



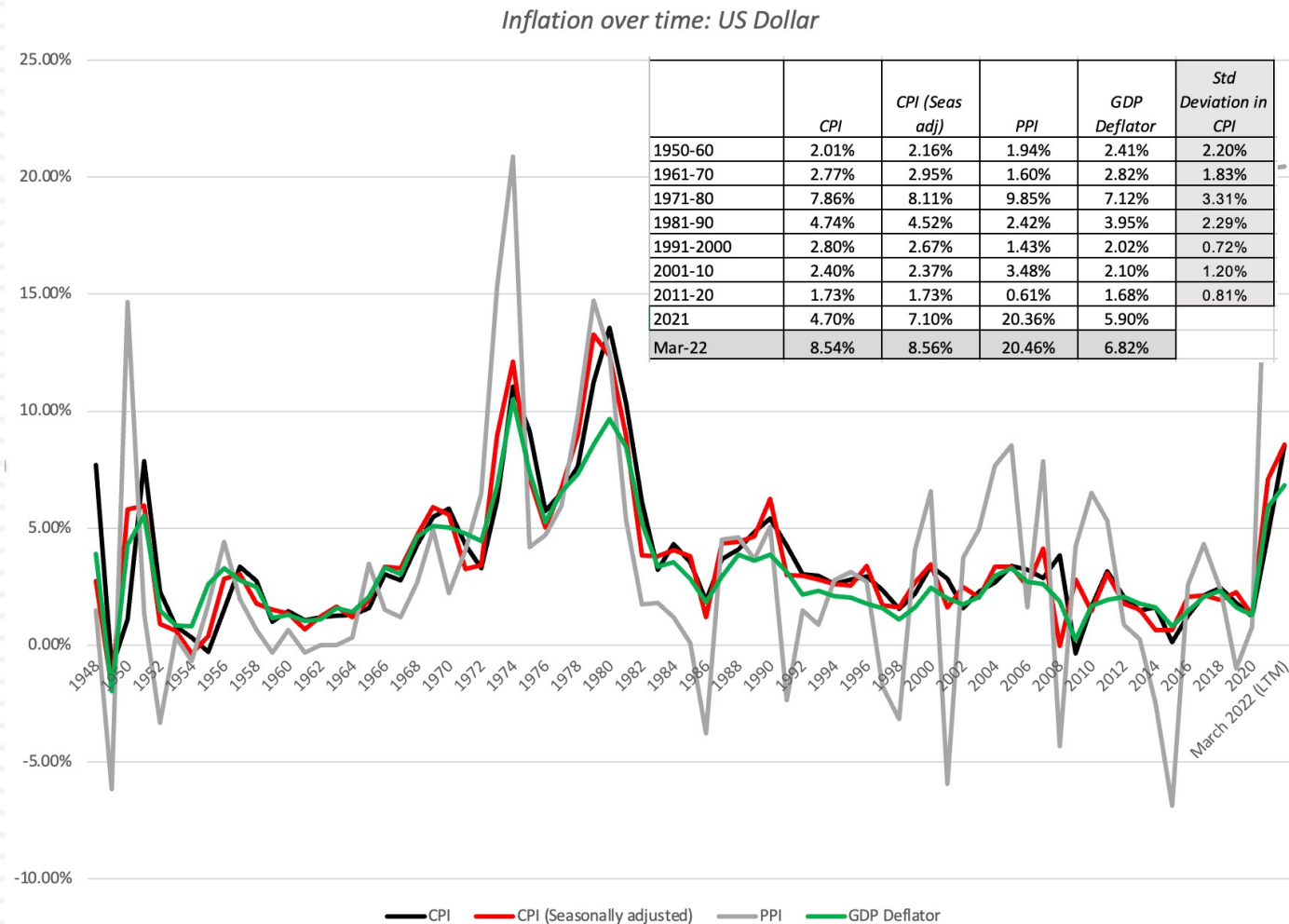
IN SEARCH OF A STEADY STATE: INFLATION, INTEREST RATES AND VALUE

The (inflation) genie escapes the bottle!

