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RISK CAPITAL IN 2022: TEMPORARY RETREAT OR LONG TERM PULLBACK!

Fear and Greed!

Risk Capital

Definition and Drivers

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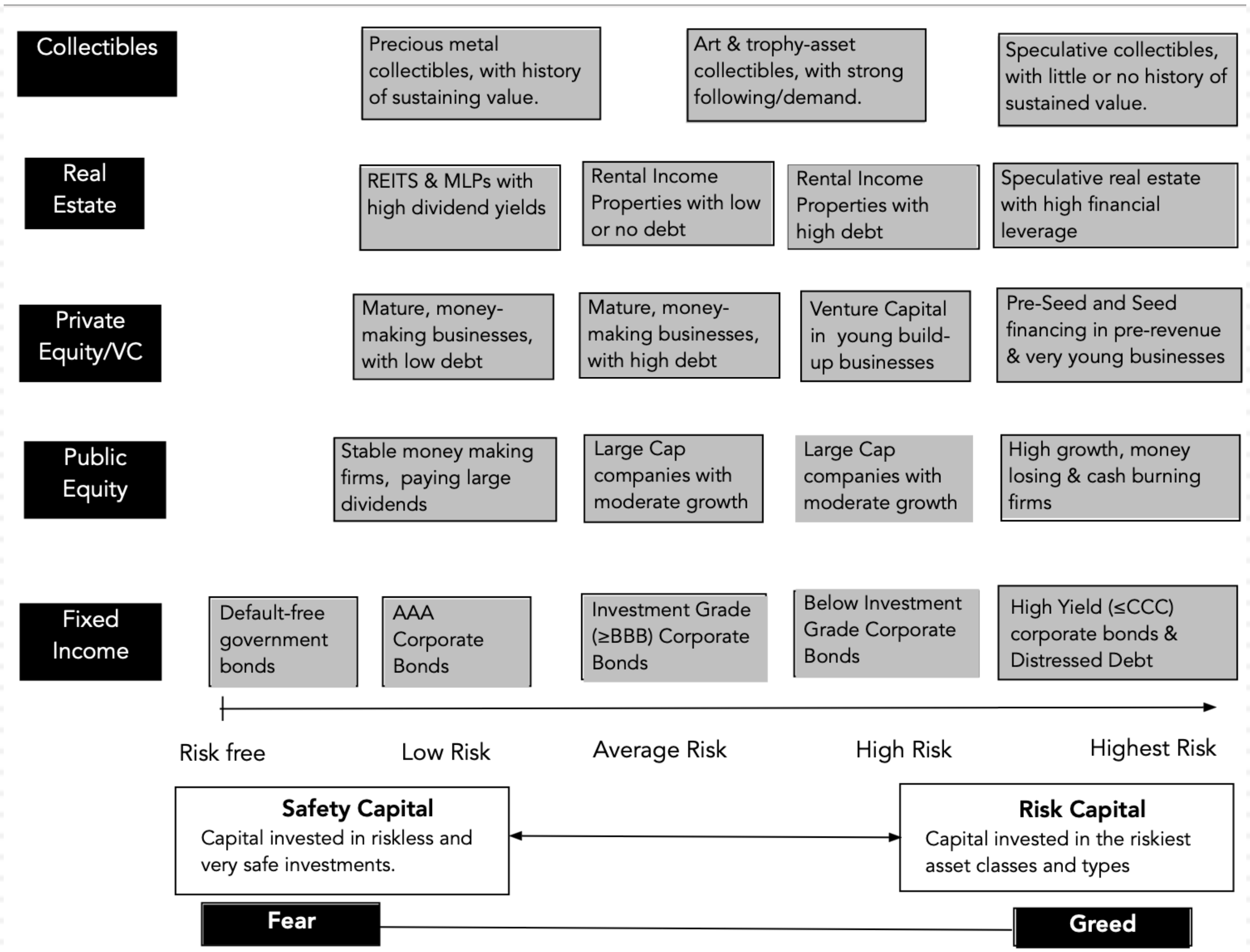
Risk Capital and Markets

- As inflation has taken center stage, markets have gone into retreat around the world. As bond rates rise, stock prices fall, and crypto implodes, even true believers are questioning what the bottom for markets might be, and when we will get there.
- While it is easy to call the market movement in 2022 a correction and to argue that it is overdue, it is more difficult to trace why now, and to establish how much of a correction is too much.
- In this session, I will argue that almost everything that we are seeing across asset classes can be explained by a pull back on risk capital, and that the question then is whether this pullback has further to go, and how long risk capital will stay on the side lines.

Risk Capital: What is it?



Risk Capital: Variations across investors and time

- Variation within an investor's portfolio: Many investors, including even the most risk averse, will often set aside a portion of their portfolio for riskier investments, drawn by the higher expected returns on those investments.
  - For some, it will be for the portion that they believe that can lose, without affecting life style or future opportunities in any material way.
  - For others, it can be the portion with the longest time horizon (pension fund savings or 401Ks),
  - The amount that is put into the risk capital portion will vary with investor risk aversion, with more risk averse investors putting less or even nothing into the riskiest assets, and less risk averse investors putting in more.
- Variation across time: The amount that investors are willing to put into risk capital, or conversely redirect to safety capital, will change over time, with several factors playing a role in determining whether risk capital will be plentiful or scarce.
  - The first is market momentum, since more money will be put into the riskiest asset classes, when markets are rising, because investors who benefit from these rising markets will have more capital to risk.
  - The second is the the health and stability of the economy, since investors with secure jobs and rising paychecks are more willing to take risks.

Macro factors?

- The first is the **return that can be earned on guaranteed investments**, i.e., treasury bills and bonds, since it is a measure of what someone who takes no or very low risk can expect to earn. *When treasury rates are low or close to zero, refusing to take risk will result in returns that are very low or close to zero as well, thus inducing investors to expose themselves to more risk than they would have taken in higher interest rate regiments.*
- The second is **inflation**, which reduces the nominal return you make on all your investments, and the effects of rising inflation on risk capital are complex. As expected inflation rises, you are likely to see higher interest rates, and as we noted above, that may induce investors to cut back on risk taking and focus on earning enough to cover the ravages of inflation. *As uncertainty about inflation rises, you will see reallocation of investment across asset classes, with real assets gaining when unexpected inflation is positive (actual inflation is higher than expected), and financial assets benefiting when unexpected inflation is negative (actual inflation is less than expected).*

Consequence 1: Risk Premiums

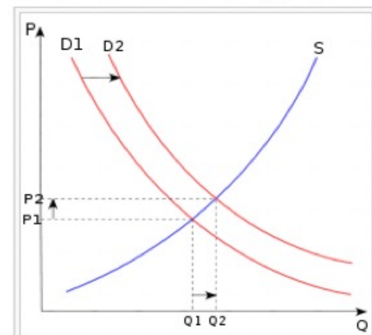
- The risk premiums that you observe in every risky asset market are a function of how much risk capital there is in play, with risk premiums going up when risk capital becomes scarce and down, when risk capital is plentiful.
- In the bond and loan market, access to risk capital will determine default spreads on bonds, with lower rated bonds feeling the pain more intensely when risk capital is withdrawn or moves to the side lines. Not only will default spreads widen more for lower-rated bonds, but there will be less bond issuances by riskier companies.
- In the equity market, the equity risk premium is the price of risk, and its movements will track shifts in risk capital, increasing as risk capital becomes scarcer.

Consequence 2: Price and Value

Drivers of intrinsic value
- Cashflows from existing assets
- Growth in cash flows
- Quality of Growth

Drivers of price
- Market moods & momentum
- Surface stories about fundamentals
- Liquidity

