Aswath Damodaran

A MARKET ASSESSMENT

Predictably Unpredictable!

An Ad against Market Timing!

- I am not a market prognosticator for a simple reason. I am just not good at it, and the first six months of 2023 illustrate I think of market timing is the impossible dream.
- At the start of the year, the consensus of the market experts was that this would be a difficult year for markets, given the wall of macro worries about inflation and an impending recession, and adding the fear of the Fed raising rates to this mix only made bullishness a rare commodity on Wall Street.
- Markets, as is their wont, live to surprise, and 2023 has wrong-footed the experts (again).

The Lead In: A Year for the History Books

Aswath Damodaran

Stocks: Chronicling 2022 actual returns

	1/1/22	2/1/22	3/1/22	4/1/22	5/1/22	6/1/22	7/1/22	1-Aug-22	1-Sep-22	1-Oct-22	1-Nov-22	1-Dec-22	1-Jan-23
S&P 500	4766	4515	4374	4530	4132	4132	3785	4130	3955	3596	3872	4080	3840
Monthly return		-5.27%	-3.12%	3.58%	-8.79%	0.00%	-8.40%	9.11%	-4.24%	-9.08%	7.68%	5.37%	-5.89%

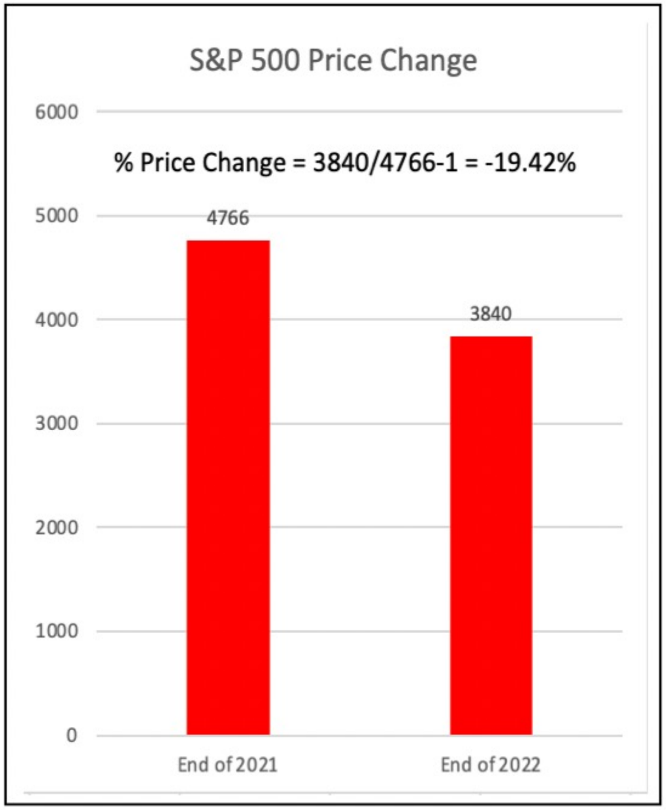
Level at Open

S&P 500 Monthly return

Breaking down 2022 Returns

The S&P 500 in 2022

Price Change



Dividends

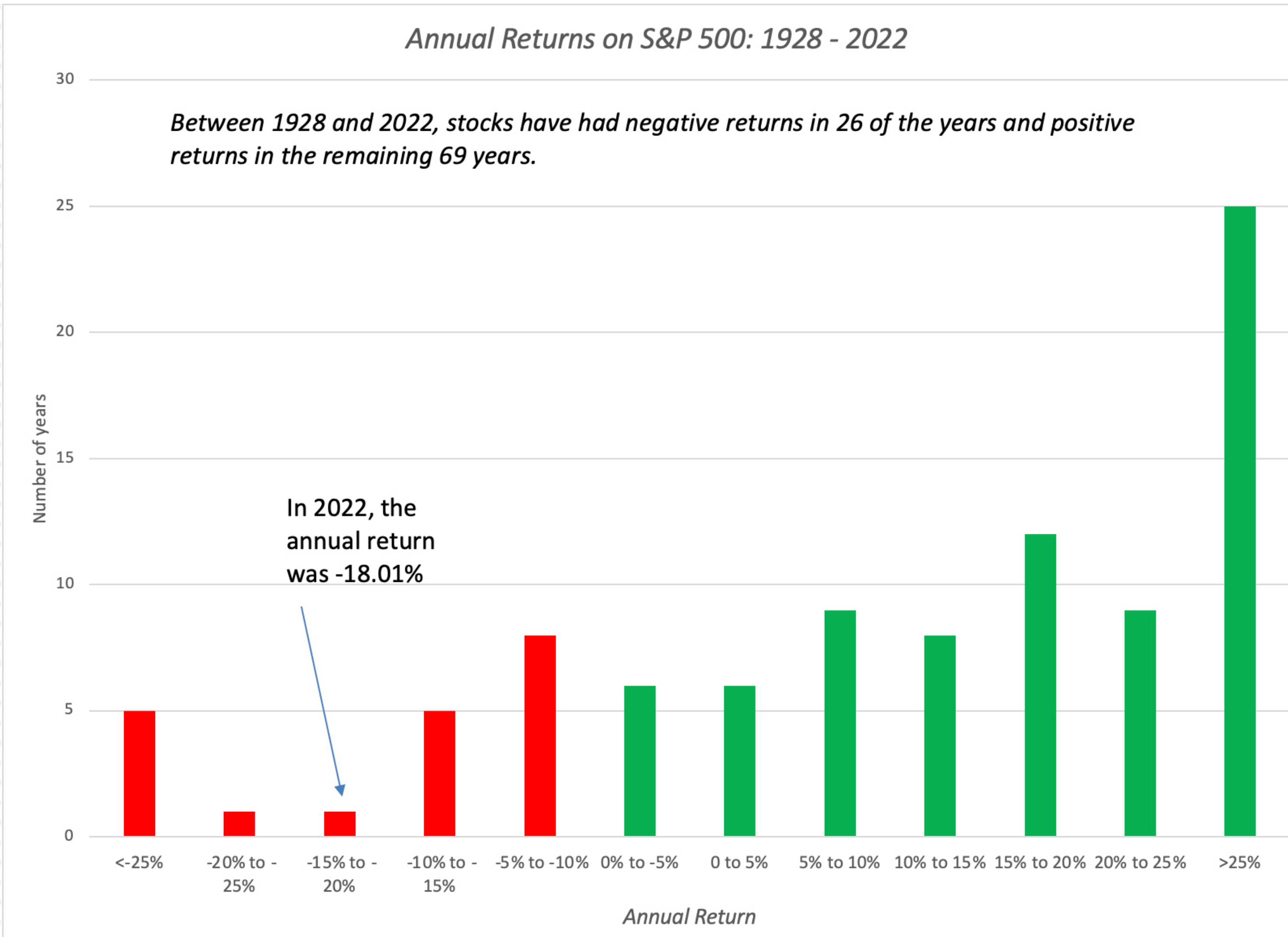
Dividends on the S&P 500 in 2022
= 69.3 (estd thru Dec)
Index Level on Jan 1, 2022
= 3840
Dividend Yield = **1.41%**

Of the 500 companies in the index, 399 paid dividends during 2022, up from 394 firms in 2021. 66% of firms increased dividends during the year.

Total Return

Return in 2022
= - 19.42% + 1.41%
= -18.01%

In historical context…



How 2022 falls in history….

Ten Worst Years (Nominal)		Ten Worst Years (Real)	
Year	*Total Return*	*Year*	*Total Return*
1931	-43.84%	1931	-38.07%
2008	-36.55%	1937	-37.13%
1937	-35.34%	2008	-36.61%
1974	-25.90%	1974	-34.04%
1930	-25.12%	2002	-23.78%
2002	-21.97%	2022	-23.46%
2022	-18.01%	1946	-22.48%
1973	-14.31%	1973	-21.17%
1941	-12.77%	1941	-20.65%
2001	-11.85%	1930	-20.01%

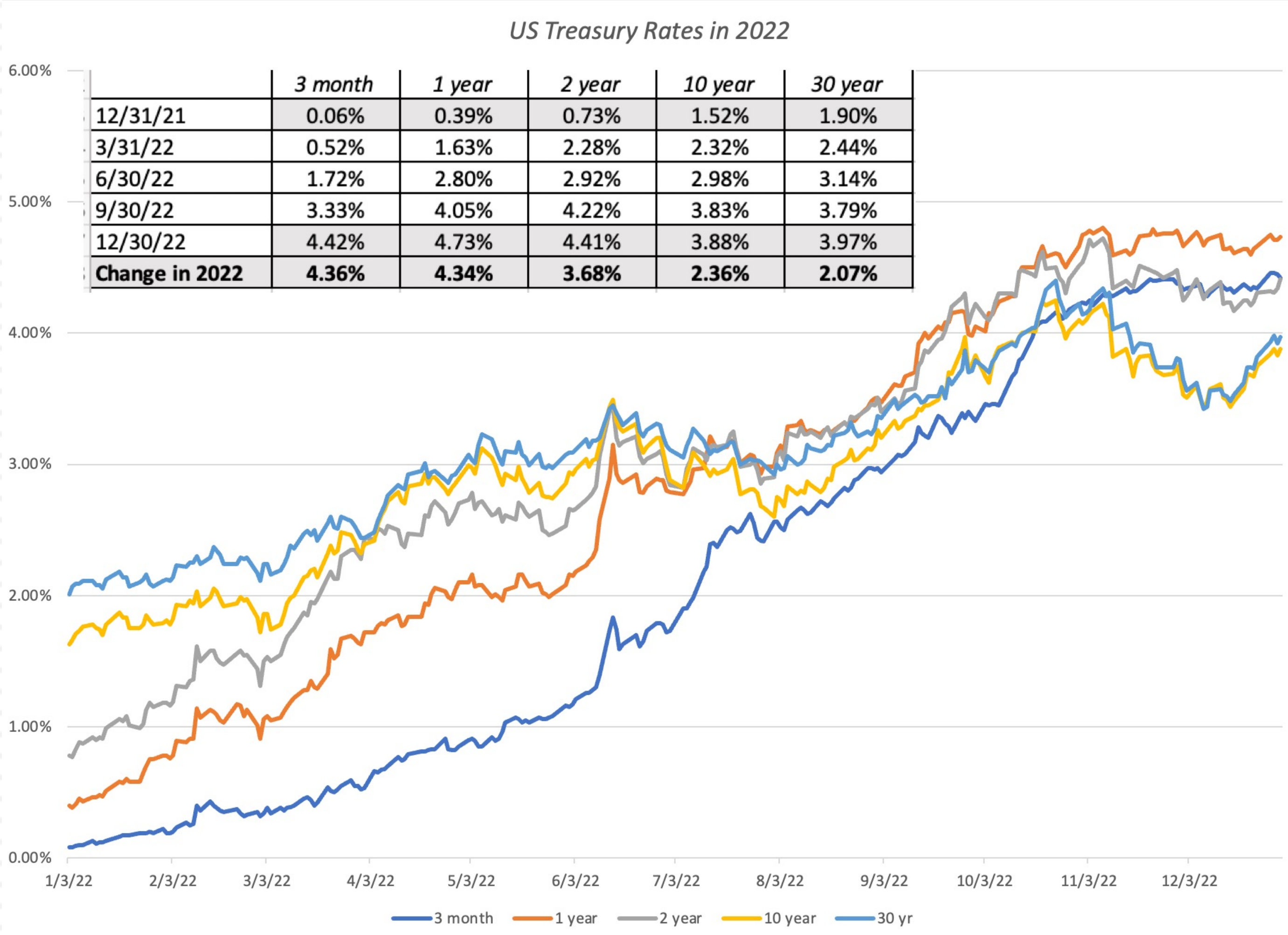
	By Decade (Nominal)		By Decade (Real)	
Decade	*Cumulative Return*	*Annual Return*	*Cumulative Return*	*Annual Return*
1931-1940	8.73%	0.84%	24.16%	2.19%
1941-1950	231.19%	12.72%	86.79%	6.45%
1951-1960	353.99%	16.33%	280.86%	14.31%
1961-1970	117.45%	8.08%	62.82%	5.00%
1971-1980	126.02%	8.50%	4.23%	0.42%
1981-1990	264.18%	13.80%	134.89%	8.91%
1991-2000	393.19%	17.30%	279.25%	14.26%
2001-2010	14.69%	1.38%	-8.95%	-0.93%
2011-2020	262.77%	13.75%	205.26%	11.81%
2021-2022	5.33%	2.63%	-8.19%	-4.18%