Searching for Balance

- ❑ The nature of markets is that they are never quite settled, as investors recalibrate expectations constantly and reset prices.
 - ❑ In most time periods, those recalibrations and resets tend to be small and in both directions, resulting in the ups and downs that pass for normal volatility.
 - ❑ WE are not in one of those time periods, as markets approach bipolar territory, with big moves up and down.
- ❑ The good news is that the culprit behind the volatility, inflation, is easy to identify, but the bad news is that inflation remains the most unpredictable of all macroeconomic factors to factor into stock prices and value.
- ❑ In this session, I will look at where we stand on inflation expectations, and the different paths we can be end up on, ranging from potentially catastrophic to mostly benign.

Inflation: Back in the news?



Inflation History

- While I report multiple measures of inflation, from the consumer price index (adjusted and unadjusted) to the producer price index to the price deflator used in the GDP, they all tell the same story.
 - ▣ We have had a long stretch of low and stable inflation, and that is especially true since the 2008 crisis.
 - ▣ In fact, the average inflation rate in the 2011-20 decade was the lowest of the seven decades that I cover in this chart.
 - ▣ Just as important, though, is the fact that variation in inflation, from year to year, was lower in 2011-2020 in every other decade, other than 1991-2000.

Expected and Unexpected Inflation

Investors form expectations for inflation

Expected Inflation

Financial assets are priced based upon expected inflation.

With bonds, interest rates are set based upon inflation expectations.

With stocks, expected cash flows and required returns reflect inflation expectations.

Actual inflation is observed

Actual > Expected

Actual = Expected

Actual < Expected

Financial assets are repriced based upon new expectations.

Financial assets are repriced downwards to reflect **higher than expected inflation**

Financial assets are repriced upwards to reflect lower than expected inflation

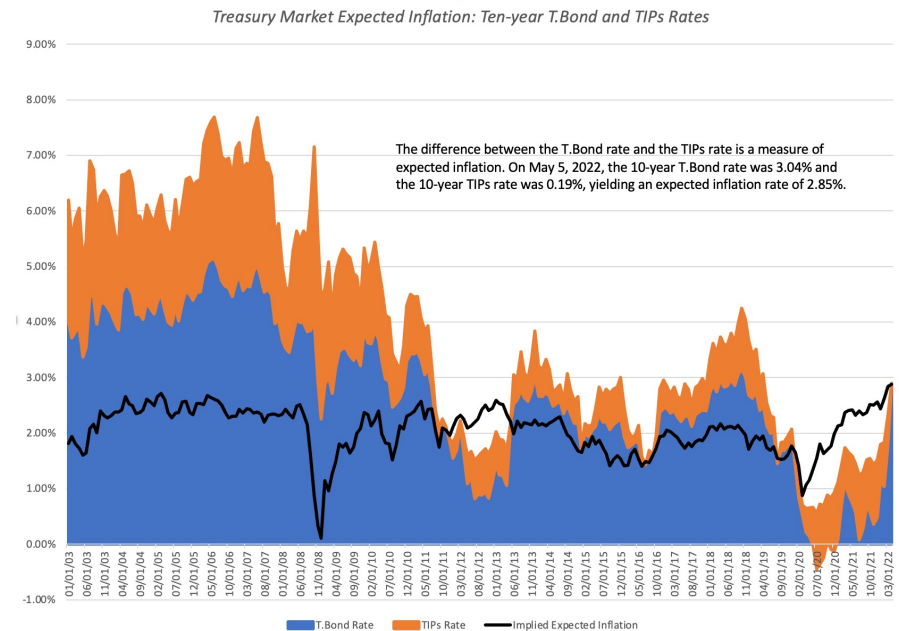
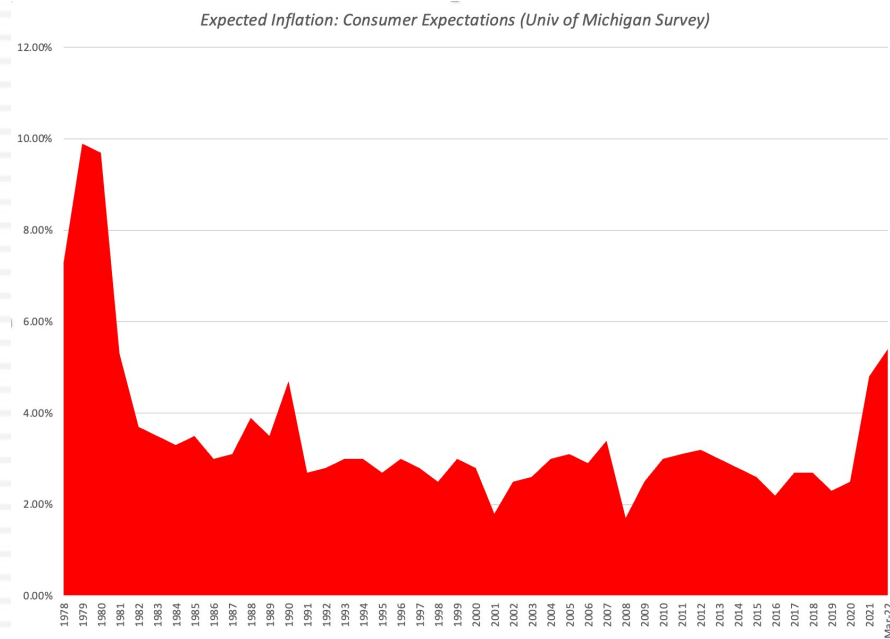
The Inflation Decade: 1971-1980