Demand & Supply



Value of cashflows, adjusted for timing and risk

INTRINSIC VALUE → Value → THE GAP Is there one? Will it close? ← Price ← PRICE

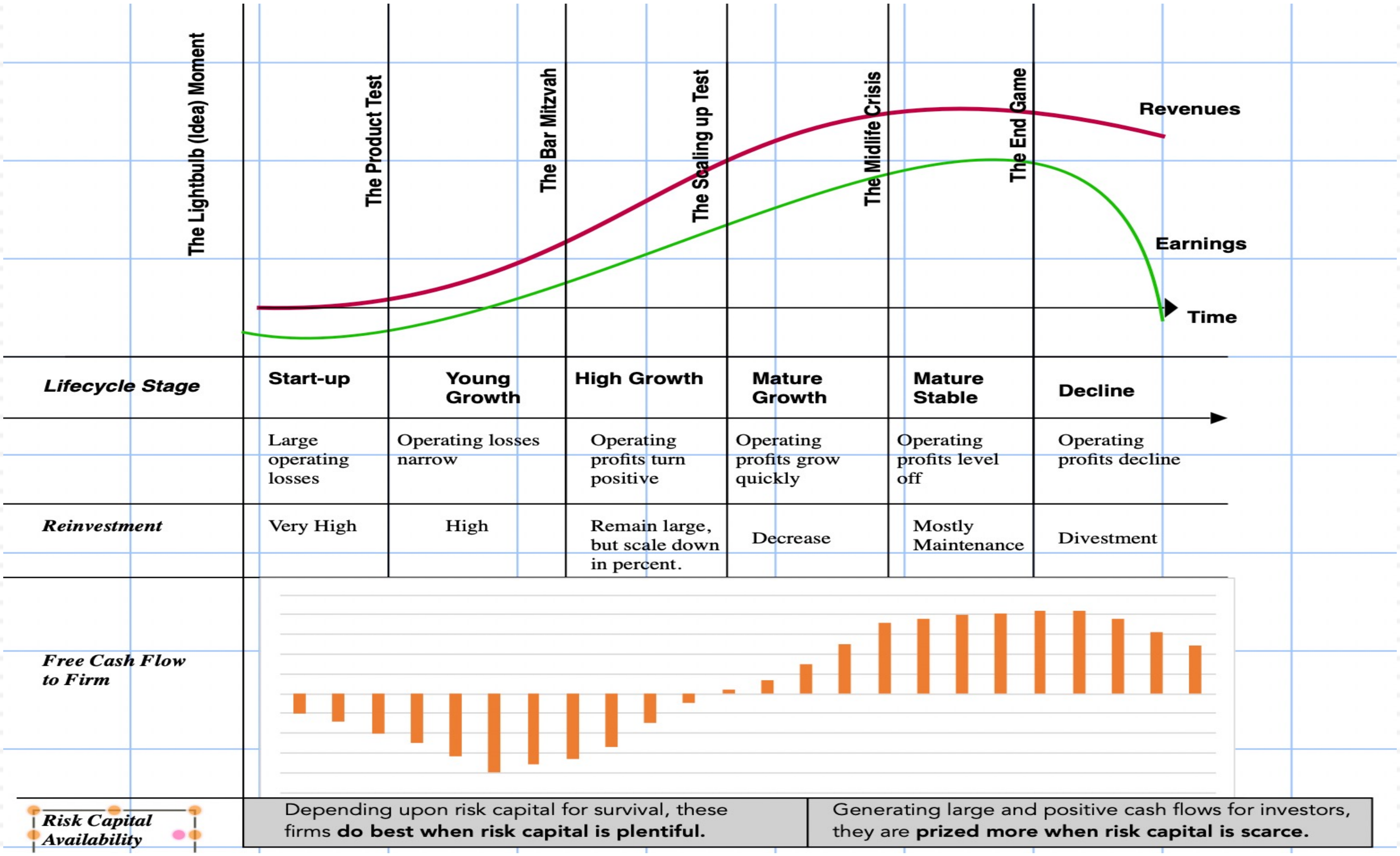
Investors "value" assets and buy when price <value, and/or sell when price> value, hoping for convergence.

Safety Capital's sweet spot

Traders price assets, based upon what others are paying for similar assets, and gauge mood/ momentum to make money on pricing movements.

Risk Capital's habitat

Consequence 3: Corporate Life Cycle



Risk Capital: Historical Perspective

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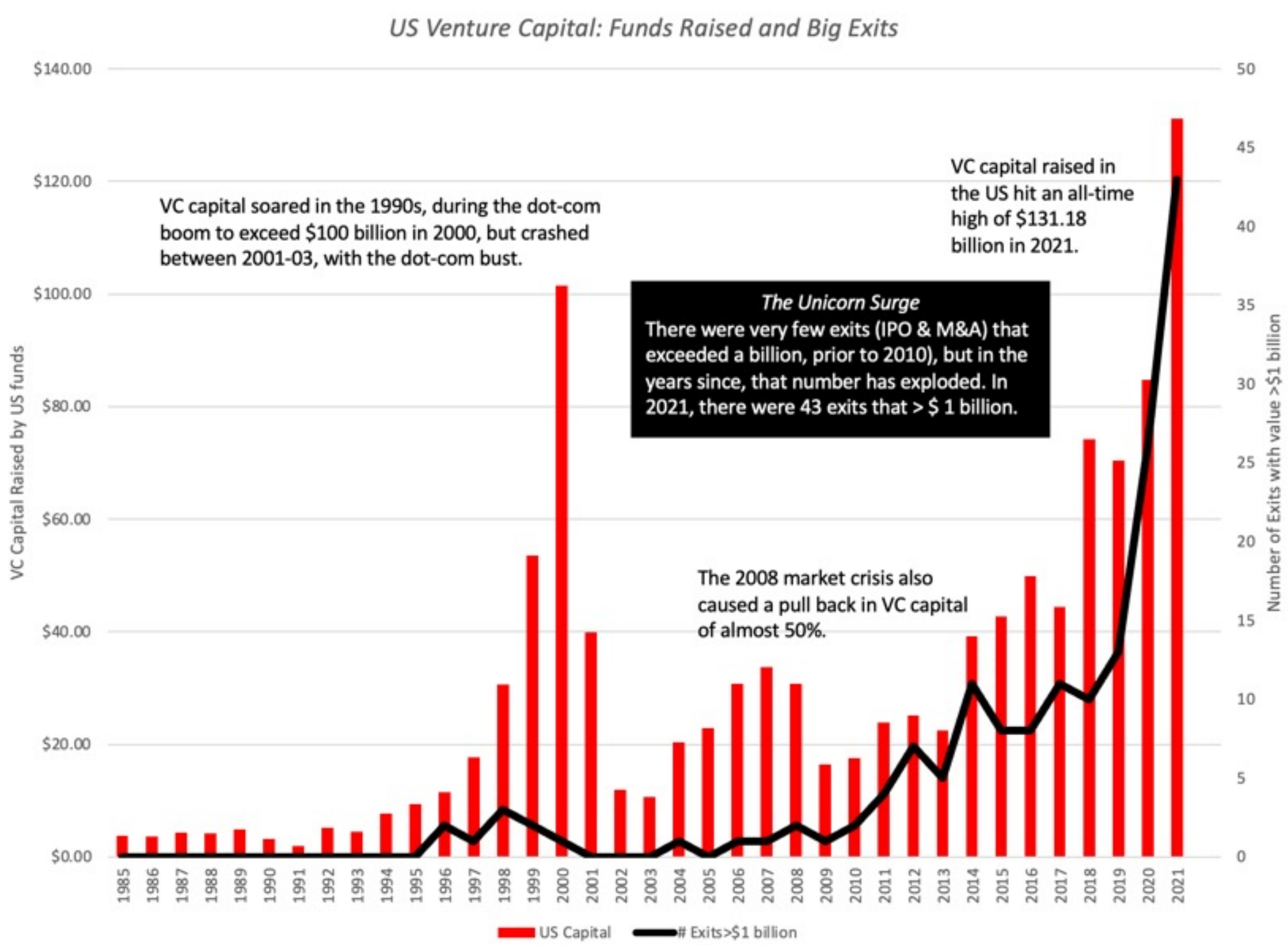
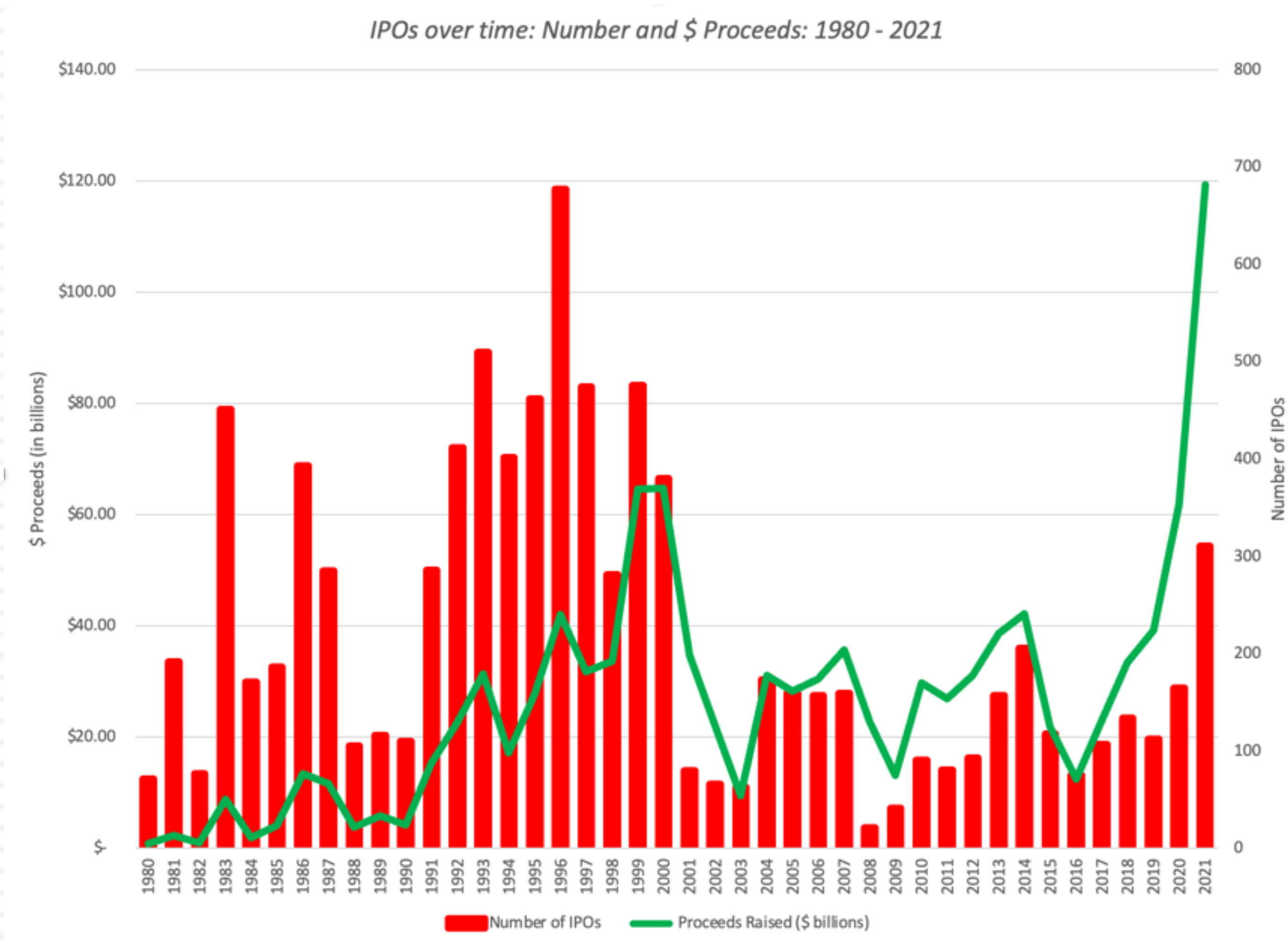
Risk Capital: Historical Perspective