Interest Rates in Motion

- If 2022 was an unsettling year for equities, as I noted in my second data post, it was an even more tumultuous year for the bond market.
  - The US treasury market, considered by some still as safe haven, was anything but safe or a haven, especially at the long maturities, as long term rates soared, with inflation (not the Fed) being the key driver. As a result, treasury bond investors faced one of their worst years in history, losing close to a fifth of their principal, as bonds were repriced.
  - The rise in rates transmitted to corporate bond market rates, with a concurrent rise in default spreads exacerbating the damage to investors.
- Just as rising equity risk premiums push up the cost of equity, rising default spreads push up the cost of debt of companies, with the added complication of higher default risk for those companies that had pushed to the limits of their borrowing capacity in a low interest-rate environment.

US Treasuries: Safe no more…

9



	3 month	*1 year*	*2 year*	*10 year*	*30 year*
12/31/21	0.06%	0.39%	0.73%	1.52%	1.90%
3/31/22	0.52%	1.63%	2.28%	2.32%	2.44%
6/30/22	1.72%	2.80%	2.92%	2.98%	3.14%
9/30/22	3.33%	4.05%	4.22%	3.83%	3.79%
12/30/22	4.42%	4.73%	4.41%	3.88%	3.97%
Change in 2022	**4.36%**	**4.34%**	**3.68%**	**2.36%**	**2.07%**

Returns on US Treasuries…

Returns on US Constant Maturity 10-year T.Bond in 2022

Price Change

Price of 10-year T.Bond, with 1.51% coupon rate, bought on 1/1/22 at par = $1000
Price of 10-year T.Bond, with 1.51% coupon rate, at 12/31/22 rate of 3.88% =
PV @ 3.88% of annual coupon of $15.10 a year for 10 years + PV @ 3.88% of face value of $1000 at the end of year 10 = $806.61
Price Change on Constant Maturity 10-year T.Bond in 2022 =
(806.61-1000)/1000 = **-19.34%**

+

Coupons

Coupon on 10-year bond bought on 1/1/22 =
1.51%

=

Total Return

Return in 2022
= - 19.34% + 1.51%
= -17.83%

Nominal Return

Return in 2022
= - 19.34% + 1.51%
= -17.83%

-

Inflation in 2022

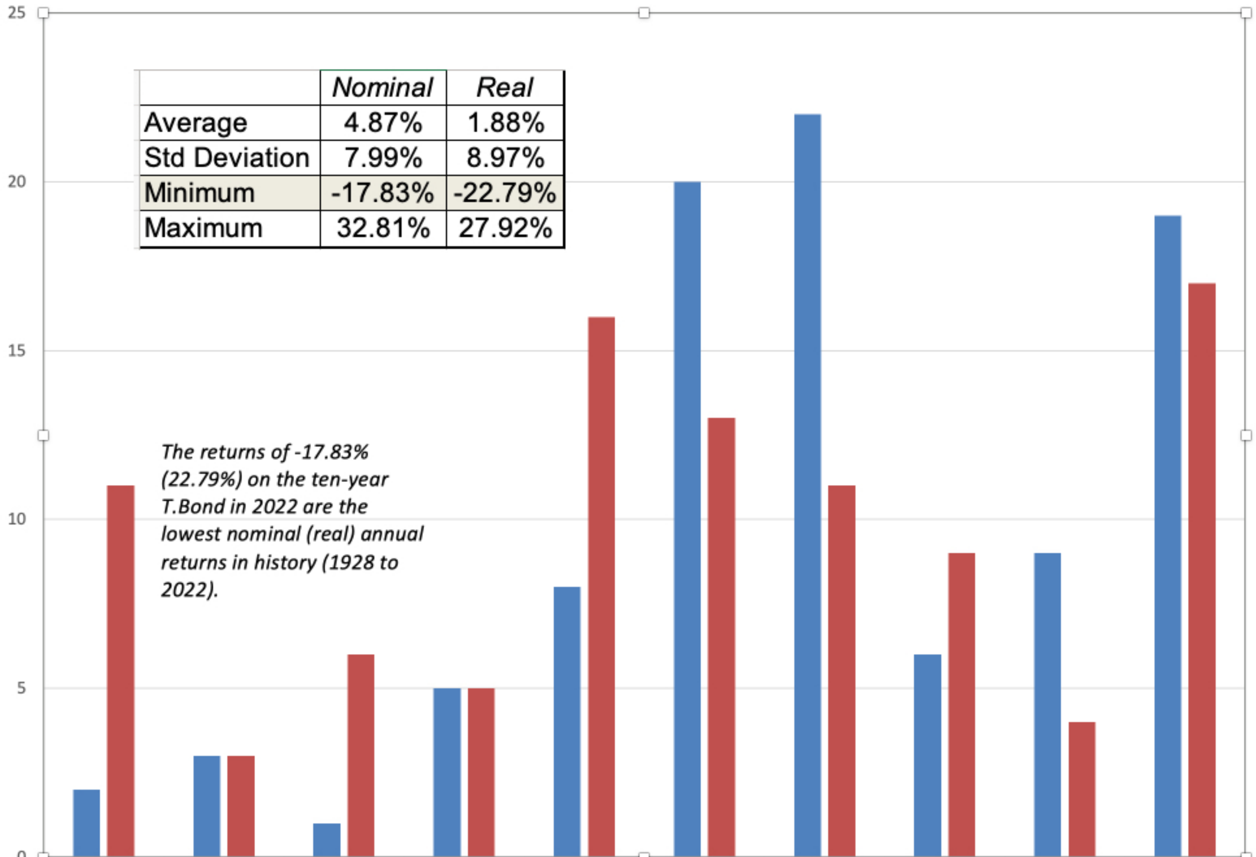
Inflation in 2022 =
6.42%

=

Real Return

Real Return in 2022
=(1-(-.1783))/1.0642
-1 = **-22.79%**

In historical context…



	Nominal	Real
Average	4.87%	1.88%
Std Deviation	7.99%	8.97%
Minimum	-17.83%	-22.79%
Maximum	32.81%	27.92%

	<-10%	-7.5% to -10%	-5% to -7.5%	-2.5% to -5%	0 to -2.5%	0 to 2.5%	2.5% to 5%	5% to 7.5%	7.5% to 10%	>10%
Nominal Return	2	3	1	5	8	20	22	6	9	19
Real Return	11	3	6	5	16	13	11	9	4	17

