ 1,964,298	17.64%	8.90%
Canada	2,661	$ 2,134,729	$ 2,408,249	$ 3,002,497	12.81%	24.68%
China	4,472	$10,705,565	$ 14,268,604	$ 15,527,222	33.28%	8.82%
EU & Environs	5,473	$13,153,755	$ 15,038,253	$ 17,216,882	14.33%	14.49%
Eastern Europe & Russia	547	$ 843,766	$ 750,561	$ 927,962	-11.05%	23.64%
India	3,982	$ 2,158,412	$ 2,572,679	$ 3,437,723	19.19%	33.62%
Japan	3,809	$ 5,988,315	$ 6,655,012	$ 6,494,475	11.13%	-2.41%
Latin America & Caribbean	3,615	$ 5,925,622	$ 7,613,336	$ 6,066,944	28.48%	-20.31%
Small Asia	8,911	$ 5,137,105	$ 6,267,588	$ 6,812,312	22.01%	8.69%
UK	1,164	$ 3,160,925	$ 2,959,304	$ 3,383,029	-6.38%	14.32%
United States	7,316	$33,307,436	$ 41,375,445	$ 50,908,972	24.22%	23.04%
Global	45,917	$87,909,681	$ 105,685,073	$ 120,260,482	20.22%	13.79%

The Price of Risk in Equity Markets



ERP on January 1, 2022

In 2021, earnings recovered almost entirely from the 2020 collapse and dividends & buybacks surged as well.

Base year cash flow (last 12 mths)
Dividends (TTM): 59.20
+ Buybacks (TTM): 88.05
= Cash to investors (TTM): **147.24**

Expected earnings/cashflow growth in next 5 years
Analysts were on target in 2021, with estimated earnings of 206.38 for the year. They were projecting compunded annual growth rate of 6.47% a year for next five years.

Modified Payout
This computation assumes that the payout ratio stays constant over time. If you assume that it changes to a sustainable level (given stable growth & ROE), the implied ERP = 4.90%

Actual numbers

Forecasted numbers

	2019	2020	*LTM*	*2021E*	1	2	3	4	5
Expected Earnings	157.18	139.76	190.34	206.38	219.74	233.96	249.11	265.23	282.40
Cash payout as % of earnings	146.31	118.66	77.36%	77.36%	77.36%	77.36%	77.36%	77.36%	77.36%
Dividends + Buybacks =	93.08%	84.90%	147.24	159.65	$169.99	$180.99	$192.71	$205.18	$218.46

Earnings and Cash flows grow @1.51% (set equal to risk free rate) a year forever.

S&P 500 on 1/1/22= **4766.18**

$$4766.18 = \frac{169.99}{(1+r)} + \frac{180.99}{(1+r)^2} + \frac{192.71}{(1+r)^3} + \frac{205.18}{(1+r)^4} + \frac{218.46}{(1+r)^5} + \frac{218.46\,(1.0151)}{(r-.0151)(1+r)^5}$$

The last term in this equation is the expected index level at the end of year 5 (capturing price appreciation)

Solve for r

You can solve for this r either iteratively or using the solver function in Excel