- How do you track the availability and access to risk capital over time? There are three proxies that I will use, and while each has its limitations, read together, they can provide a fuller measure of the ebbs and flows of risk capital.
  - The first is *funds invested by venture capitalists*, with a breakdown further into types, from pre-seed and seed financing to very young companies to capital provided to more established businesses, as a prelude to exit (acquisition or IPO).
  - The second is the trend line in *initial public offerings (number and value raised)*, since companies are more likely to go public and be able to raise more proceeds when risk capital is plentiful.
  - The third is b*ond issuances by the riskiest companies (below investment grade and high yield)*, since these issuances are more likely to have a friendly reception when risk capital is easily available than when it is not.

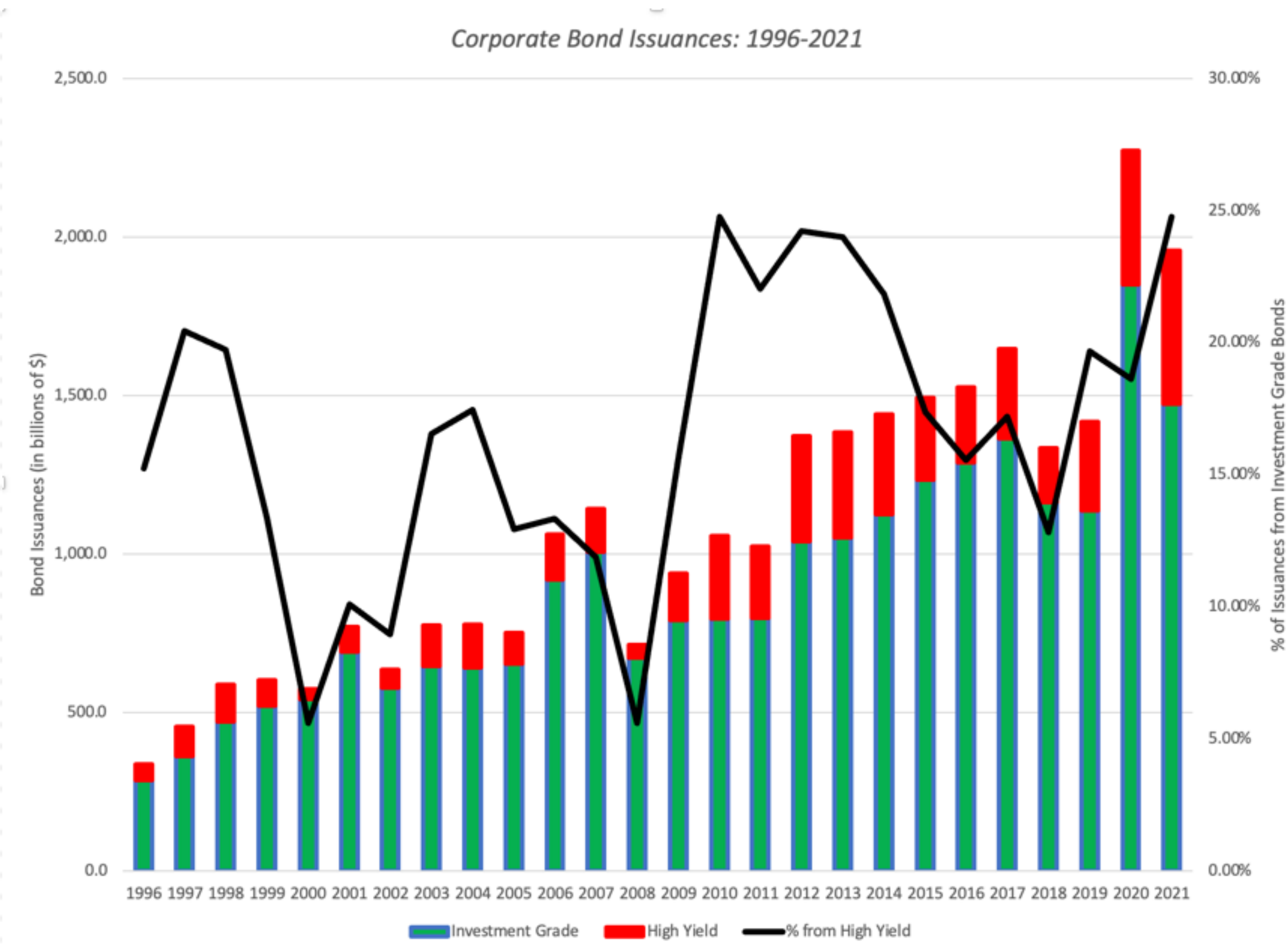
1. Venture Capital: History



2. IPOs: History



3. High Yield Bond Issuances: History



Risk Capital in 2022

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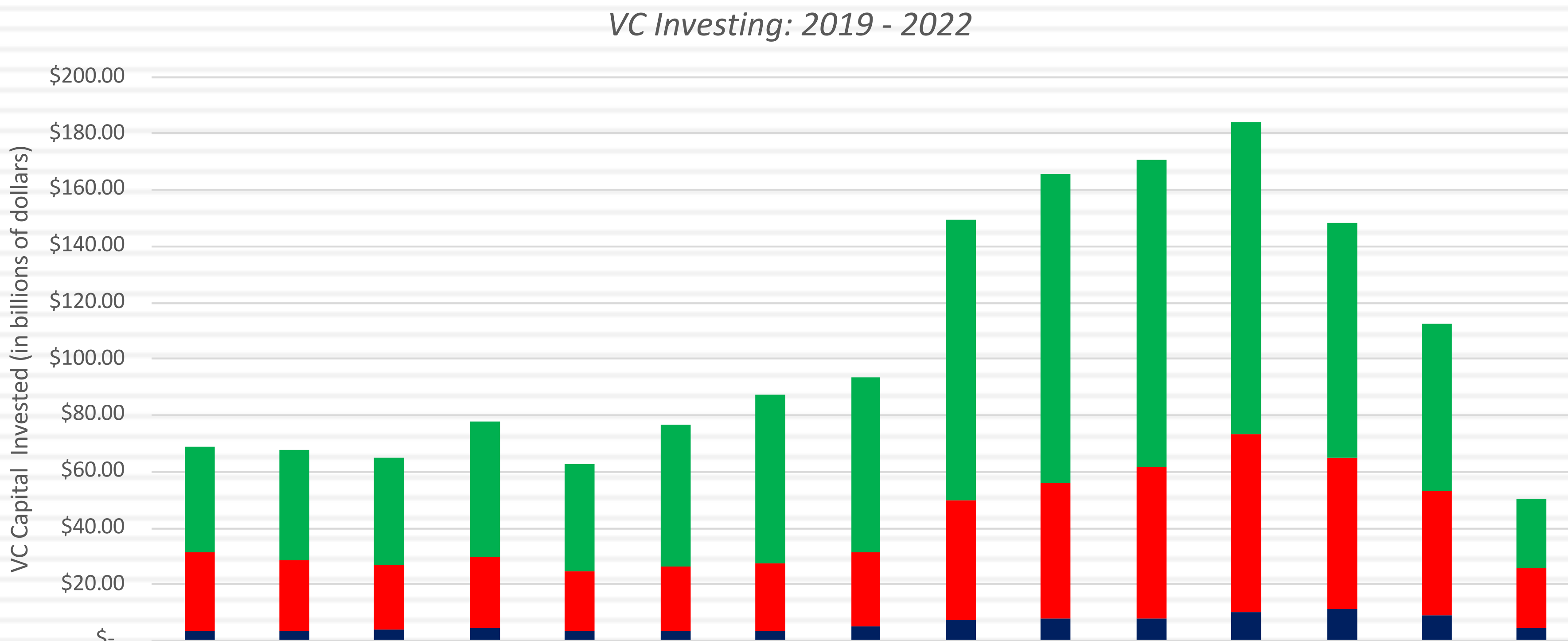
The 2022 Update on Risk Capital

- The last two and a half years may not represent much time on a historical scale, but the period has packed in enough surprises to make it feel like a decade already.
- We started 2020 with a pandemic that altered our personal, work and financial lives, and in 2022, at least in North America and Europe, we have seen inflation reach levels that we have not seen for decades.
- Looking at the 33 months through the lens of risk capital can help us understand not only the journey that markets have gone through to get where they are today, but also perhaps decipher where they may go next.