- Investors who are old enough to remember the 1970s point to it as a decade of high inflation, but that is only with the benefit of hindsight.
 - At the start of that decade, investors had no reason to believe that they were heading into a decade of higher inflation, and initial signs of price increases were attributed to temporary factors (with OPEC being a convenient target).
 - In fact, expected inflation lagged actual inflation through much of the decade, and the damage done to financial asset returns that decade came as much from actual inflation being higher than expected inflation, period after period, as from higher inflation.

The Inflation Surprise in 2021

- It is precisely because we have been spoiled by a decade of low and stable inflation that the inflation numbers in 2021 and 2022 have come as such a surprise to economists, investors and even the Fed.
- Early on, the inflation surge was explained away by the reopening of the economy, after the COVID shutdown, and then by stressed supply chains, and expected inflation remained low.
- However, as inflation has remained stubbornly high, and neither COVID nor supply chains provide a sufficient rationale, market expectations of inflation have started to creep up.

Expected Inflation

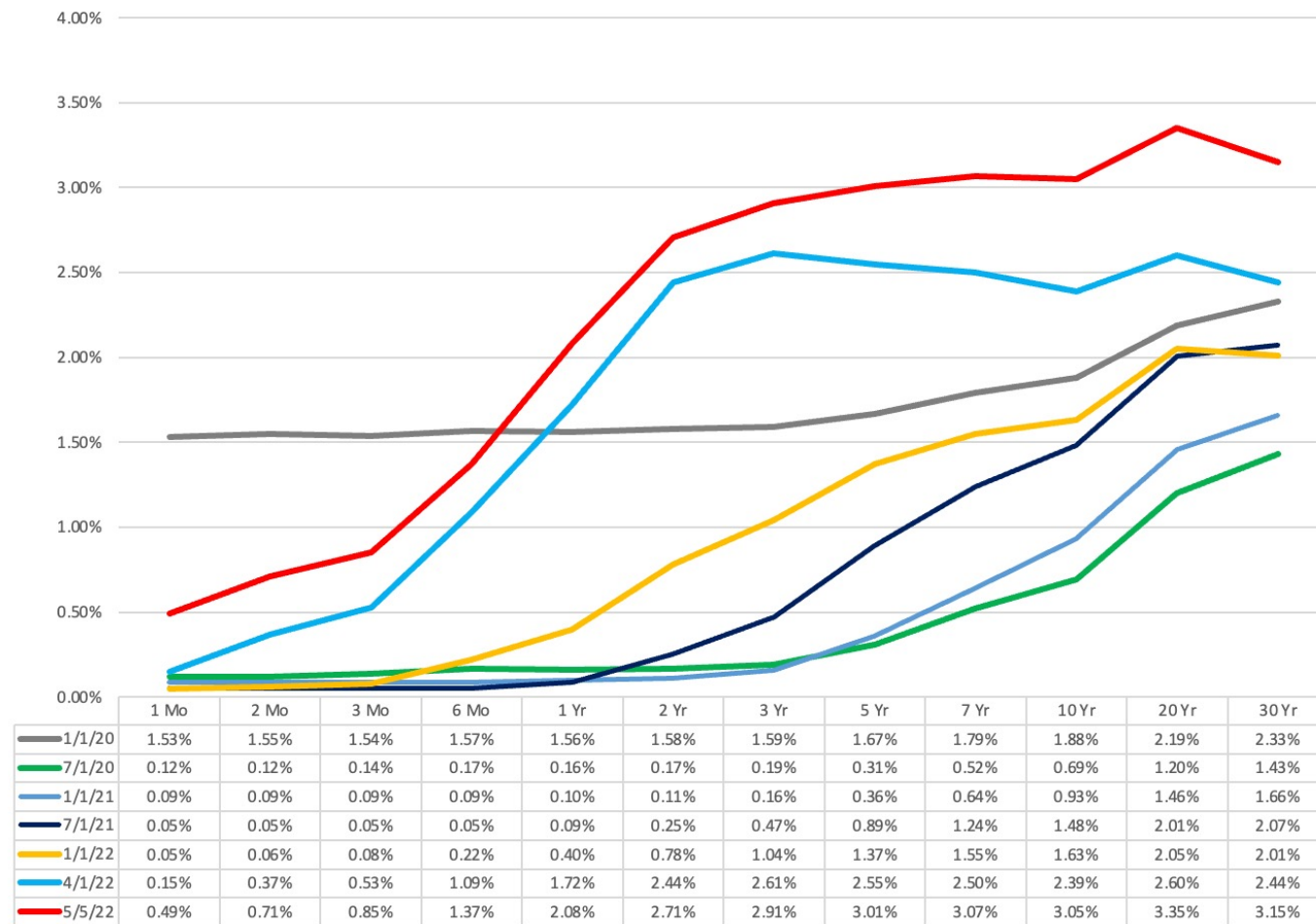


Explaining the divergence...

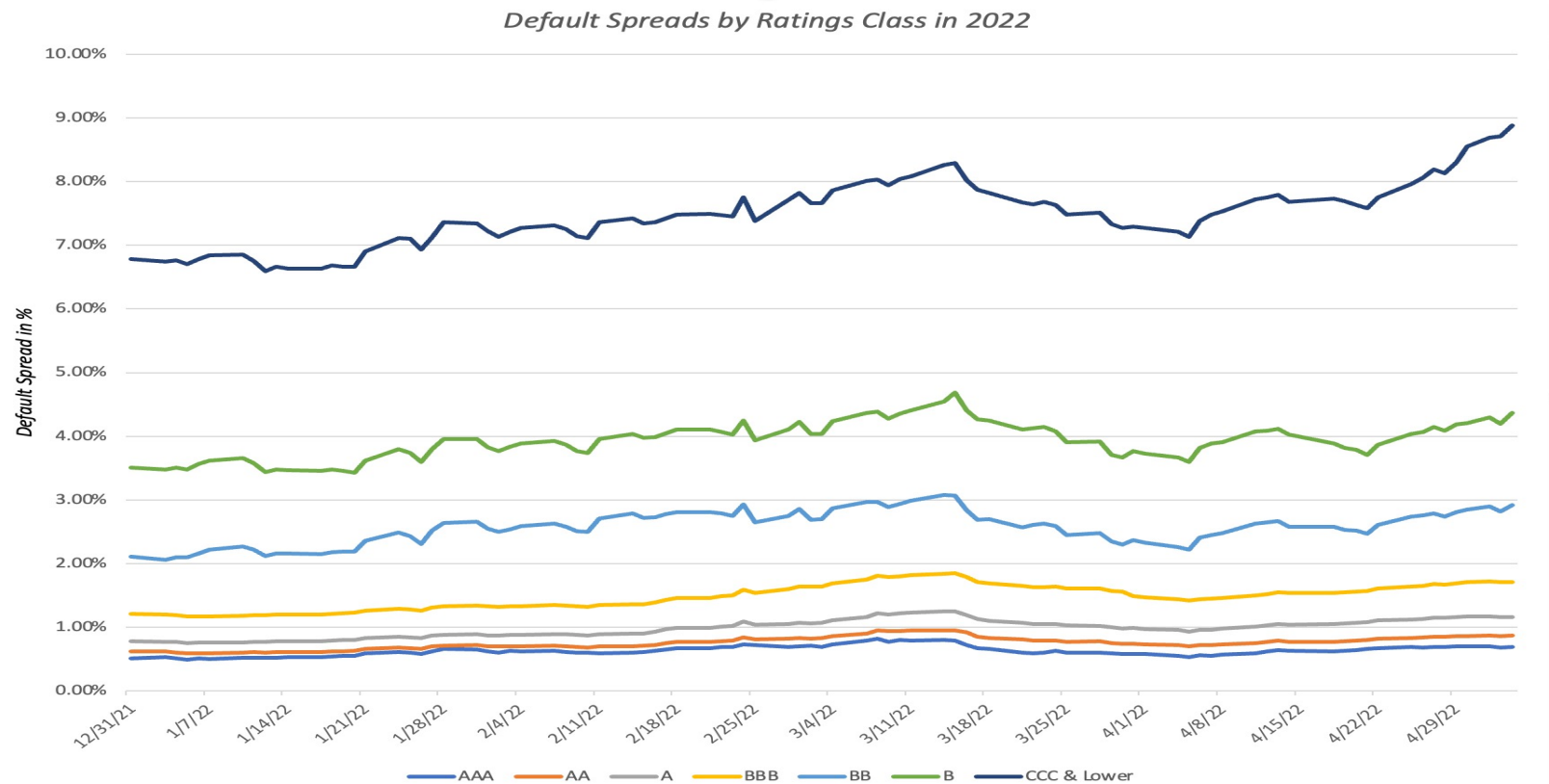
- Short term versus Long term: The consumer survey extracts an expectation of inflation in the near term, whereas the treasury markets are providing a longer term perspective, since I am using ten-year rates to derive the market-implied inflation.
- Consumers are over adjusting: The big inflation surges have happened in gasoline, food and housing, all items that consumers come into contact with on a continuous basis, and it is possible that they are over reaction and adjusting expected inflation up too much, as a consequence.
- Markets are under adjusting: Alternatively, it is possible that it is consumers who are being realistic and it is that the market which is under adjusting to higher inflation, partly because many investors have operated only in a low and steady inflation environment and partly because many of these investors have a belief that the Fed has super powers and "determines" what interest rates and inflation will be in the future.