r = Implied Expected Return on Stocks = 5.75%

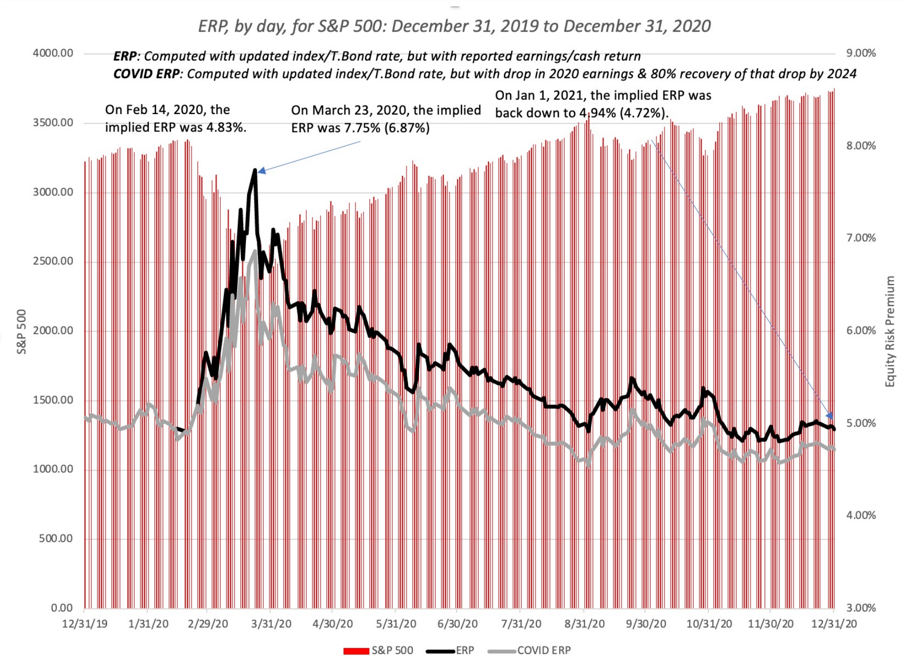
Minus

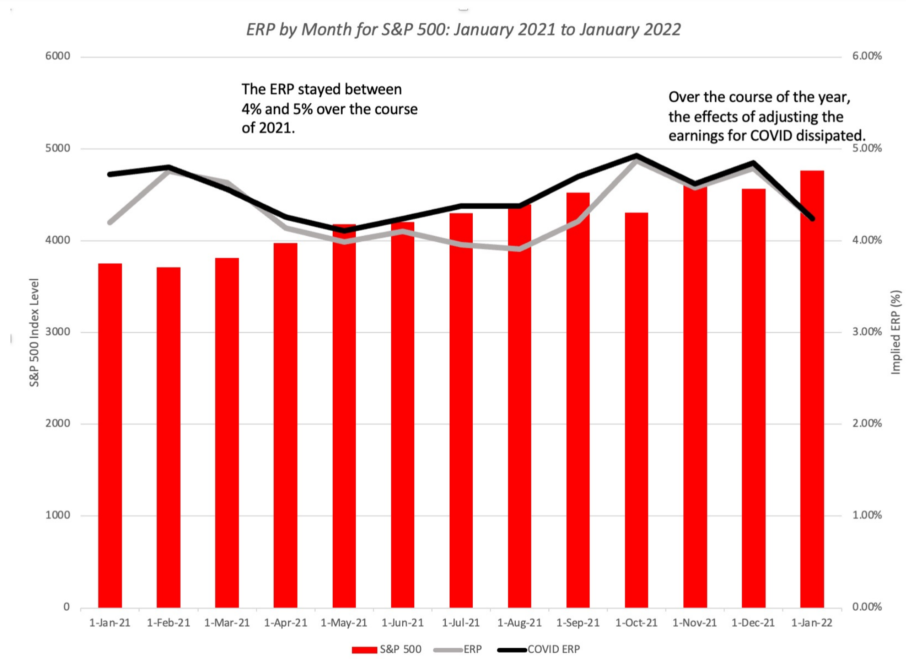
Risk free rate = T.Bond rate on 1/1/22= 1.51%