And in terms of co-movement…

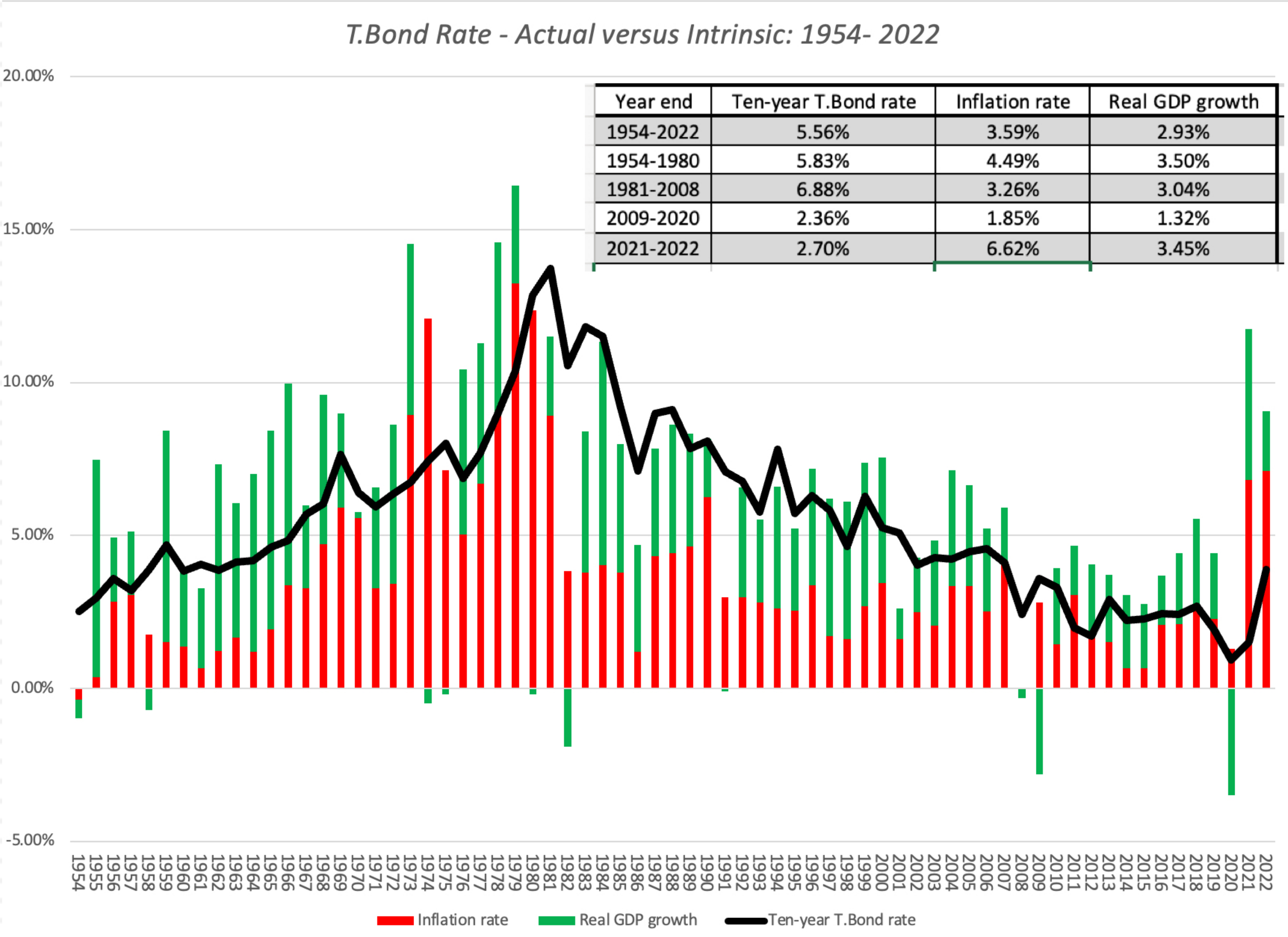
Annual Returns on Stocks & Bonds: Co-movement between 1928 and 2022

		Bond Returns	
		Positive	Negative
Stock Return	Positive	55	14
	Negative	21	5

Stocks, Bills & Bonds: Co-movement between 1928 and 2022

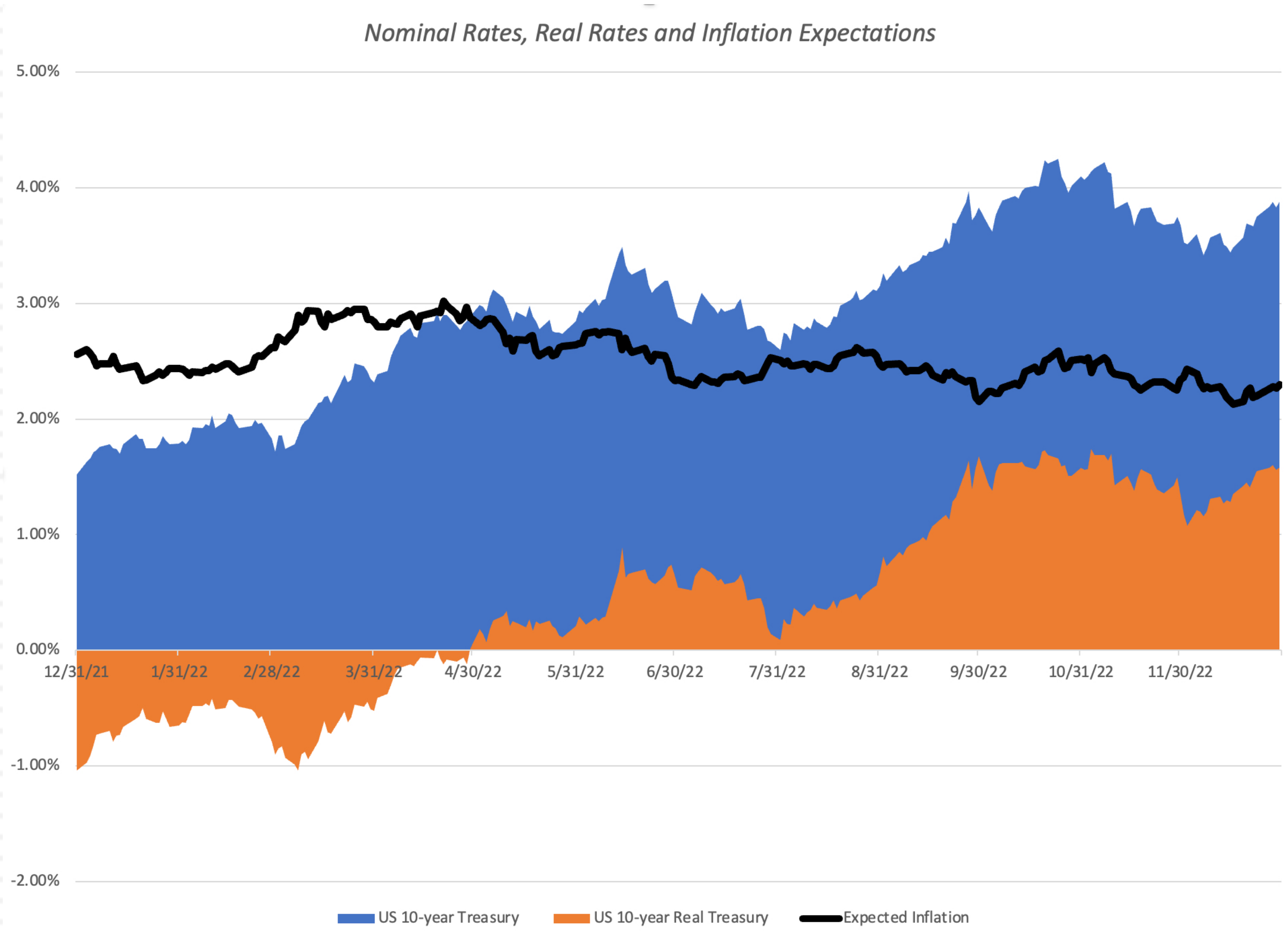
	S&P 500	3-month T.Bill	US T. Bond
S&P 500	1.0000		
3-month T.Bill	-0.0496	1.0000	
US T. Bond	0.0240	0.2500	1.0000

The Drivers of Interest Rates

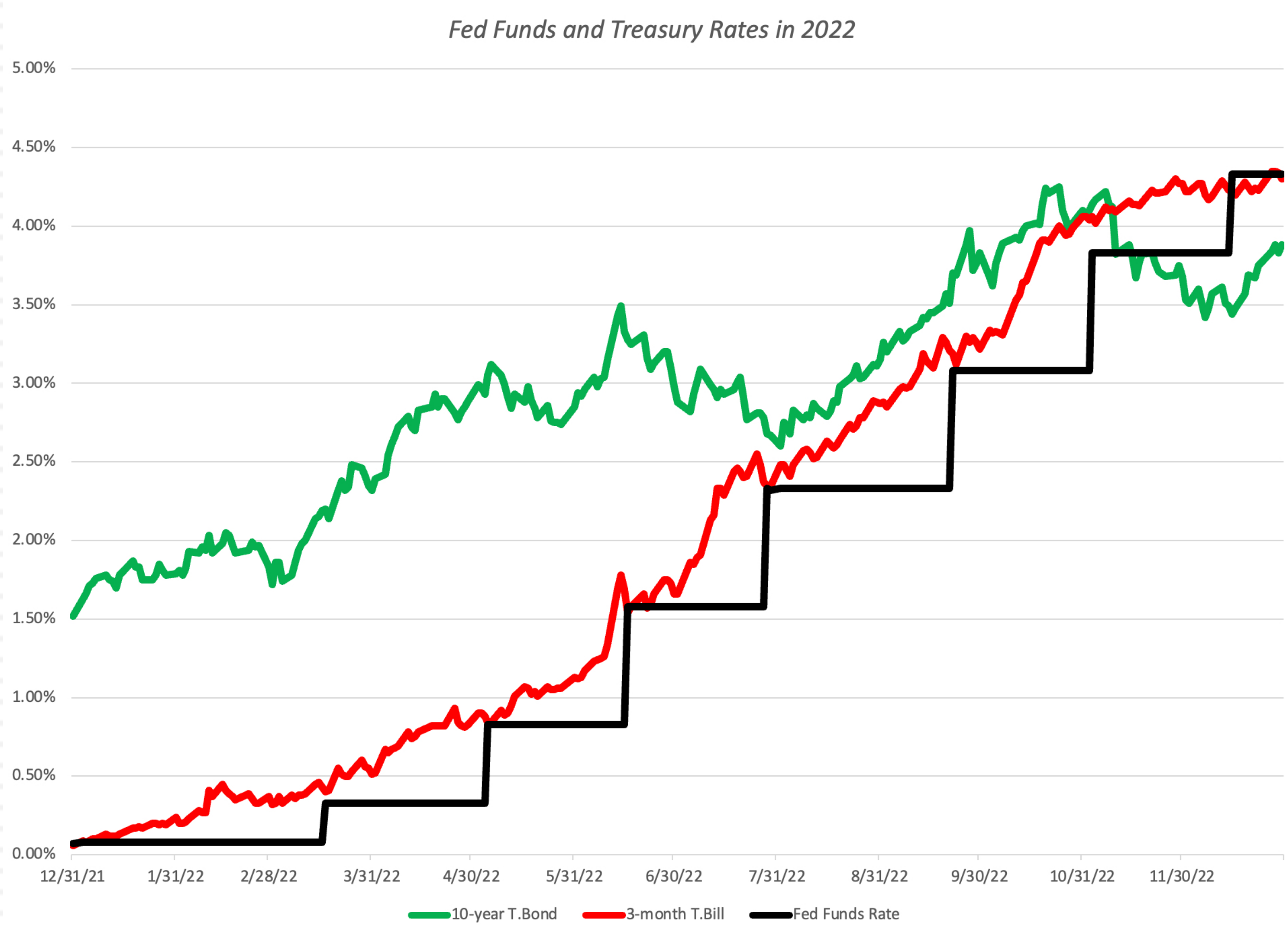


Year end	Ten-year T.Bond rate	Inflation rate	Real GDP growth
1954-2022	5.56%	3.59%	2.93%
1954-1980	5.83%	4.49%	3.50%
1981-2008	6.88%	3.26%	3.04%
2009-2020	2.36%	1.85%	1.32%
2021-2022	2.70%	6.62%	3.45%