Economic Consequences: Interest Rates

Yield Curve Shifts: 2020 - 2022

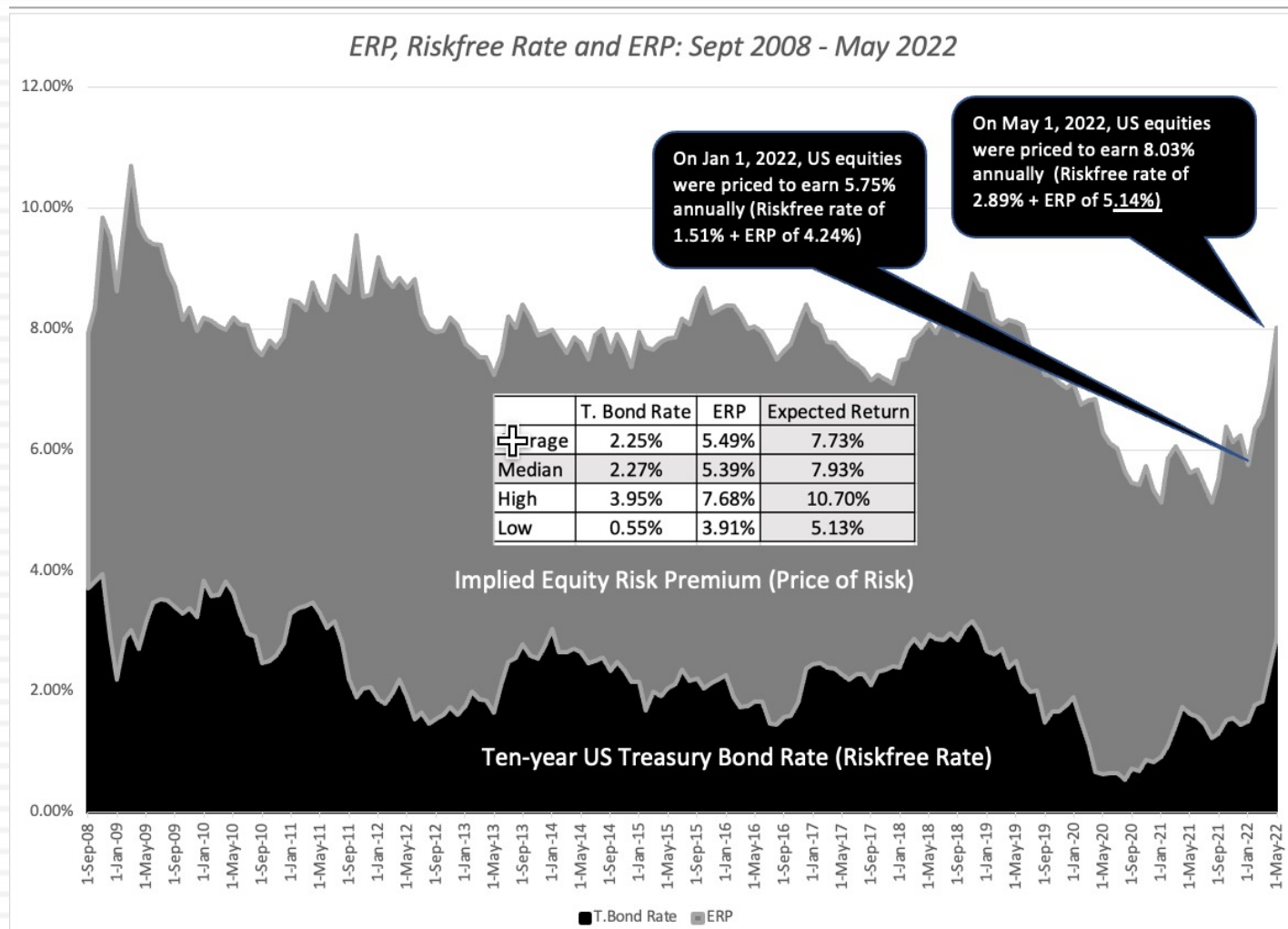


Default Spreads...



Date	AAA	AA	A	BBB	BB	B	0
12/31/21	0.51%	0.62%	0.78%	1.21%	2.11%	3.51%	6.78%
2/1/22	0.62%	0.70%	0.87%	1.33%	2.55%	3.83%	7.22%
3/1/22	0.70%	0.83%	1.07%	1.64%	2.86%	4.23%	7.82%
4/1/22	0.58%	0.73%	0.97%	1.47%	2.33%	3.73%	7.27%
5/4/22	0.69%	0.87%	1.16%	1.71%	2.92%	4.37%	8.88%
Change in 2022	0.18%	0.25%	0.38%	0.50%	0.81%	0.86%	2.10%

And on expected returns on stocks...



With worries about economic growth...

- Almost every economic forecasting service has increased their assessed probabilities for a recession, with variations on how deep and long a recession has to be to break inflation's back.
- In a note published in mid-April, Larry Summers and Alex Domash go as far as to put the likelihood of a recession at 100%, based upon a joint indicator, i.e., that a combination of inflation $> 5\%$ and unemployment $< 4\%$ has always led to a recession within 12 to 24 months, using quarterly data from the 1950s to today.
- While I remain a skeptic about historic rules of thumb (downward sloping yield curve, for example) to make categorical statements about future economic growth, I think that we can state categorically that there is a greater chance of an economic slowdown now than just a few months ago.

Investment Consequences