Equals

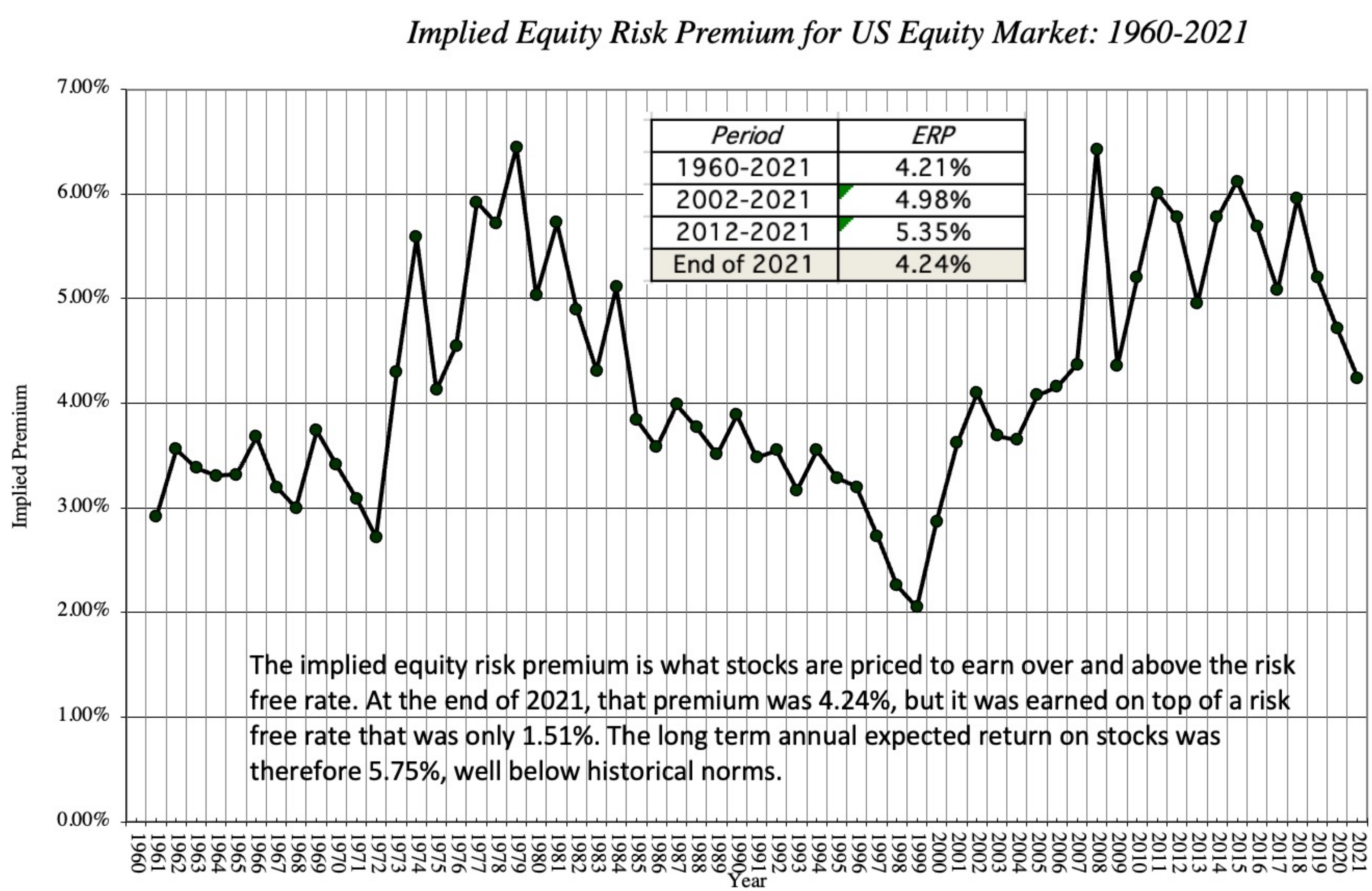
Implied Equity Risk Premium (1/1/22) = 5.75% - 1.51% = 4.24%