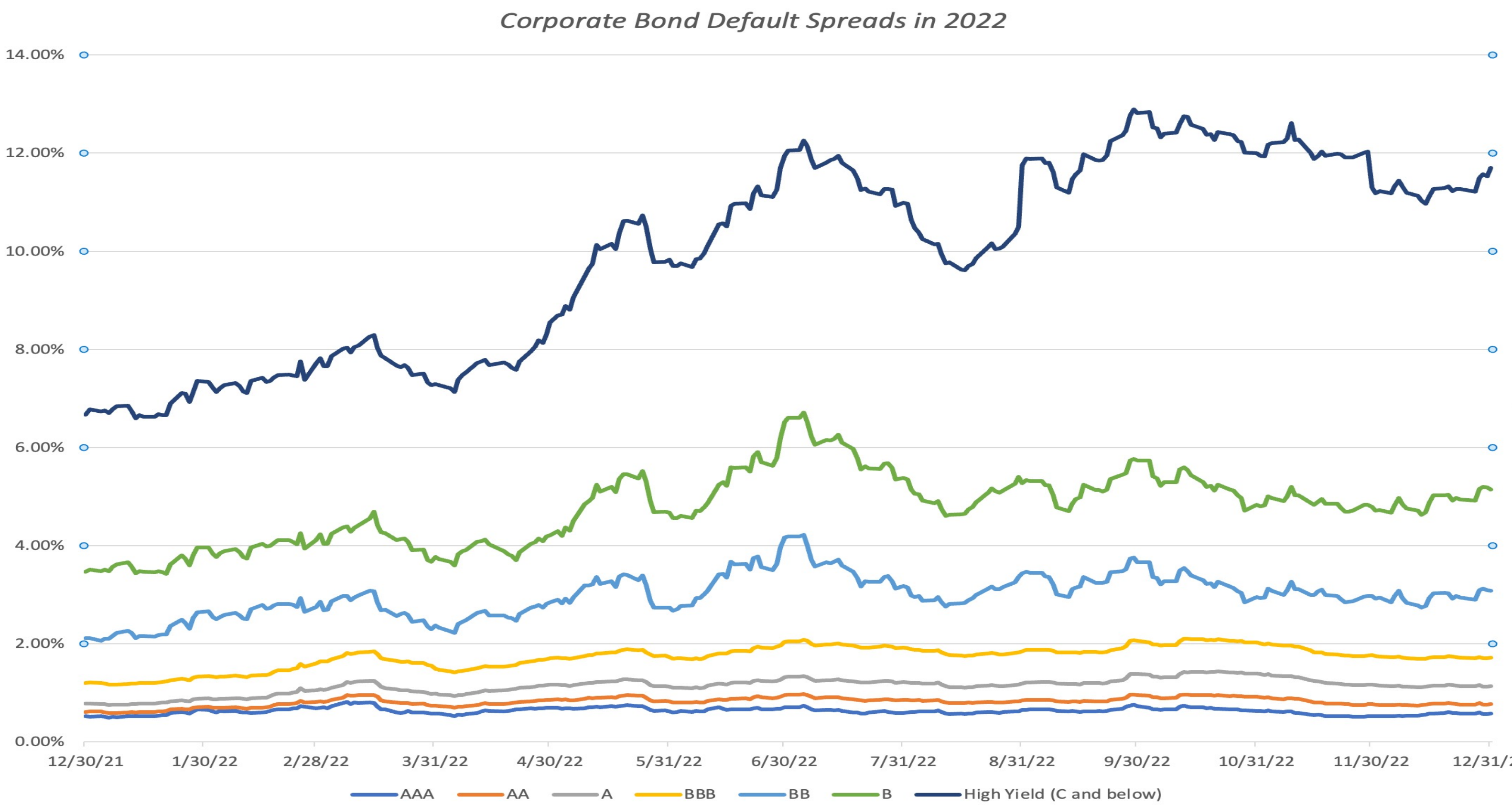
Inflation and Interest Rates



The Fed: Follower or Leader?



Default Risk and Spreads



Date	AAA	AA	A	BBB	BB	B	HY
12/31/21	0.52%	0.61%	0.78%	1.20%	2.11%	3.47%	6.67%
3/31/22	0.58%	0.74%	0.99%	1.49%	2.37%	3.77%	7.29%
6/30/22	0.71%	0.96%	1.32%	2.04%	4.17%	6.52%	11.94%
9/30/22	0.73%	0.96%	1.38%	2.06%	3.66%	5.74%	12.81%
12/31/22	0.58%	0.77%	1.14%	1.72%	3.08%	5.15%	11.70%
Change in 2022	0.06%	0.16%	0.36%	0.52%	0.97%	1.68%	5.03%

Corporate Bond Returns in 2022

Returns on Constant Maturity 10-year Baa Corporate Bond in 2022

Price Change

Price of 10-year Baa Corporate Bond, with 2.71% coupon rate, bought on 1/1/22 at par = $1000
Price of 10-year Baa Corporate Bond, with 2.71% coupon rate, at 12/31/22 rate of 5.60% = PV @ 5.60% of annual coupon of $27.10 a year for 10 years + PV @ 5.60% of face value of $1000 at the end of year 10 = $733.03
Price Change on Constant Maturity 10-year T.Bond in 2022 = (733.03-1000)/1000 = **-26.70%**