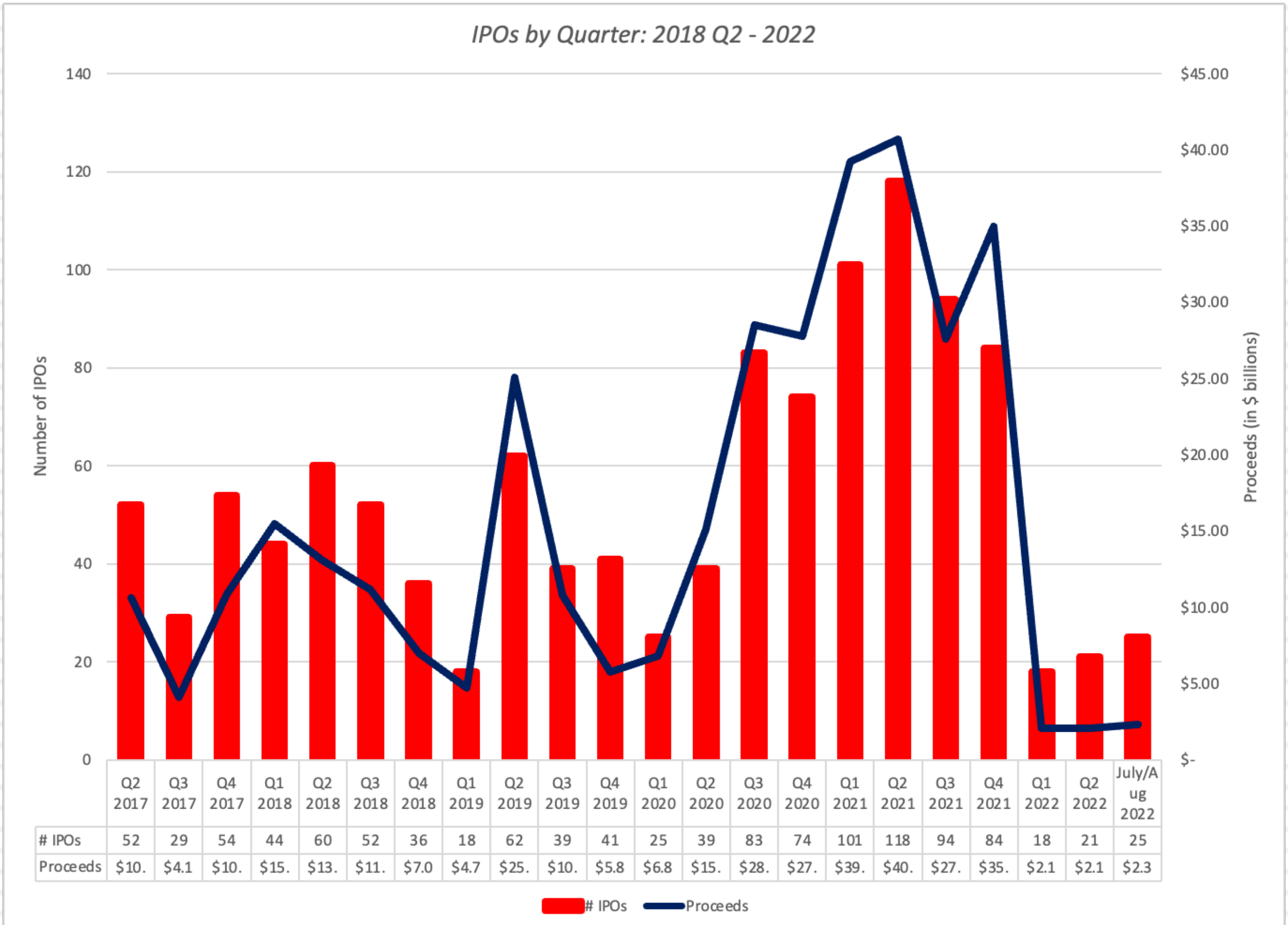
1. Venture Capital: Recent



	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022	Q2 2022	July/Aug 2022
Late Stage	$37.50	$39.10	$37.90	$48.00	$38.30	$50.40	$59.80	$62.00	$99.20	$109.80	$109.10	$110.90	$83.60	$59.50	$25.00
Early Stage	$27.80	$24.90	$23.10	$25.40	$21.10	$23.00	$24.10	$26.70	$43.00	$48.10	$53.90	$63.30	$53.70	$44.20	$20.90
Angel Seed	$3.40	$3.70	$3.80	$4.50	$3.50	$3.30	$3.50	$4.90	$7.10	$7.90	$7.90	$10.10	$11.10	$9.10	$4.80

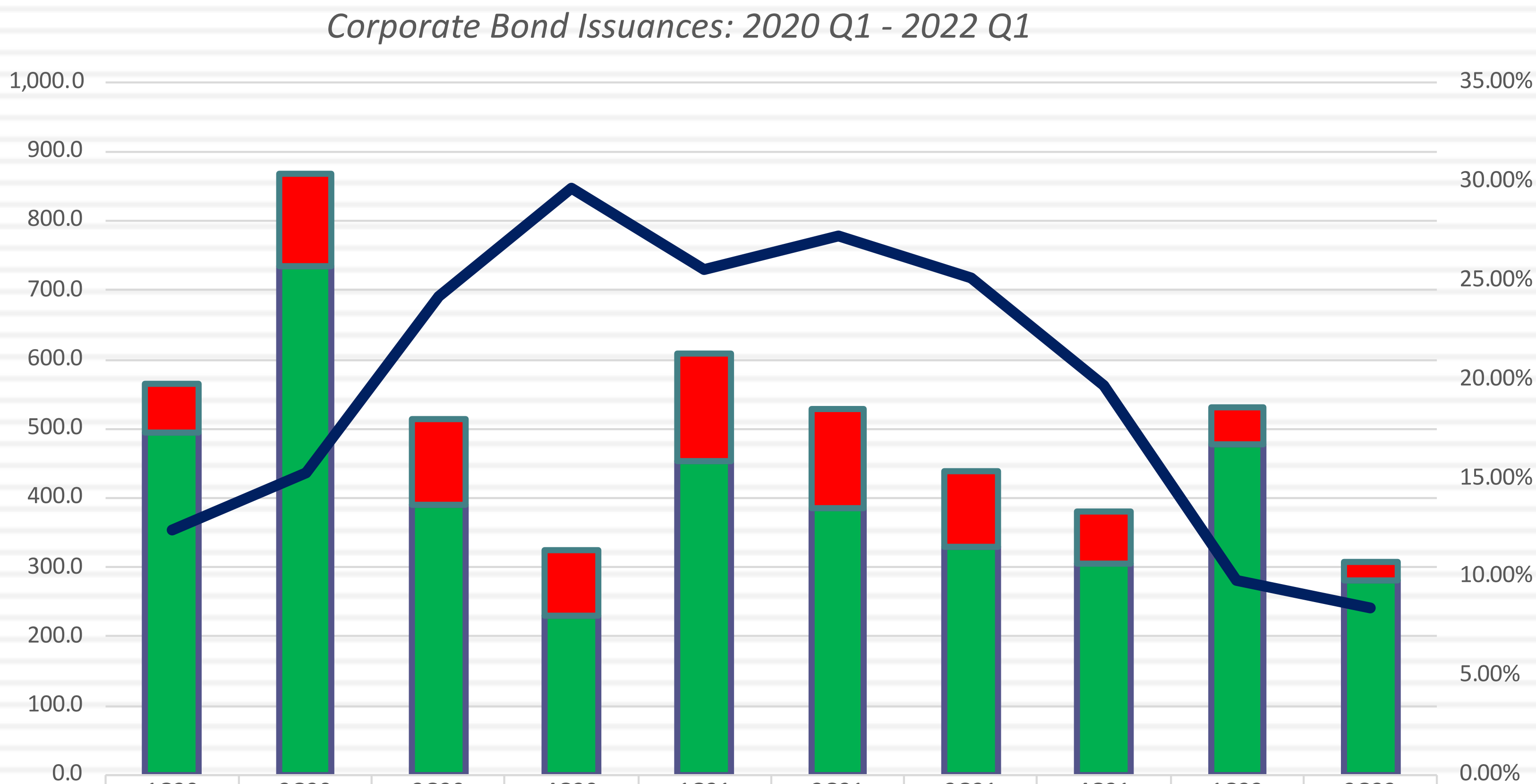
Angel Seed Early Stage Late Stage

2. IPOs: Recent



	Q2 2017	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022	Q2 2022	July/Aug 2022
# IPOs	52	29	54	44	60	52	36	18	62	39	41	25	39	83	74	101	118	94	84	18	21	25
Proceeds	$10.	$4.1	$10.	$15.	$13.	$11.	$7.0	$4.7	$25.	$10.	$5.8	$6.8	$15.	$28.	$27.	$39.	$40.	$27.	$35.	$2.1	$2.1	$2.3