Implied ERP through 2022.. And in 2021

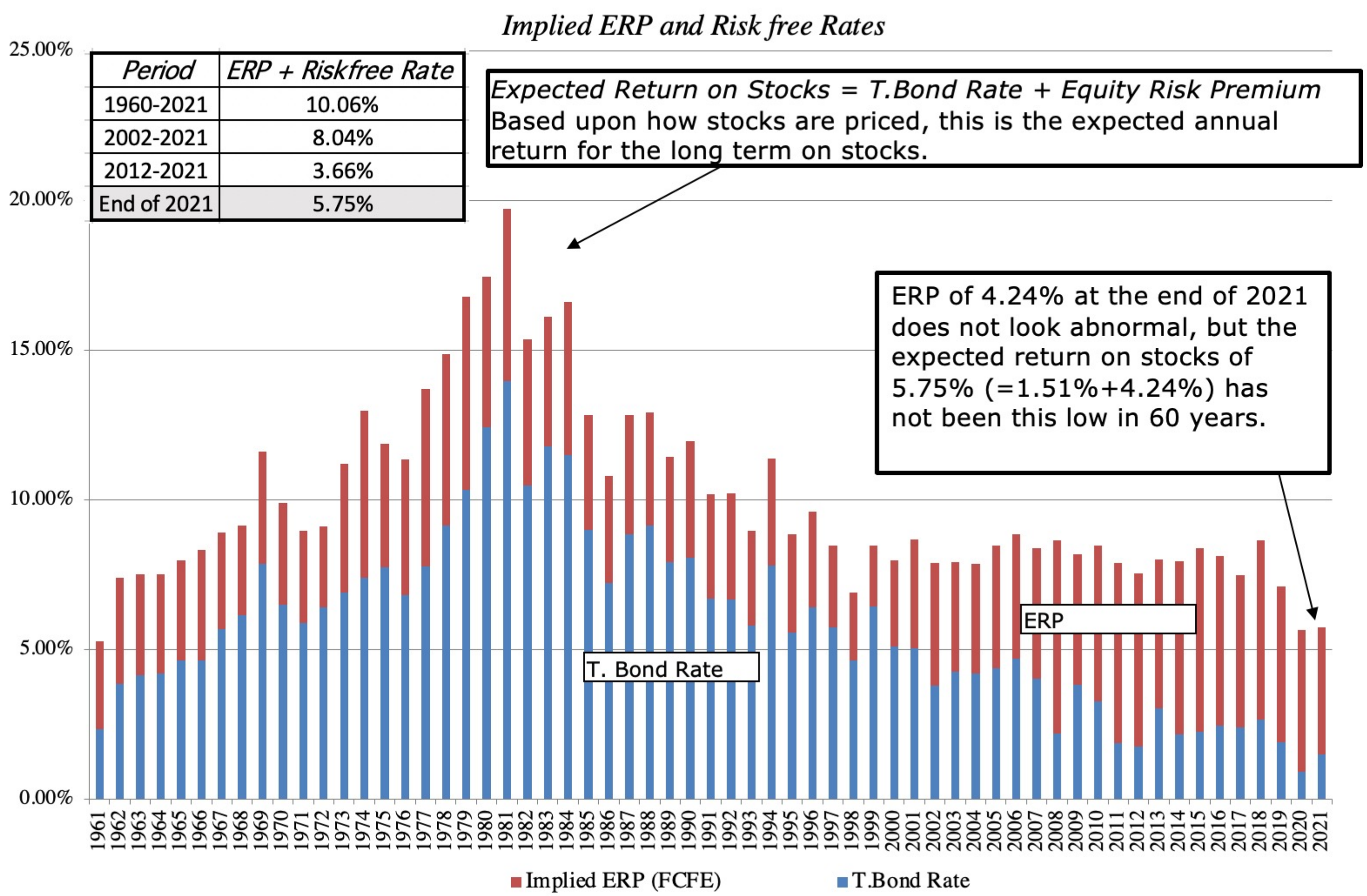




Again, historical context…



A different historical perspective…

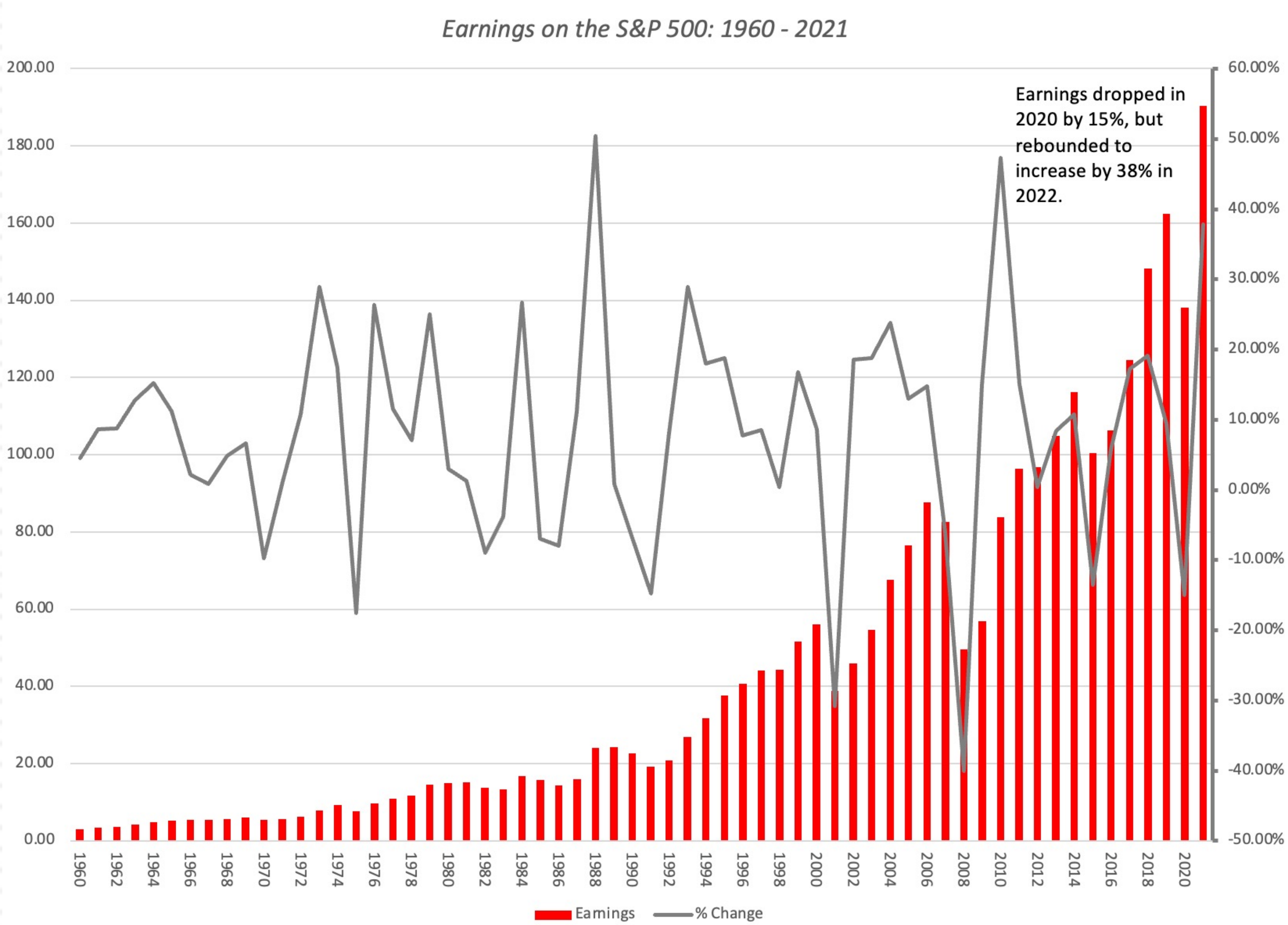


Period	ERP + Riskfree Rate
1960-2021	10.06%
2002-2021	8.04%
2012-2021	3.66%
End of 2021	5.75%

A Market Assessment

- If you look at history, it seems difficult to argue against the notion that market timing is the impossible dream, but that have never stopped investors from trying, partly because the payoff from being right is immense.
- I have long claimed that I am not a market timer, but that is a lie, since every investor times markets, with the difference being in whether the timing is implicit (with cash holdings in your portfolio increasing, when you feel uneasy about markets, and decreasing, when you feel bullish) or explicit (where you actively bet on market direction).
- Rather than just give you an estimate of whether I think the market is under or over valued, I will open the process up for each of you to make your own judgments, while also offering my own.