+

Coupons

Coupon on 10-year bond bought on 1/1/22 = **2.71%**

=

Total Return

Return in 2022 = - 26.70% +2.71% = -23.99%

Nominal Return

Return in 2022 = - 26.70% + 2.71% = -23.99%

-

Inflation in 2022

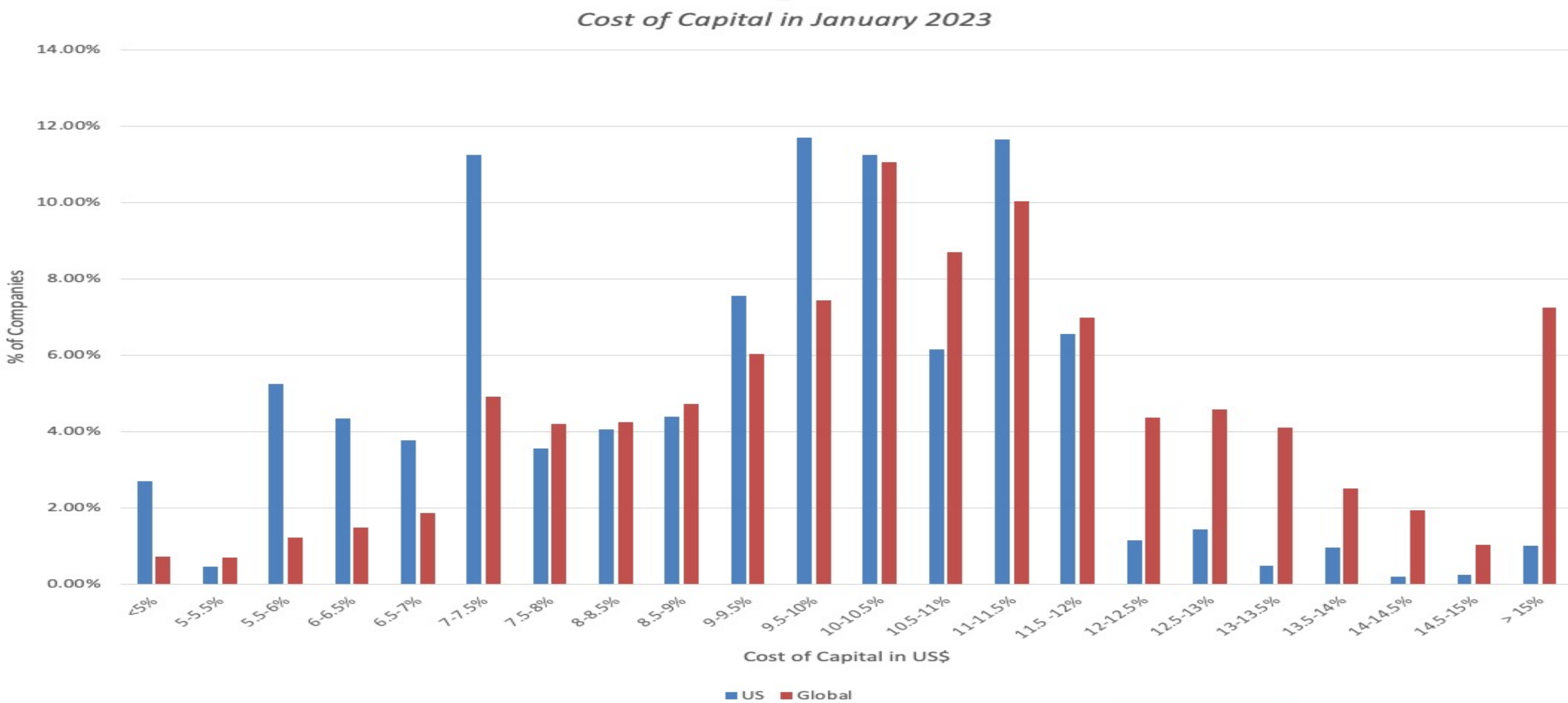
Inflation in 2022 = **6.42%**

=

Real Return

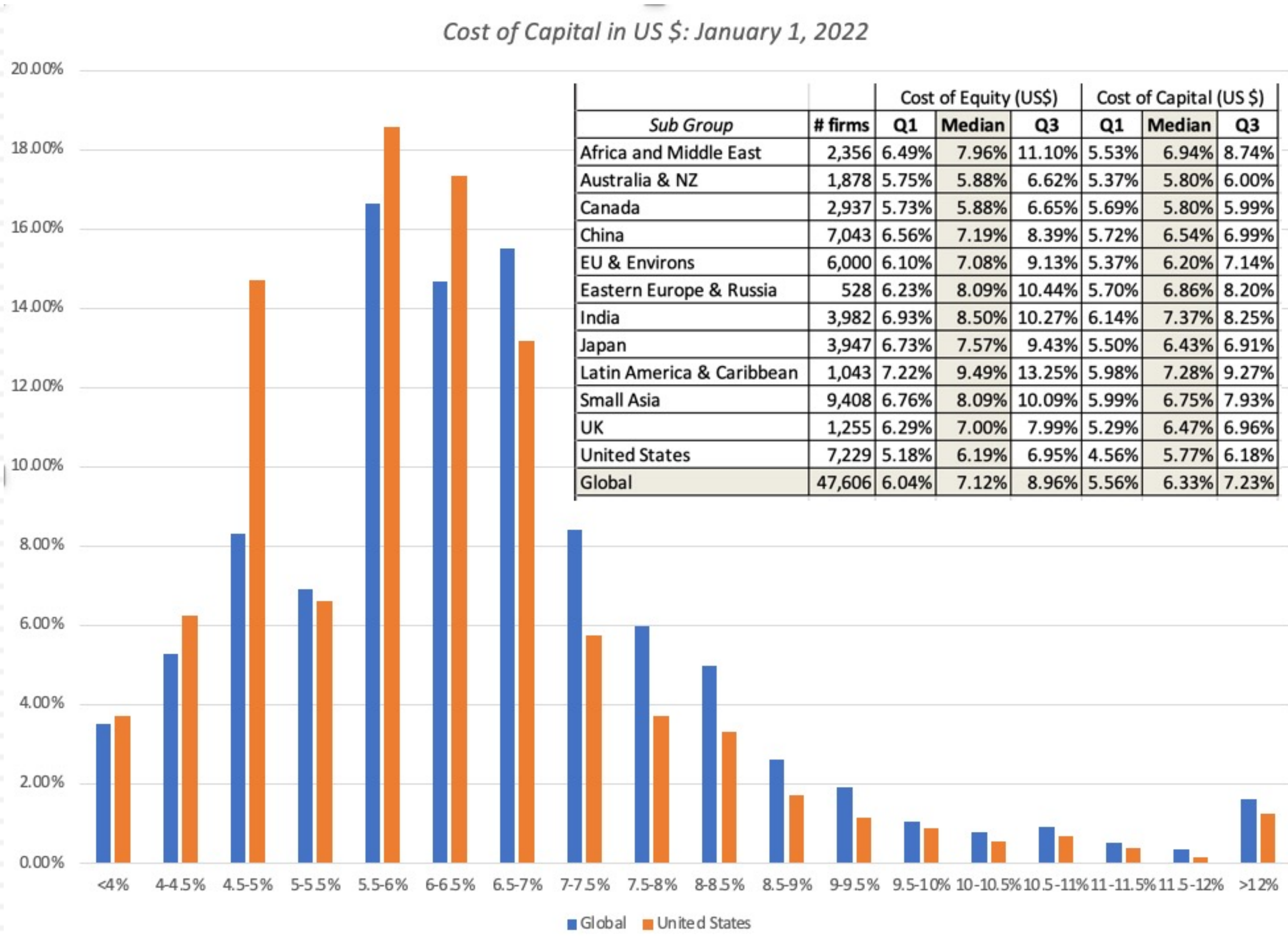
Real Return in 2022 =(1-(-.2399))/1.0642 -1 = **-31.12%**

Consequences for Companies

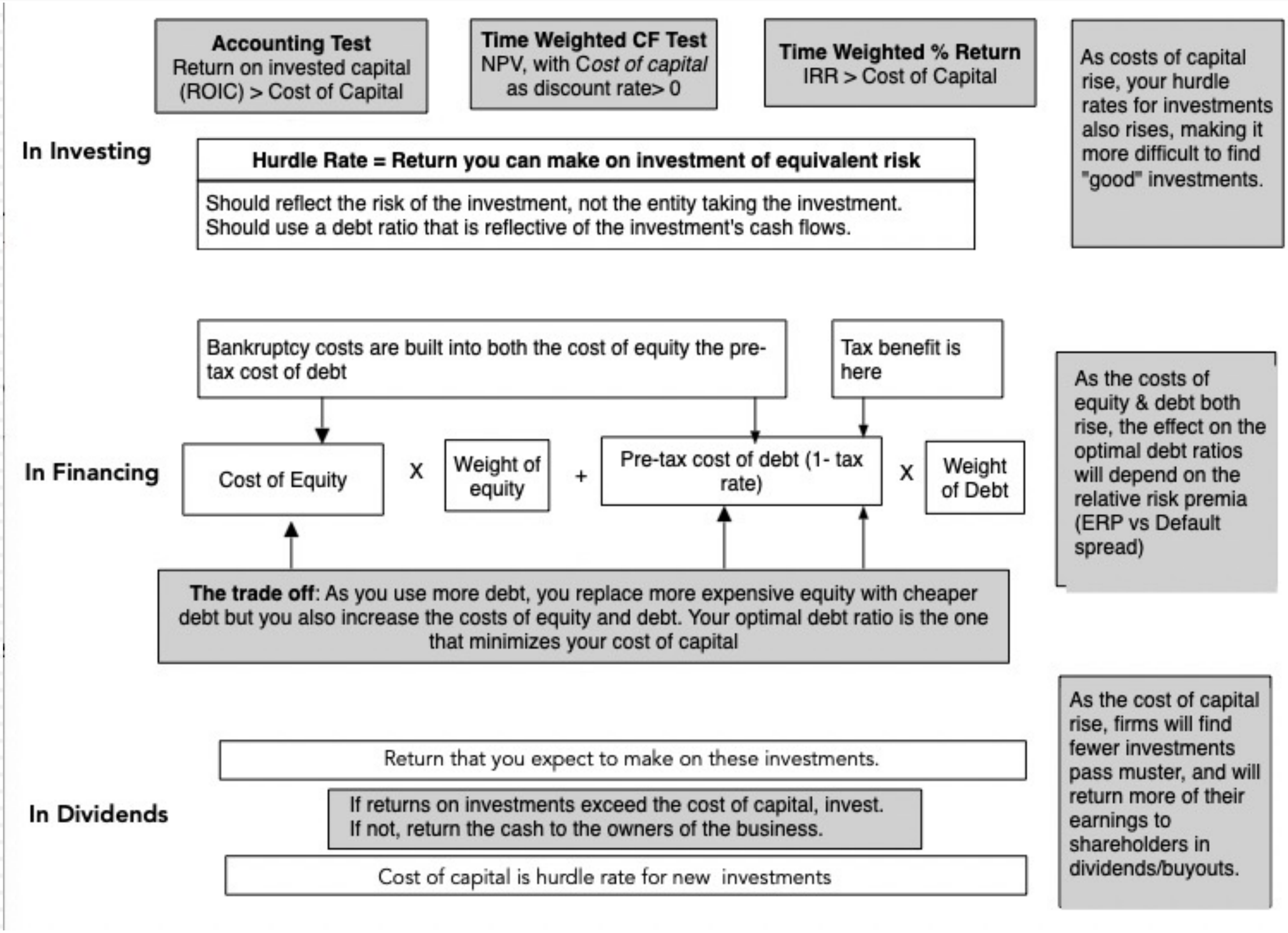


Sub Group	# firms	Average	10th	25th	Median	75th	90th
Africa and Middle East	2,409	12.19%	7.77%	9.08%	**11.35%**	14.26%	18.22%
Australia & NZ	1,895	9.67%	7.09%	8.76%	**10.39%**	10.49%	11.44%
Canada	2,900	10.05%	7.35%	9.67%	**10.44%**	10.50%	11.58%
China	7,266	10.72%	7.86%	9.24%	**10.97%**	11.74%	13.09%
EU & Environs	5,952	10.90%	7.24%	8.71%	**10.37%**	12.06%	14.90%
Eastern Europe & Russia	357	11.39%	7.94%	8.97%	**10.96%**	13.29%	15.05%
India	4,149	11.80%	8.43%	9.80%	**12.00%**	13.74%	14.56%
Japan	3,974	10.48%	7.71%	9.07%	**10.72%**	11.50%	13.10%
Latin America & Caribbean	1,023	13.08%	8.00%	9.57%	**11.96%**	14.62%	20.08%
Small Asia	9,591	11.94%	8.25%	9.66%	**11.23%**	12.86%	15.83%
UK	1,232	10.31%	7.44%	8.41%	**10.67%**	11.67%	12.95%
United States	7,165	9.27%	6.03%	7.26%	**9.63%**	10.88%	11.63%
Global	47,913	10.88%	7.39%	9.08%	**10.60%**	12.07%	14.04%

A Contrast: Start of 2022



		Cost of Equity (US$)			Cost of Capital (US $)		
Sub Group	# firms	Q1	Median	Q3	Q1	Median	Q3
Africa and Middle East	2,356	6.49%	7.96%	11.10%	5.53%	6.94%	8.74%
Australia & NZ	1,878	5.75%	5.88%	6.62%	5.37%	5.80%	6.00%
Canada	2,937	5.73%	5.88%	6.65%	5.69%	5.80%	5.99%
China	7,043	6.56%	7.19%	8.39%	5.72%	6.54%	6.99%
EU & Environs	6,000	6.10%	7.08%	9.13%	5.37%	6.20%	7.14%
Eastern Europe & Russia	528	6.23%	8.09%	10.44%	5.70%	6.86%	8.20%
India	3,982	6.93%	8.50%	10.27%	6.14%	7.37%	8.25%
Japan	3,947	6.73%	7.57%	9.43%	5.50%	6.43%	6.91%
Latin America & Caribbean	1,043	7.22%	9.49%	13.25%	5.98%	7.28%	9.27%
Small Asia	9,408	6.76%	8.09%	10.09%	5.99%	6.75%	7.93%
UK	1,255	6.29%	7.00%	7.99%	5.29%	6.47%	6.96%
United States	7,229	5.18%	6.19%	6.95%	4.56%	5.77%	6.18%
Global	47,606	6.04%	7.12%	8.96%	5.56%	6.33%	7.23%


Accounting Test
Return on invested capital (ROIC) > Cost of Capital
Time Weighted CF Test
NPV, with *Cost of capital* as discount rate> 0
Time Weighted % Return
IRR > Cost of Capital
As costs of capital rise, your hurdle rates for investments also rises, making it more difficult to find "good" investments.
In Investing
Hurdle Rate = Return you can make on investment of equivalent risk
Should reflect the risk of the investment, not the entity taking the investment.
Should use a debt ratio that is reflective of the investment's cash flows.
Bankruptcy costs are built into both the cost of equity the pre-tax cost of debt
Tax benefit is here
In Financing
Cost of Equity
X
Weight of equity
+
Pre-tax cost of debt (1- tax rate)
X
Weight of Debt
As the costs of equity & debt both rise, the effect on the optimal debt ratios will depend on the relative risk premia (ERP vs Default spread)
The trade off: As you use more debt, you replace more expensive equity with cheaper debt but you also increase the costs of equity and debt. Your optimal debt ratio is the one that minimizes your cost of capital
Return that you expect to make on these investments.
In Dividends
If returns on investments exceed the cost of capital, invest.
If not, return the cash to the owners of the business.
Cost of capital is hurdle rate for new investments
As the cost of capital rise, firms will find fewer investments pass muster, and will return more of their earnings to shareholders in dividends/buyouts.