- As the storm clouds of higher inflation and interest rates, in conjunction with slower or even negative economic growth, gather, it should come as no surprise that equity markets are struggling to find their footing.
- At the close of trading on May 5, 2022, the S&P 500 stood at 4147, down 13.3% from the start of the year value, accompanied by increased volatility.
- You are hearing from “experts” offering divergent advice from sell and flee to buy into weakness.

Determinants of Value

- Steady State Interest Rate: There are three possibilities for the future.
 - ▣ Bulk of the move is behind us. This is steady state.
 - ▣ A Seventies rerun, with expectations lagging inflation
 - ▣ Inflation is transient and returns to last decade levels
- Equity Risk Premium Path: The equity risk premium of 5.24%, estimated at the start of May 2022, is at the high end of historical equity risk premiums. That rate could
 - ▣ Continue to rise with high and volatile inflation
 - ▣ Stay steady at current levels
 - ▣ Drop, as inflation fears pass
- Earnings Estimates: The strength of the economy has been a big contributor to boosting actual and expected earnings on companies in the last two years, and these higher earnings have translated into more cash returned in dividends and buybacks. If recession fears play out, those earnings may be under stress.

S&P Valuation: Status Quo

Valuing the S&P 500 on May 5, 2022

Risk free Rate

Assume that the treasury bond rate will stay at or around 3% long term.