S&P 500 Earnings: History



S&P 500: Earnings Forecasts (Analysts)

Analyst Estimates of S&P 500 Earnings in 2022 & 2023, at start of 2022							
Ed Yardeni			*Analyst Consensus*			*Thomson-Reuters*	
Year	Earnings		Year	Earnings		Year	Earnings
TTM	190.34		TTM	190.34		TTM	190.34
2021E	210		2021E	206.38		2021E	205.79
2022	220		2022	223.34		2022	223.04
2023	235		2023	244.94		2023	245.37

Market Strategists Estimates for S&P 500 Earnings in 2022, at start of 2022		
FIRM	STRATEGIST	*Earnings in 2022*
BANK OF AMERICA MERRILL LYNCH	Savita Subramanian	173.00
BARCLAYS	Maneesh Deshpande	235.00
BMO	Brian Belski	245.00
CFRA	Sam Stovall	220.00
CITI	Scott Chronert	221.00
CREDIT SUISSE	Jonathan Golub	235.00
GOLDMAN SACHS	David Kostin	226.00
JPMORGAN CHASE	Dubravko Lakos-Bujas	240.00
MORGAN STANLEY	Mike Wilson	227.00
OPPENHEIMER	John Stoltzfus	230.00
RBC	Lori Calvasina	222.00
UBS	Keith Parker	242.00
WELLS FARGO INVESTMENT INSTITUTE	Darrell Cronk	235.00
Average		**227.00**
Median		**230.00**
High		**245.00**
Low		**173.00**