3. High Yield Bond Issuances: Recent



	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22
High Yield	69.9	132.4	124.8	96.5	155.6	144.0	110.7	74.7	52.4	26.0
Investment Grade	495.3	735.1	390.4	229.0	453.8	385.2	329.2	304.7	478.1	282.1
% from High Yield	12.37%	15.26%	24.22%	29.66%	25.53%	27.22%	25.16%	19.69%	9.87%	8.45%

Risk Capital and Risk Premia

The Price of Risk

- If investors are risk averse, they need inducement to invest in risky assets. That inducement takes the form of a risk premium, a premium you would demand over and above the riskfree asset to invest in a risky asset.
- Every risky asset market has a "risk" premium that determines how individual assets in that market are priced.
  - In an equity market, that risk premium for dealing with the volatility of equities and bearing the residual risk is the equity risk premium.
  - In the bond market, the risk premium for being exposed to default risk is the default spread.
  - In real asset markets, there are equivalent (though less widely publicized markets).

General Propositions about Risk Premiums

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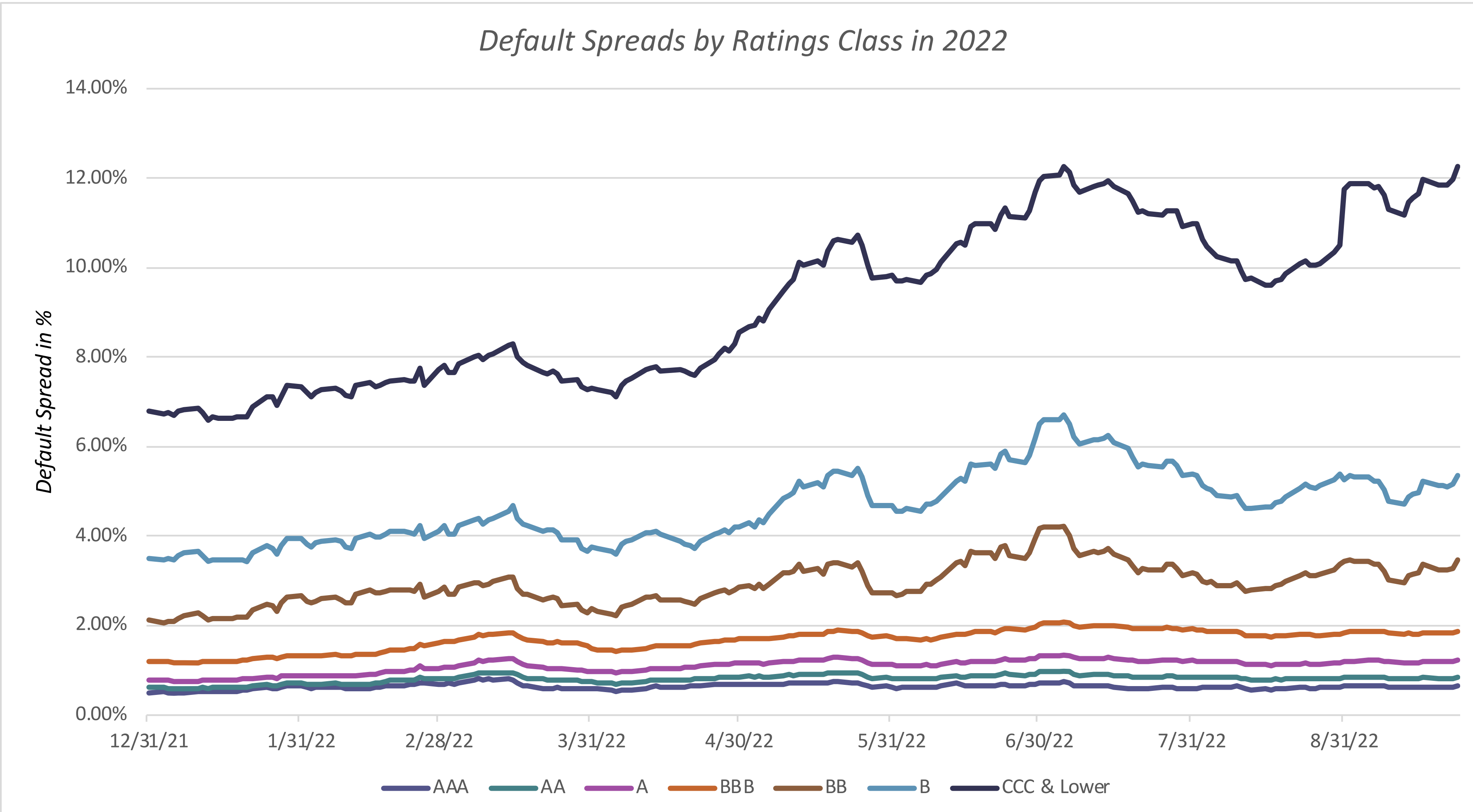
- Proposition 1: Risk premiums and prices for risky assets are inversely related. When risk premiums go up, risky asset prices go down.
- Proposition 2: Any statement about the magnitude of expected risk premiums is really a statement about the level of asset prices. Thus, if you argue that expected risk premium for a risky asset is too low, you are arguing that its priced too high.
- Proposition 3: Asset allocation and market timing decisions are really judgment calls on the future direction of risk premiums in different asset markets.

Price of Risk in Bonds: Default Spreads over time..

Year	AAA	BBB	CCC& Lower
12/31/97	0.42%	0.93%	6.52%
12/31/98	0.62%	1.71%	9.22%
12/31/99	0.75%	1.53%	12.92%
12/31/00	0.98%	2.66%	16.29%
12/31/01	0.70%	2.22%	21.00%
12/31/02	1.02%	2.70%	20.69%
12/31/03	0.61%	1.30%	12.96%
12/31/04	0.55%	1.13%	7.99%
12/31/05	0.61%	1.21%	7.58%
12/31/06	0.56%	1.22%	6.20%
12/31/07	1.22%	2.45%	5.87%
12/31/08	3.43%	7.84%	16.75%
12/31/09	0.77%	2.48%	19.91%
12/31/10	0.66%	2.11%	10.18%
12/31/11	0.87%	3.15%	10.31%
12/31/12	0.64%	2.04%	11.04%
12/31/13	0.60%	1.74%	8.27%
12/31/14	0.65%	1.98%	7.57%
12/31/15	0.75%	2.41%	10.98%
12/31/16	0.71%	1.66%	14.37%
12/31/17	0.54%	1.28%	8.60%
12/31/18	0.78%	2.02%	7.67%
12/31/19	0.52%	1.30%	9.92%
12/31/20	0.55%	1.30%	8.03%
12/31/21	0.51%	1.21%	6.78%
High	3.43%	7.84%	21.00%
Average	0.81%	2.10%	11.28%
Median	0.66%	1.86%	10.05%
Low	0.42%	0.93%	5.87%