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 3% in perpetuity (= Risk free rate in 2026)

	2021	2022	2023	2024	2025	2026	<i>Terminal Year</i>
Earnings	\$208.49	227.29	250.11	269.35	283.75	292.27	301.03
Expected growth		9.02%	10.04%	7.69%	5.35%	3.00%	3.00%
Cash Payout Ratio	80.48%	80.48%	80.70%	80.92%	81.14%	81.37%	81.37%
Dividends + Buybacks =	\$167.79	\$182.92	\$201.84	\$217.96	\$230.25	\$237.81	244.94
Terminal Value =						\$4,898.81	
Riskfree Rate	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Required Return	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Present Value =		\$169.37	\$173.04	\$173.03	\$169.24	\$3,495.90	
Intrinsic Value of Index =	4180.57						
Actual Index level =	4146.87						
% Under or Over Valuation =	-0.81%						

Intrinsic Value of Index

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

Terminal Value

= $244.94 / (.08 - .03) = 4898.81$

Value Dynamics

Interest Rates, the Economy and the Price of Risk: Value Effects

The Volcker Rerun

In this scenario, the economy goes into a recession, but inflation drops precipitously and interest rates decline. Price effect will depend on what risk premiums revert to.

Much Ado about Nothing?

In this scenario, the economy stays afloat, earnings come in close to expectations, inflation reverts to Fed targets and the price of risk levels off.

Valuing the S&P 500 on May 5, 2022									
	<i>Earnings = 20% below Estimates</i>			<i>Earnings = 10% below Estimates</i>			<i>Earnings = Estimates</i>		
Riskfree Rate	4%	5%	6%	4%	5%	6%	4%	5%	6%
2%	4567	3640	3022	5137	4095	3400	5708	4550	3778
3%	4189	3344	2782	4713	3763	3129	5236	4181	3477
4%	3825	3059	2549	4303	3442	2867	4781	3824	3186
5%	3473	2784	2324	3907	3132	2615	4341	3480	2905
6%	3134	2518	2107	3525	2832	2370	3917	3147	2633

Index was trading at 4147 on 5/5/22. Shaded cells are higher than 4147

The Seventies Show

In this scenario, the economy goes into a recession and inflation remains stubbornly high. Damage will depend on how risk premiums do.

Live and let live (with inflation)

In this scenario, inflation stays high, but earnings remain resilient. Price effect depends largely on how much risk premiums rise to reflect inflation uncertainty.

Other investment classes...

- One of the costs that come with the last scenario is that inflation eats away at trust in not just currencies, but in all financial assets, and that investors will turn away from stocks and bonds.
- In the 1970s, the asset classes that benefited the most from this flight were gold and real estate, and the question is which asset classes will best play this role now, if inflation is here to stay.
 - ▣ I do think that securitizing real estate has made it behave more like financial assets and removed some of its power to hedge against inflation, but there may be segments (such as rental properties, where rent can be raised to match inflation) that retain their inflation fighting magic.
 - ▣ Gold's history as a collectible with standing will continue, but the truth is that it is not big enough as an asset class for us to all hold it.
- That, of course, brings us to cryptos, NFTs and other, more recent, entrants into the investment choice list. In theory, you could make the argument that these new investment choices will operate like gold, but you have two serious barriers to overcome.
 - ▣ The first is that they have not been along for long, and history is full of collectibles, from Beanie Babies to Pokemon cards, that people paid high prices for, but failed to hold their value.
 - ▣ The second is that in the limited history that we have for cryptos and NFTs, they have behaved less like collectibles (holding or increasing in value, as stocks and bonds collapse) and more like very risk stock.
 - ▣ In fact, higher and sustained inflation may be the ultimate test of whether there is any substance to the bitcoin as millennial gold story, and the results may make or break those holding cryptos for the financial apocalypse that they see coming

In Conclusion...

- The inflation genie is out of the bottle, and if history is any guide, getting it back in is going to take more time and create more pain than we realize.
 - ▣ It is the lesson that the US learned in the 1970s, and that other countries have learned or chosen to not learn from their own encounters with inflation.
 - ▣ It is the reason that when inflation made itself visible in the early part of 2021, I argued that the Fed should take it seriously, and respond quickly, even if there existed the possibility that it was transient.
- Needless to say, the Fed and the administration chose a different path, one that can be described as whistling in the graveyard, not just ignoring the danger with happy talk, but also actively taking decisions that only exacerbated the danger.
- Needless to say, they find themselves between a rock (more inflation) and a hard place (a recession), and while you may be tempted to say "I told you so", the truth is that we will all feel the pain.