S&P 500: From earnings to cash flow

Year	Earnings	Dividends	Buybacks	Dividend Payout	Cash Payout
2001	38.85	15.74	14.34	40.51%	77.43%
2002	46.04	15.96	13.87	34.67%	64.78%
2003	54.69	17.88	13.70	32.69%	57.74%
2004	67.68	19.01	21.59	28.09%	59.99%
2005	76.45	22.34	38.82	29.23%	80.01%
2006	87.72	25.04	48.12	28.55%	83.40%
2007	82.54	28.14	67.22	34.09%	115.53%
2008	49.51	28.45	39.07	57.46%	136.37%
2009	56.86	21.97	15.46	38.64%	65.82%
2010	83.77	22.65	32.88	27.04%	66.28%
2011	96.44	26.53	44.75	27.51%	73.91%
2012	96.82	31.25	44.65	32.28%	78.39%
2013	104.92	34.90	53.23	33.26%	84.00%
2014	116.16	39.55	62.44	34.04%	87.79%
2015	100.48	43.41	64.94	43.20%	107.83%
2016	106.26	45.70	62.32	43.01%	101.66%
2017	124.51	48.93	60.85	39.30%	88.17%
2018	148.34	54.39	96.11	36.67%	101.46%
2019	162.35	58.50	87.81	36.03%	90.12%
2020	138.12	57.00	61.66	41.27%	85.91%
2021 TTM	190.34	59.20	88.05	31.10%	77.36%
Average: Last 20 years				**35.65%**	**84.95%**
Average: Last 10 years				**36.15%**	**88.78%**

Risk free Rates and ERP

- On the risk free rate, I *start with 1.51%*, the 10-year treasury bond rate on January 1, 2022, but I will assume that this rate will *drift upwards over the next five years to reach 2.5%*. That reflects my view that inflation pressures will push up long term rates in the year to come and has little to do with what the Fed may or may not do with the Fed funds rate.
- Finally, I will *build in the expectation that a fair ERP for the market should be 5%*, higher than the long-term historical average of 4.21%, but closer to the average ERP since 2008.

Historical Equity risk premium (US) =	9.37%
Historical Equity risk premium (Global) =	3.20%
Average implied ERP (last decade) =	4.43%
Average implied ERP (1960-Current) =	4.21%
Historical High ERP (1960-Current) =	6.45%

Valuing the Index

Expected Earnings in 2022 & 2023
Used analyst forecasts for earnings in 2022 and 2023

Growth rates in 2024-26
Growth rate decreases from 2023 level to stable growth in linear increments.

Growth rate beyond 2026
Expected growth rate is 2.5% in perpetuity (= Risk free rate in 2026)

Intrinsic Value Estimate (based on your choice of ERP)							
	2021	2022	2023	2024	2025	2026	*Terminal Year*
Expected Earnings	$206.38	223.34	244.94	262.77	275.62	282.52	289.58
Expected Earnings Growth Rate		8.22%	9.67%	7.28%	4.89%	2.50%	2.50%
Expected cash payout as % of earnings	77.36%	77.36%	79.14%	80.92%	82.69%	84.47%	84.47%
Expected Dividends + Buybacks =	$159.66	$172.78	$193.84	$212.63	$227.93	$238.65	244.61
Expected Terminal Value =						$ 4,892.25	
Riskfree Rate	1.51%	1.71%	1.91%	2.10%	2.30%	2.50%	2.50%
Required Return on Stocks	6.51%	6.71%	6.91%	7.10%	7.30%	7.50%	7.50%
Present Value =		$ 161.91	$ 169.92	$ 174.03	$ 173.85	$ 3,640.60	
Intrinsic Value of Index =	**4320.31**						
Intrinsic Trailing PE =	20.93						
Intrinsic Forward PE =	19.34						
Intrinsic CAPE (inflation-adjusted 10-yr average) =	36.65						
Actual Index level =	**4766.18**						
% Under or Over Valuation =	**10.32%**						

Intrinsic Value of Index
PV of expected cash flows for next 5 years + PV of terminal value

Terminal Value
= 244.61/ (.075 - .025) = 4,892.25

In conclusion…

- As with any valuation, I don't believe that I should, convince you that my valuation is the right one, and nor do I want to. In fact, I know that it is wrong, with the question being in what direction.
- I would strongly encourage you to take my valuation, change the numbers that I have used on earnings, cash flows, the risk free rate and the equity risk premium to reflect your views, and come up with your assessment of value.
- Good investing requires taking ownership of your investment decisions, and trusting this choice to talking heads on TV, market strategists at investment banks or those market gurus who looked good last year is a dereliction of investment duty.