And in 2022…

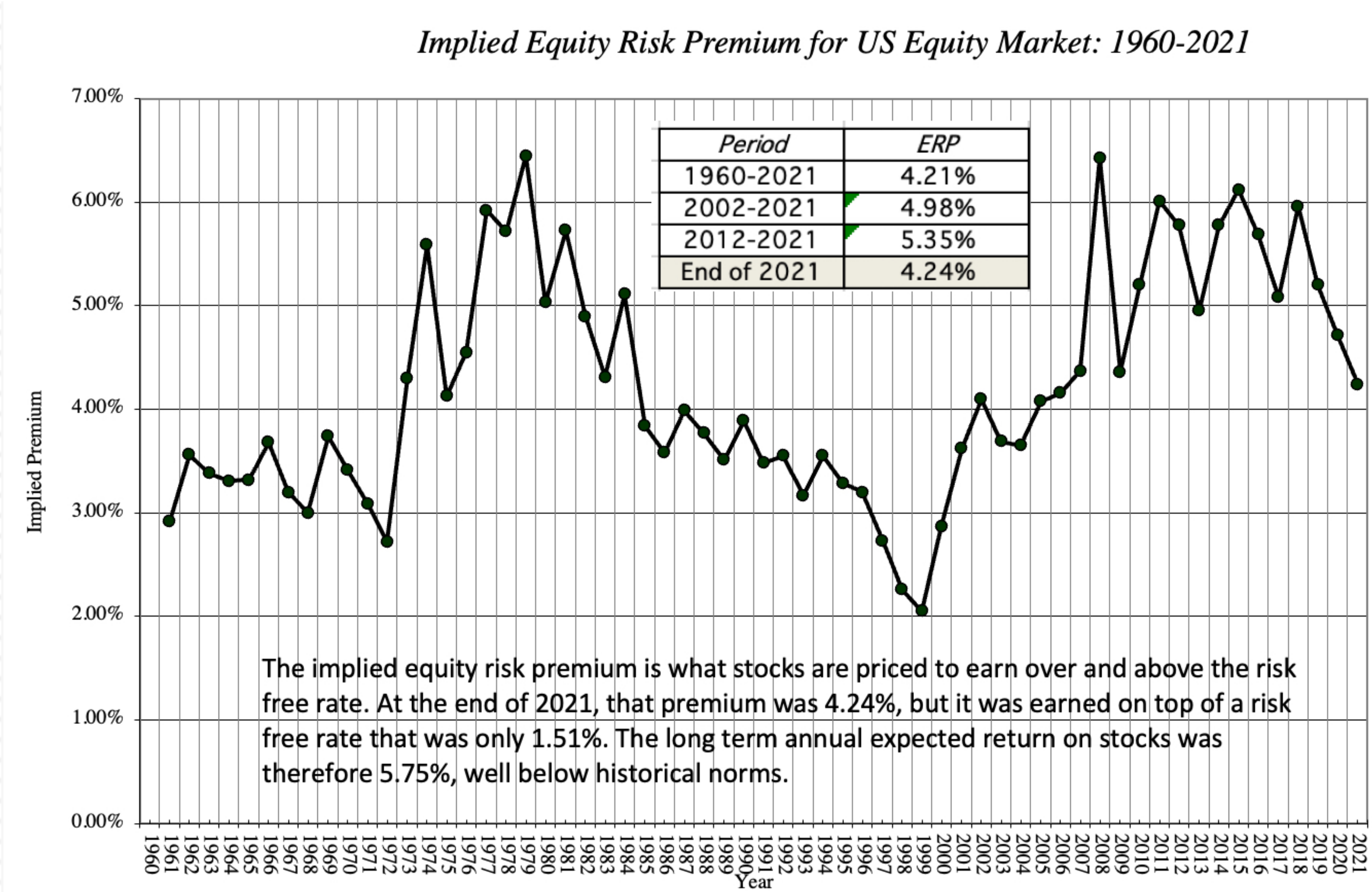


Default Spreads by Ratings Class in 2022
14.00%
12.00%
10.00%
8.00%
6.00%
4.00%
2.00%
0.00%
Default Spread in %
12/31/21
1/31/22
2/28/22
3/31/22
4/30/22
5/31/22
6/30/22
7/31/22
8/31/22
AAA
AA
A
BBB
BB
B
CCC & Lower

By Ratings Class…

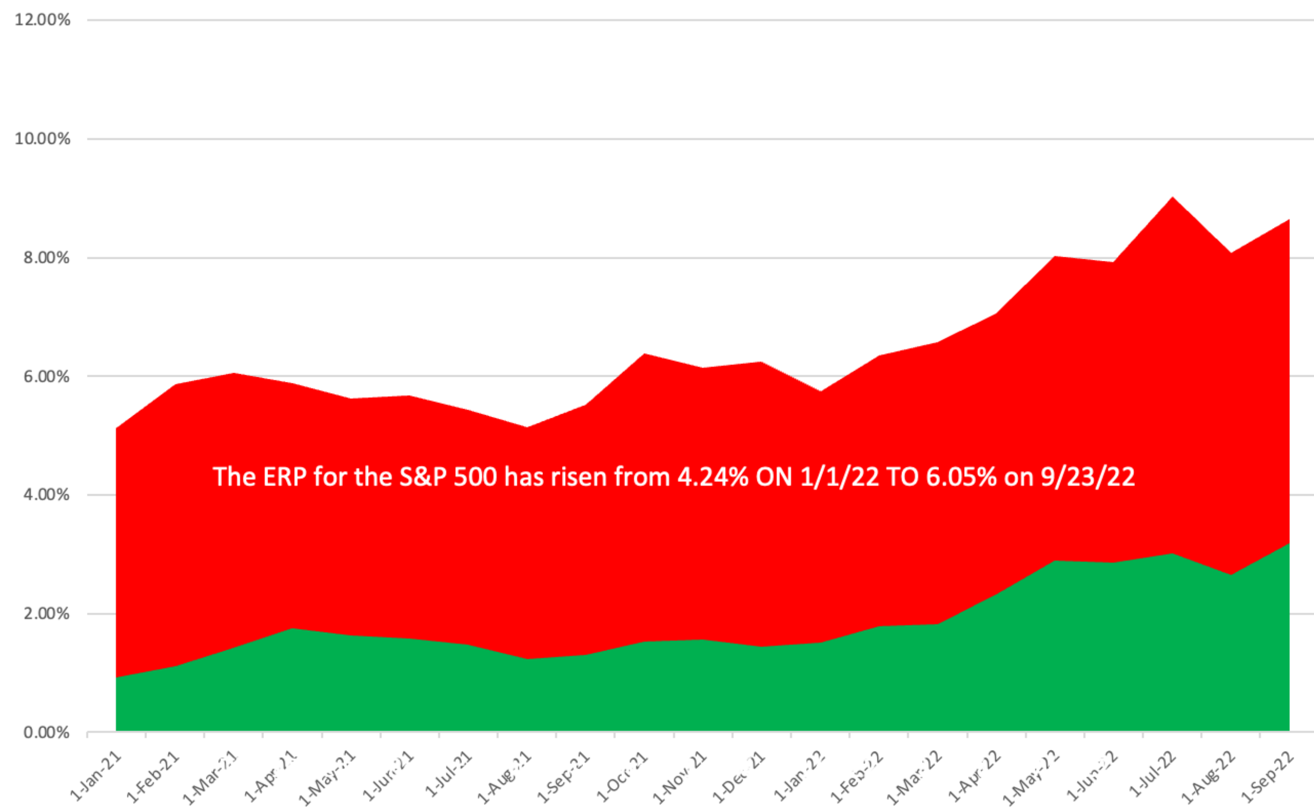
Date	AAA	AA	A	BBB	BB	B	0
1/1/22	0.51%	0.62%	0.78%	1.21%	2.11%	3.51%	6.78%
2/1/22	0.62%	0.70%	0.87%	1.33%	2.55%	3.83%	7.22%
3/1/22	0.70%	0.83%	1.07%	1.64%	2.86%	4.23%	7.82%
4/1/22	0.58%	0.73%	0.97%	1.47%	2.33%	3.73%	7.27%
5/1/22	0.70%	0.87%	1.17%	1.72%	2.90%	4.30%	8.69%
6/1/22	0.60%	0.81%	1.11%	1.70%	2.67%	4.56%	9.70%
7/1/22	0.71%	0.97%	1.33%	2.05%	4.19%	6.61%	12.05%
8/1/22	0.60%	0.86%	1.21%	1.91%	3.15%	5.35%	10.97%
9/1/22	0.65%	0.86%	1.21%	1.88%	3.47%	5.34%	11.89%
9/23/22	0.65%	0.86%	1.23%	1.87%	3.46%	5.36%	12.25%
Change in 2022	**0.14%**	**0.24%**	**0.45%**	**0.66%**	**1.35%**	**1.85%**	**5.47%**