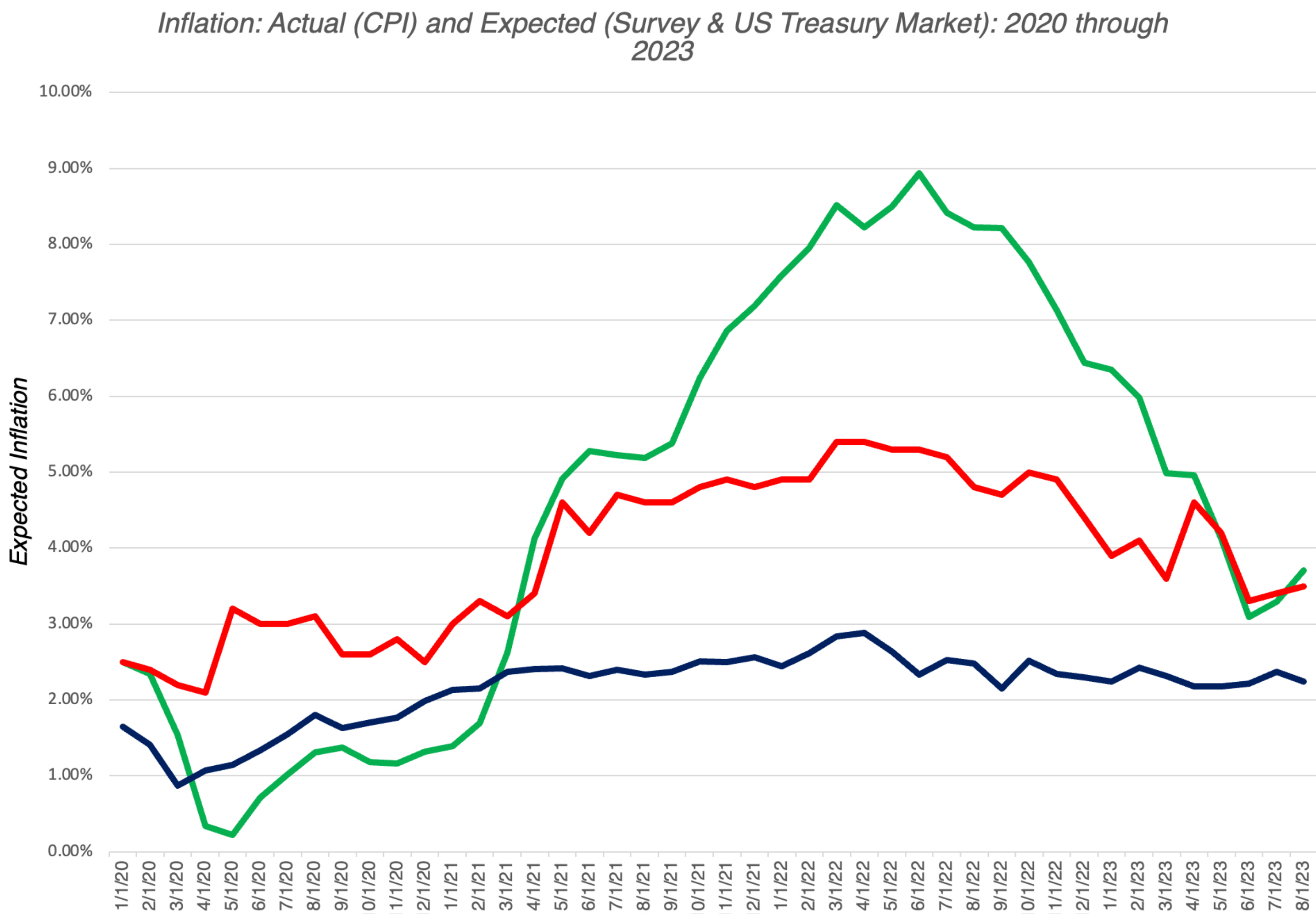
And the Market Consensus on January 1, 2023

FIRM	STRATEGIST	2023 S&P 500	2023 EPS
Deutsche Bank	Binky Chadha	4500	195.00
BMO	Brian Belski	4300	220.00
Scotiabank	Hugo Ste-Marie	4225	225.00
Jeffries	Sean Darby	4200	232.00
JP Morgan	Dubravko Lakos-Bujas	4200	205.00
Cantor Fitzgerald	Eric Johnson	4100	212.00
RBC Capital Markets	Lori Calvasina	4100	199.00
Credit Suisse	Jonathan Golub	4050	230.00
Bank of America	Savita Subramaniam	4000	200.00
Goldman Sachs	Davis Kostin	4000	224.00
HSBC	Max Kettner	4000	225.00
Citigroup	Scott Chronert	3900	215.00
Morgan Stanley	Mike Wilson	3900	195.00
UBS	Keith Parker	3900	198.00
Barclays	Venu Krishna	3725	207.00
Societe Generale	Manish Kabra	3650	220.00
BNP Paribas	Greg Boutle	3400	219.00
Evercore ISI	Julian Emmanuel	-	222.00
Stifel	Barry Bannister	-	220.00
Average		4008.82	213.84
Median		4000.00	219.00
High		4500.00	232.00
Low		3400.00	195.00