Price of Risk in Equity Markets: The Equity Risk Premium



And in 2022…

Implied ERP and T.Bond Rate: January 2021 - Sept 23, 2022



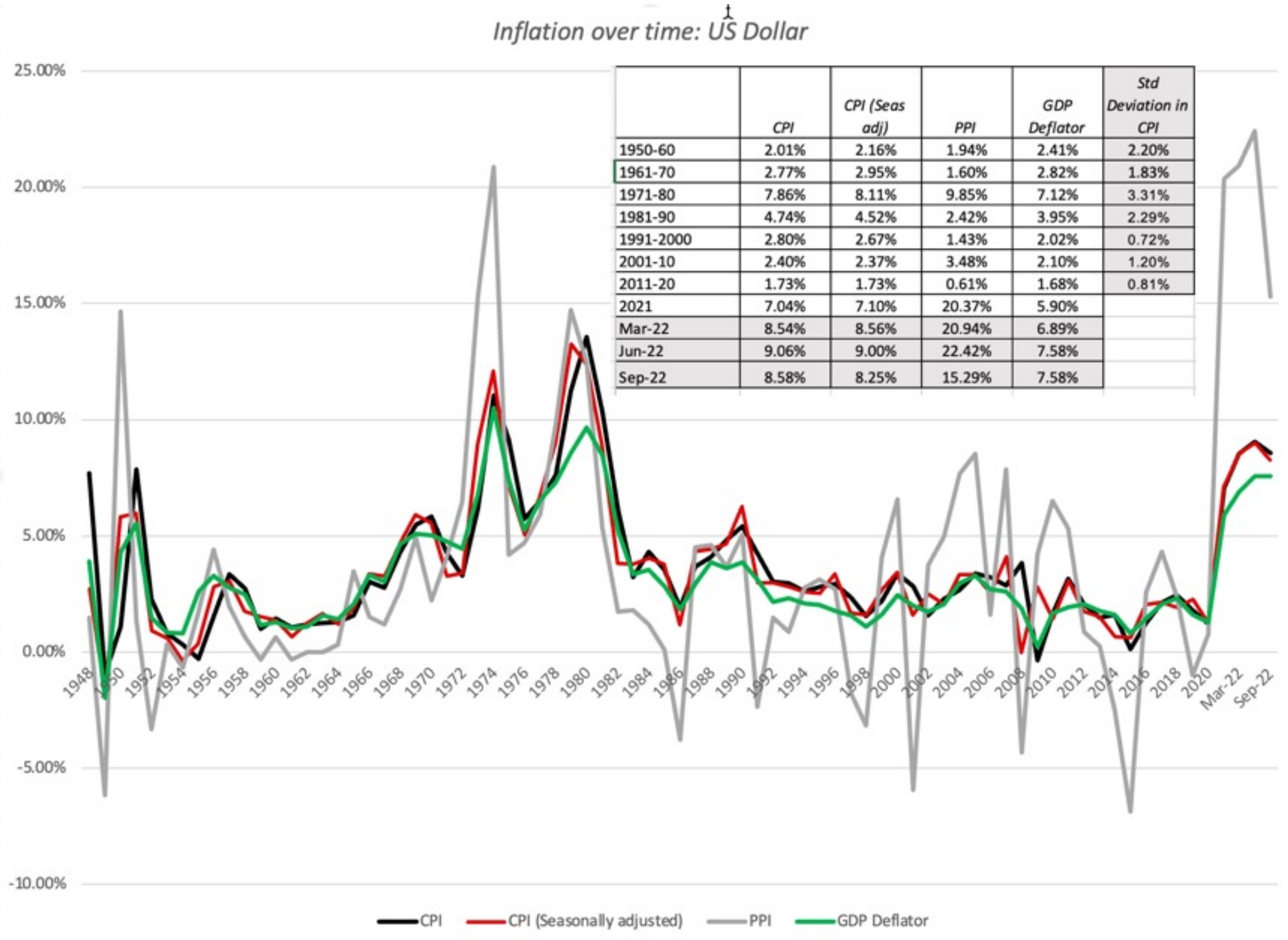
	1-Jan-21	1-Feb-21	1-Mar-21	1-Apr-21	1-May-21	1-Jun-21	1-Jul-21	1-Aug-21	1-Sep-21	1-Oct-21	1-Nov-21	1-Dec-21	1-Jan-22	1-Feb-22	1-Mar-22	1-Apr-22	1-May-22	1-Jun-22	1-Jul-22	1-Aug-22	1-Sep-22	23-Sep-22
ERP	4.20%	4.76%	4.63%	4.14%	3.99%	4.10%	3.96%	3.91%	4.21%	4.87%	4.58%	4.79%	4.24%	4.56%	4.75%	4.73%	5.14%	5.07%	6.01%	5.42%	5.45%	5.95%
T. Bond Rate	0.93%	1.11%	1.43%	1.75%	1.63%	1.58%	1.47%	1.23%	1.31%	1.52%	1.56%	1.45%	1.51%	1.79%	1.83%	2.33%	2.89%	2.86%	3.02%	2.65%	3.19%	3.72%

Risk Capital's Value Effects

Risk Capital's Value Effects

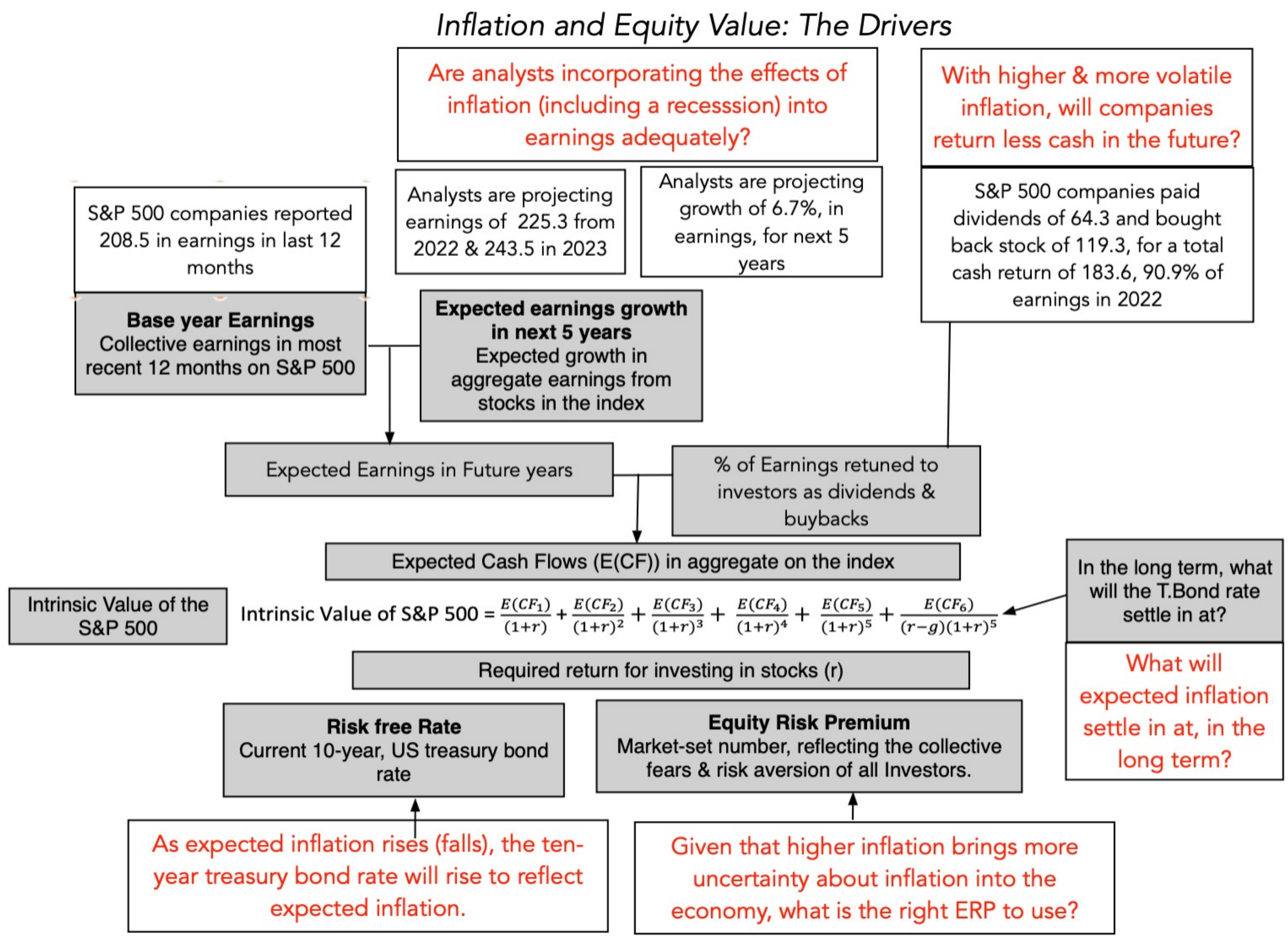
- To understand the effects of risk capital on value, you have to trace the changes in it back to their sources. In 2022, it has been inflation that has been the culprit driving risk capital out of the game, and to understand how risk capital will affect value, you have to look at the full effects of inflation.
- That effect can be seen at
  - The market level, as changes in index value
  - And the company level, as changes in individual company values

Inflation and Risk



	CPI	CPI (Seas adj)	PPI	GDP Deflator	Std Deviation in CPI
1950-60	2.01%	2.16%	1.94%	2.41%	2.20%
1961-70	2.77%	2.95%	1.60%	2.82%	1.83%
1971-80	7.86%	8.11%	9.85%	7.12%	3.31%
1981-90	4.74%	4.52%	2.42%	3.95%	2.29%
1991-2000	2.80%	2.67%	1.43%	2.02%	0.72%
2001-10	2.40%	2.37%	3.48%	2.10%	1.20%
2011-20	1.73%	1.73%	0.61%	1.68%	0.81%
2021	7.04%	7.10%	20.37%	5.90%	
Mar-22	8.54%	8.56%	20.94%	6.89%	
Jun-22	9.06%	9.00%	22.42%	7.58%	
Sep-22	8.58%	8.25%	15.29%	7.58%	

Inflation and Index Value



My assessments on September 23, 2022

An Intrinsic (and Personal) Valuation of the S&P 500 on September 23, 2022

My Earnings Estimates
Analysts are underestimating the effect of a recession on future earnings, and I am reducing their 2023 estimates by 15%, with ripple effects on earnings beyond. (I am leaving 2022 estimates untouched, because the bulk of the year is behind us.

Cash Return
While companies have collectively returned 90.5% of earnings as dividends and buybacks in the most recent 12 months, recession fears and uncertainty will lead them to reduce this cash returns to 80% of earnings (consistent with growth in long term), over time.

Intrinsic Value Estimate (based on your choice of ERP)

	2021	2022	2023	2024	2025	2026	*Terminal Year*
Analyst Estimate of Earnings	208.53	225.34	243.46	259.79	273.70	284.65	296.03
My Estimate of Earnings	$208.53	225.34	206.94	225.03	243.13	252.85	262.97
Expected Earnings Growth Rate		8.06%	-8.16%	6.71%	5.35%	4.00%	4.00%
Expected cash payout as % of earnings	90.50%	90.50%	87.88%	85.25%	82.63%	80.00%	80.00%
Expected Dividends + Buybacks =	$188.72	$203.93	$181.85	$191.84	$200.89	$202.28	210.37
Expected Terminal Value =						$ 4,207.49	
Riskfree Rate	3.69%	3.75%	3.81%	3.88%	3.94%	4.00%	4.00%
Required Return on Stocks	8.69%	8.75%	8.81%	8.88%	8.94%	9.00%	9.00%
Present Value =		$187.52	$153.67	$148.90	$143.12	$2,882.41	
Intrinsic Value of Index =	**3515.63**						
Actual Index level =	**3693.23**						
% Under or Over Valuation =	**-4.81%**						

Ten-year Treasury Bond Rate
I will assume that the bulk of the rise in rates has already occurred, and that the T.Bond rate will converge to 4%, over the next five years.

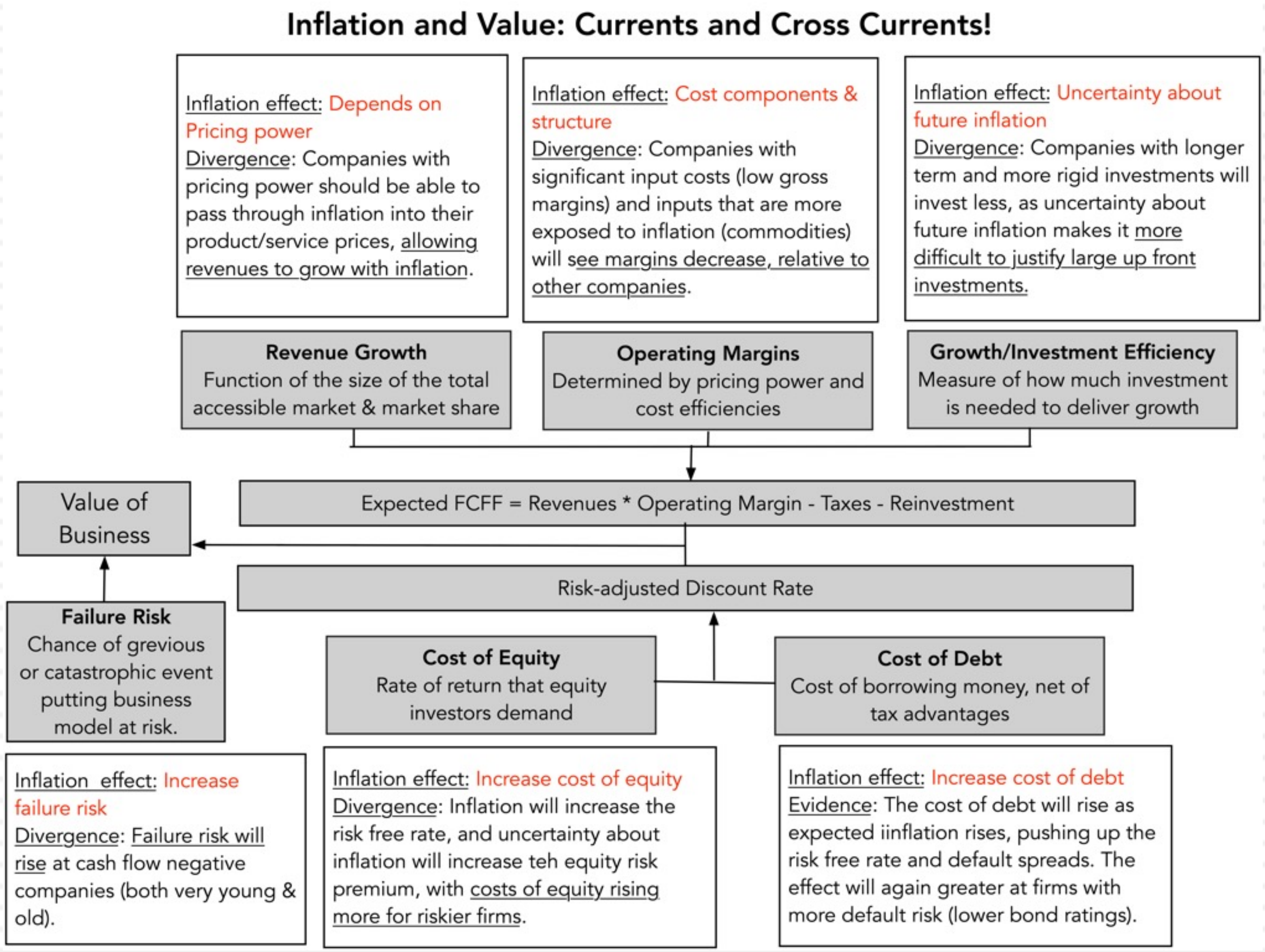
Equity Risk Premium
The equity risk premium is 5%, close to both the historical average risk premium earned on stocks from 1928 - 2022 and the average implied equity risk premium over the last decade. Adding it to the ten-year bond rate yields the required return on stocks.

In my overarching story for equities, I am building in the assumption that there will be a recession that creates both short term & long term damage to corporate earnings, but helps in restraining inflation, bringing it down from 2022 levels to about 3% in the long term (above the 2011-2021 average of 1.73%).

Index Value Drivers

	Valuing the S&P 500 on Sept 23, 2022								
	Earnings = 30% below Estimates			*Earnings = 15% below Estimates*			*Earnings = Estimates*		
Riskfree Rate	*ERP =4%*	*ERP =5%*	*ERP =6%*	*ERP =4%*	*ERP =5%*	*ERP =6%*	*ERP =4%*	*ERP =5%*	*ERP =6%*
2%	4276	3416	2842	4677	3737	3110	5449	4348	3615
3%	4132	3303	2750	4519	3613	3009	5169	4129	3436
4%	3979	3183	2653	4352	3482	2903	4889	3910	3257
5%	3819	3058	2551	4176	3345	2790	4609	3690	3078
6%	3650	2926	2443	3991	3200	2672	4328	3471	2899
Index was trading at 3693 on 9/23/22. Shaded cells are higher than 3693									

Inflation and Company Value



Evidence across risk classes in stocks…

Percentage Changes in Aggregate Market Cap from 1/1/22 to 6/30/22

Money-losing firms saw bigger market cap drops than money-making firms (with net profits as a percent of revenues measuring profitability).

Most money-losing to most money-making

Firms with higher growth saw bigger declines in market capitalization than firms lower expected revenue growth, for lower margin firms.

Highest revenue growth to lowest

		Net Margin				
		Lowest	2	3	4	Highest
Revenue Growth (CAGR 2019-21)	Lowest	-19.93%	-14.22%	-16.80%	-12.25%	-13.76%
	2	-23.73%	-17.49%	-17.04%	-16.99%	-14.42%
	3	-20.50%	-13.66%	-14.87%	-15.52%	-15.07%
	4	-29.04%	-30.31%	-17.93%	-22.11%	-17.96%
	Highest	-42.32%	-22.47%	-27.13%	-20.86%	-23.73%

Fear factor?

- Note that high growth, negative earnings companies have fared much worse, in general, during the 2022 downturn, than more mature, money-making companies.
- The fear factor that is tilting the balance back to safety capital from risk capital has also had clear consequences in the speculative collectibles space, with cryptos bearing the brunt of the punishment.
- Finally, there are markdowns coming to private company holdings, both in the hands of venture capitalists, and public market investors (including mutual funds that have been drawn into this space and public companies like Softbank).

What next?

- The big question that we all face, as we look towards the second half of the year, is whether the pullback in risk capital is temporary, as it was in 2020, or whether it is more long term, as in 2000 and 2008-09.
    - If it is the former, there is hope of not just a recovery, but a strong rebound in risky asset prices
    - If it is the latter, stocks may stabilize, but the riskiest assets will see depressed prices for much longer.
- I don't have a crystal ball or any special macro forecasting ability, but if I had to guess, it would be the latter.
    - Unlike a virus, where a vaccine may provide at least the semblance of protection (real or imagined), inflation, once unleashed, has no quick fix.
    - I also think that a return of fear and a longer term pullback in risk capital is healthy, since risk capital providers, spoiled by a decade of more of easy returns, have become lazy and sloppy.
- If that is a case, it is almost certain that the investment strategies that delivered high returns in the last decade will no longer work in this new environment, and that old lessons, dismissed as outdated just a few years go, may need to be relearned.