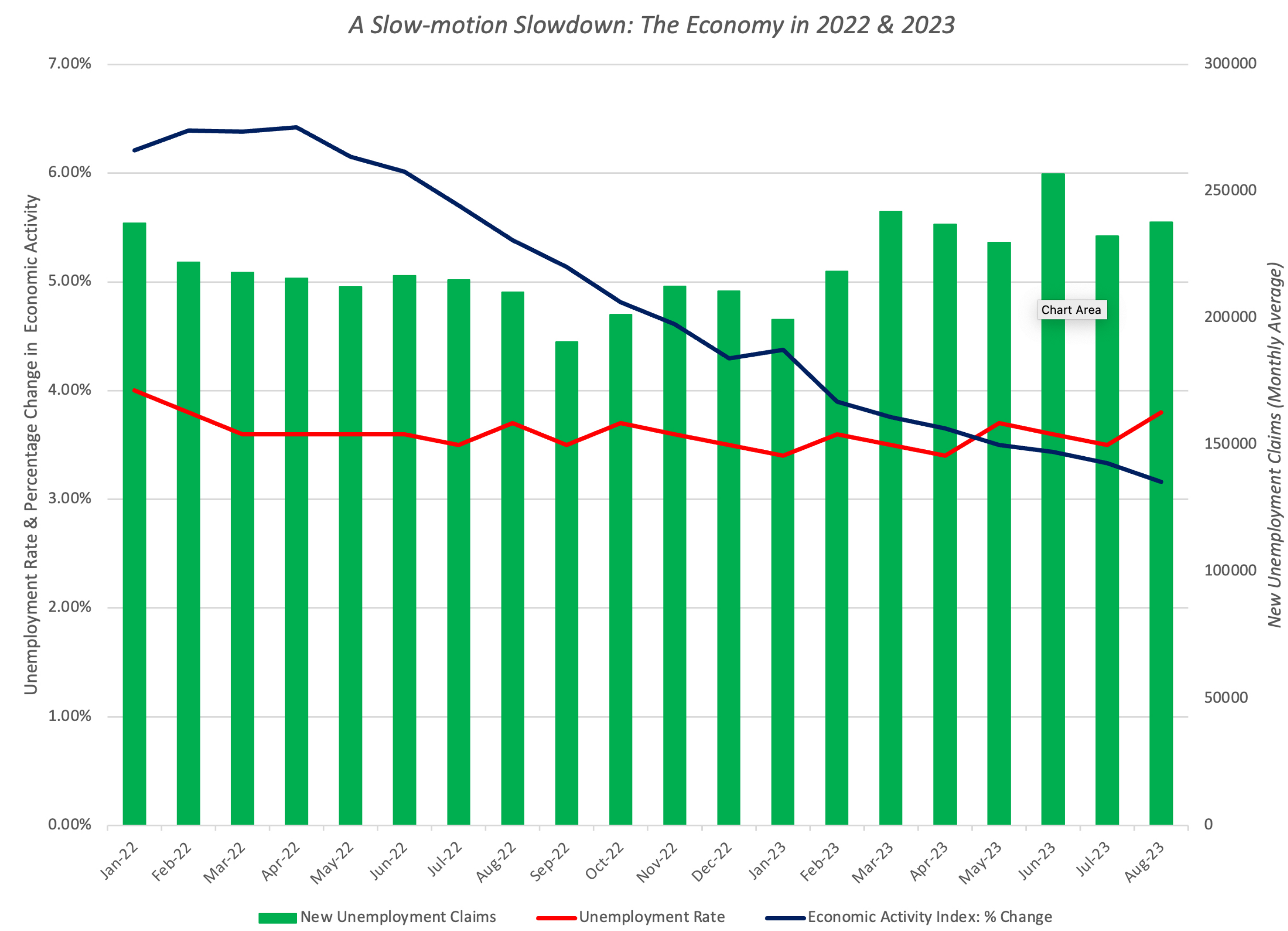
The Year of Surprises: 2023

Aswath Damodaran

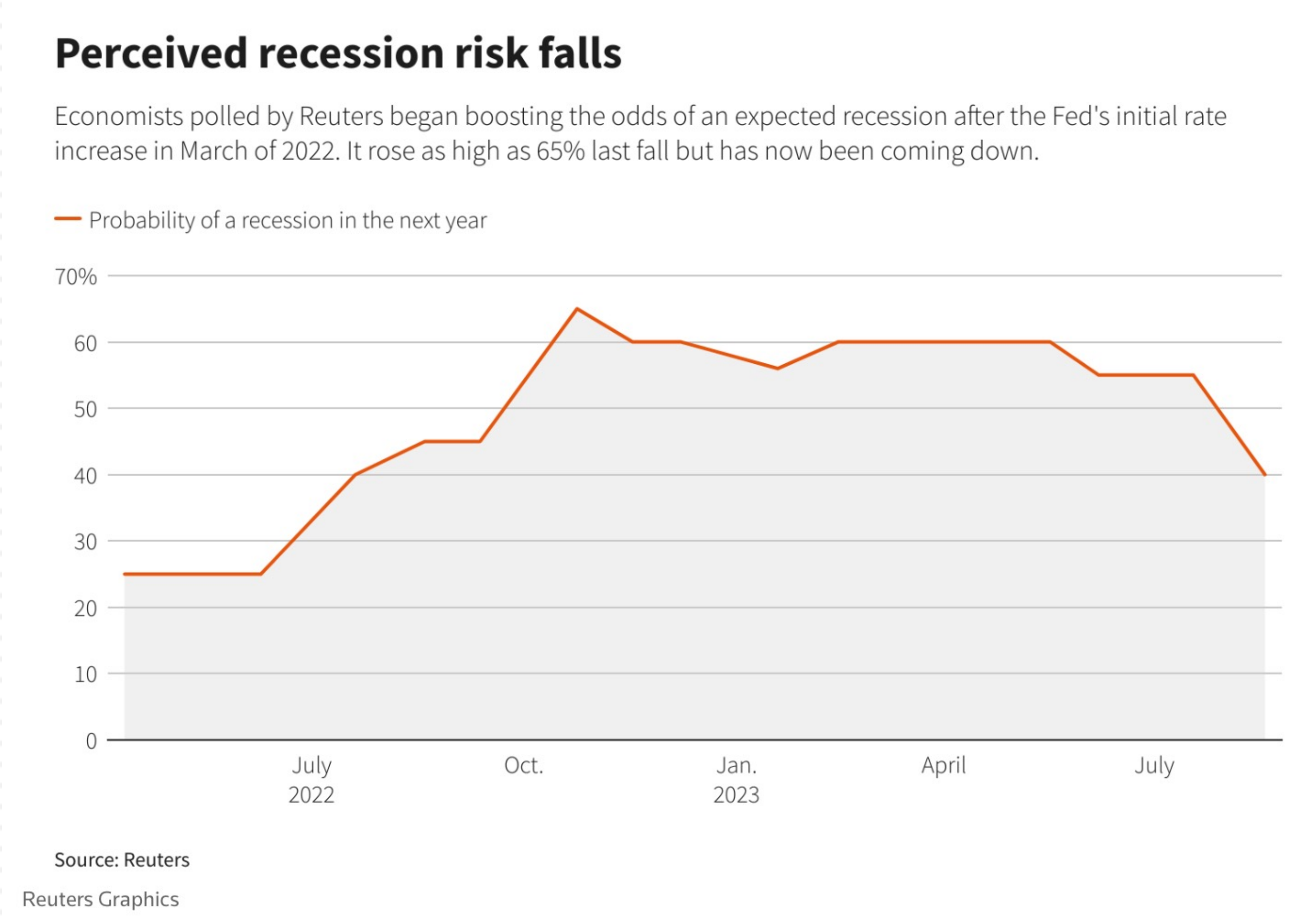
Inflation drops off!



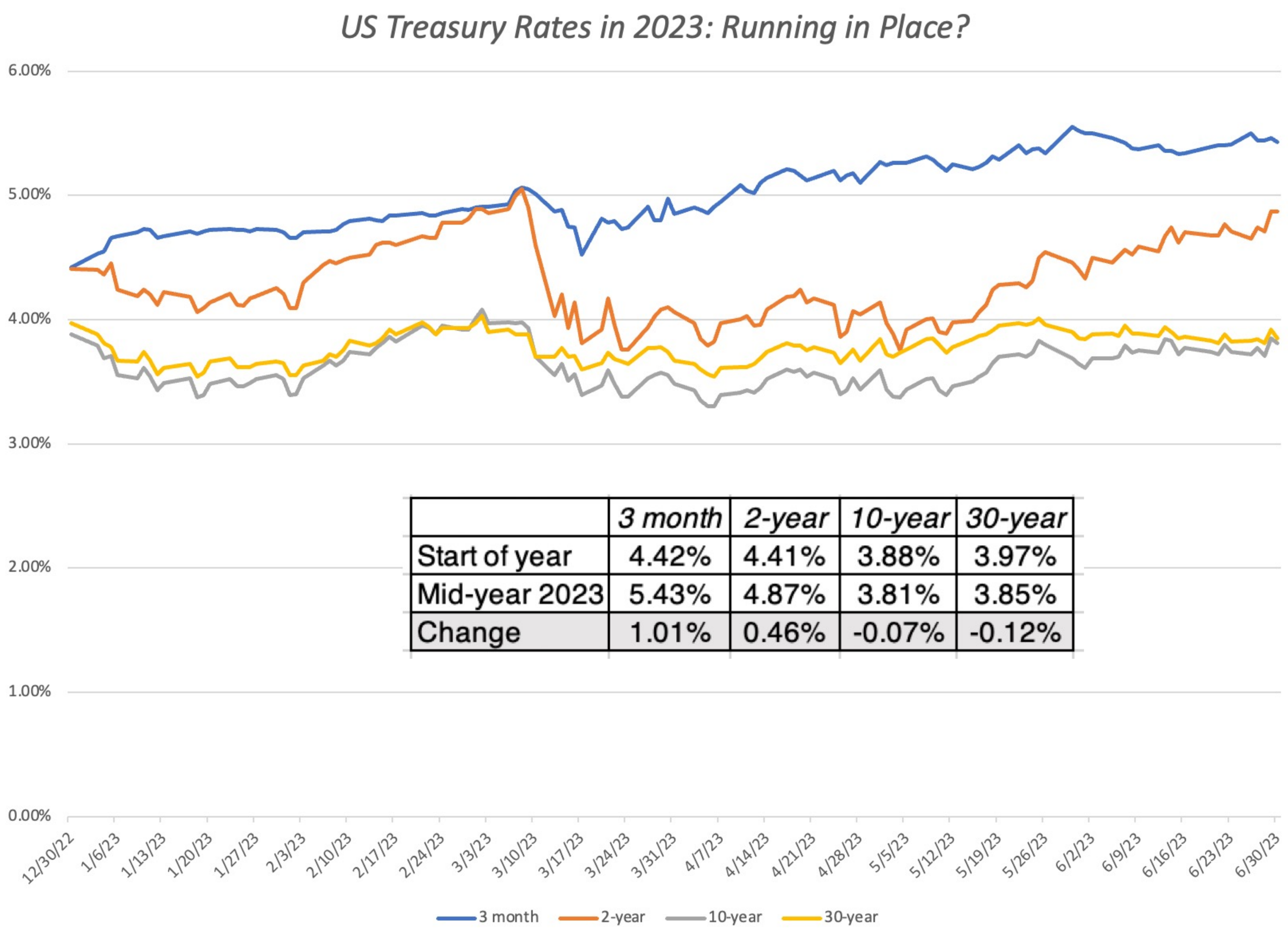
The Economy holds on..



And Recession Probabilities dip.

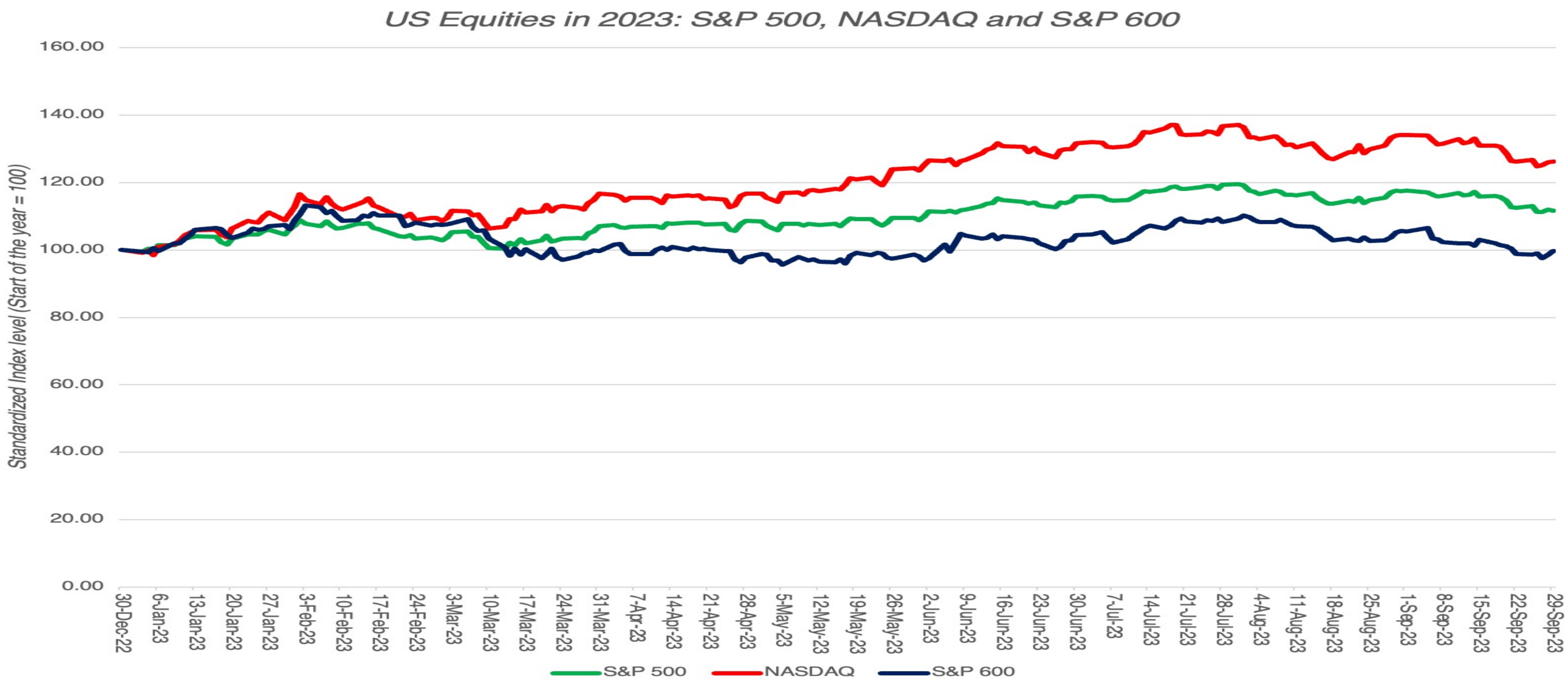


Interest Rates level off!



	3 month	*2-year*	*10-year*	*30-year*
Start of year	4.42%	4.41%	3.88%	3.97%
Mid-year 2023	5.43%	4.87%	3.81%	3.85%
Change	1.01%	0.46%	-0.07%	-0.12%

US Stocks



	S&P 500	NASDAQ	S&P 600
Start of 2023	3,824.14	10,386.98	1,157.53
30-Jun-23	4,450.38	13,787.92	1,214.95
30-Sep-23	4,288.05	13,219.32	1,159.12
% Change YTD	12.13%	27.27%	0.14%
% Change 3rd Qtr 2023	-3.65%	-4.12%	-4.60%

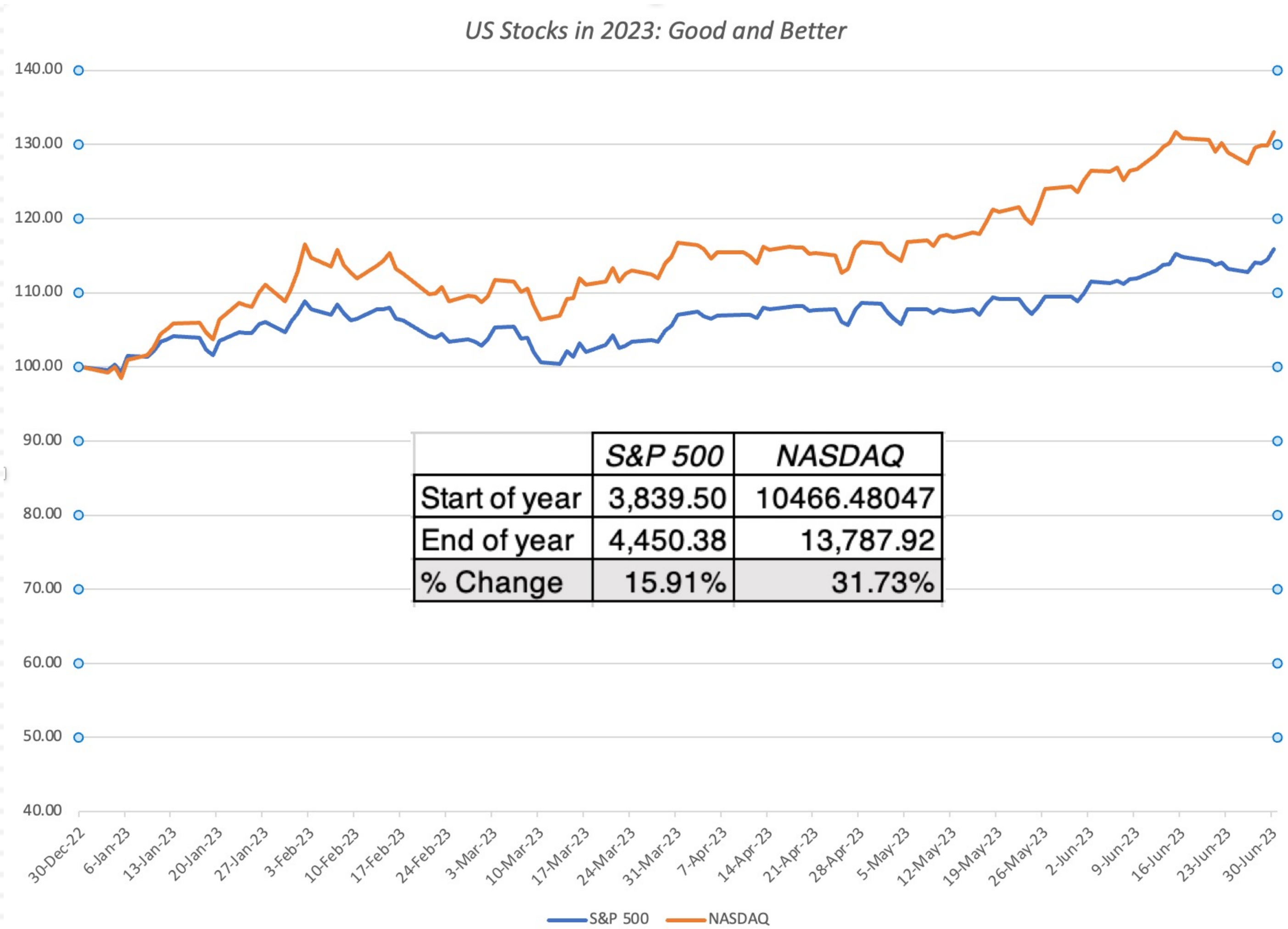
A Sector Breakdown

		Market Capitalization			% Change	
Region	*# firms*	*12/31/22*	*6/30/23*	*9/30/23*	*YTD 2023*	*3rd Qtr, 2023*
Communication Services	2,269	$6,120,550	$7,272,081	$7,153,001	16.87%	-1.64%
Consumer Discretionary	6,214	$10,470,170	$12,356,619	$11,657,740	11.34%	-5.66%
Consumer Staples	3,102	$8,074,260	$8,119,029	$7,631,823	-5.48%	-6.00%
Energy	1,483	$5,017,895	$4,934,892	$5,337,081	6.36%	8.15%
Financials	16,263	$30,005,187	$32,348,146	$31,454,703	4.83%	-2.76%
Health Care	4,662	$10,819,550	$10,794,080	$10,270,314	-5.08%	-4.85%
Industrials	8,502	$12,495,038	$13,616,550	$12,801,553	2.45%	-5.99%
Information Technology	6,175	$14,195,512	$18,985,420	$17,670,013	24.48%	-6.93%
Materials	6,310	$6,110,719	$6,162,273	$5,913,367	-3.23%	-4.04%
Real Estate	2,835	$3,342,594	$3,268,743	$3,046,644	-8.85%	-6.79%
Utilities	930	$3,448,774	$3,453,462	$3,164,003	-8.26%	-8.38%
All firms	58,919	$110,723,948	$122,044,758	$116,109,321	4.86%	-4.86%

And a regional breakdown..

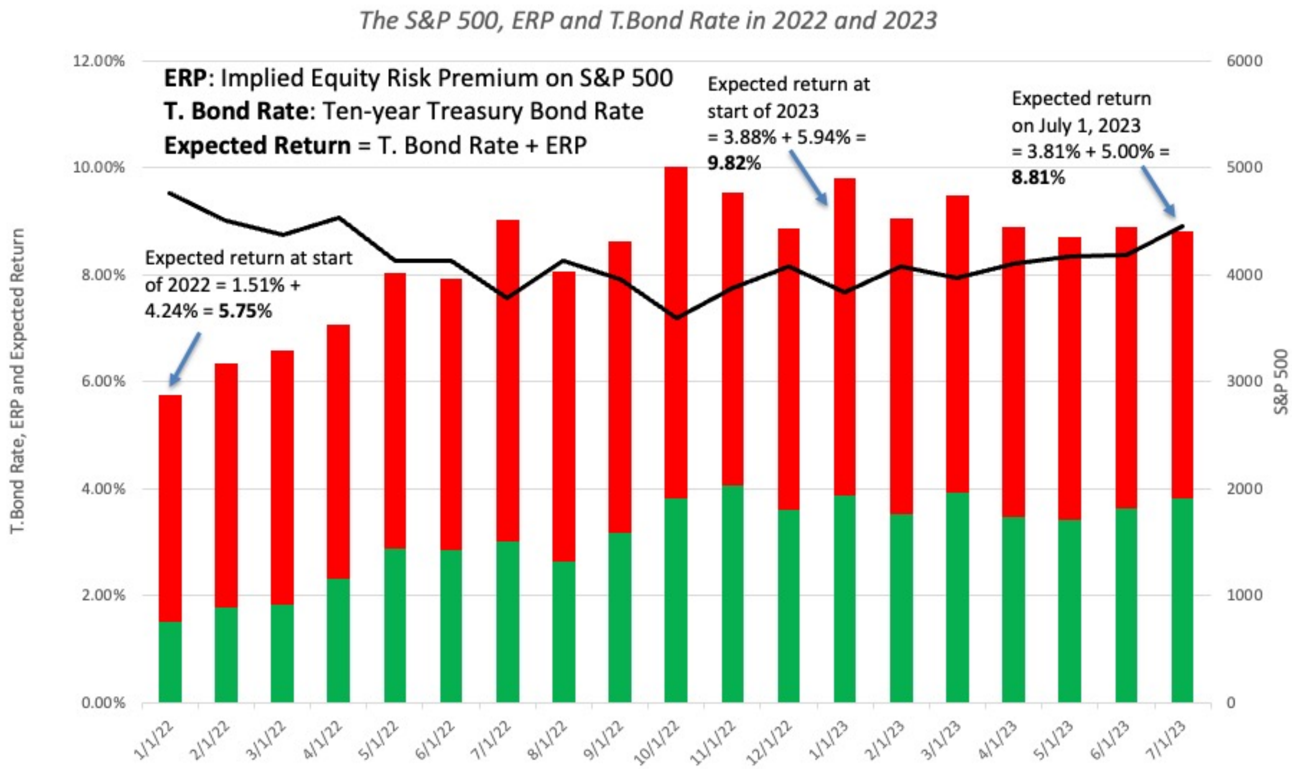
		Market Capitalization			% Change	
Region	*# firms*	*12/31/22*	*6/30/23*	*9/30/23*	*YTD 2023*	*3rd Qtr, 2023*
Africa and Middle East	2,526	$2,084,457	$2,118,458	$2,105,687	1.02%	-0.60%
Australia & NZ	2,107	$1,734,020	$1,810,285	$1,665,552	-3.95%	-8.00%
Canada	3,676	$2,770,954	$2,984,515	$2,831,301	2.18%	-5.13%
China	6,227	$13,300,060	$13,362,743	$12,653,114	-4.86%	-5.31%
EU & Environs	9,305	$15,054,014	$16,815,892	$15,623,110	3.78%	-7.09%
Eastern Europe & Russia	443	$172,671	$180,034	$176,778	2.38%	-1.81%
India	4,130	$3,397,829	$3,604,039	$3,796,950	11.75%	5.35%
Japan	4,182	$5,741,069	$6,271,169	$6,093,757	6.14%	-2.83%
Latin America & Caribbean	4,383	$6,818,739	$7,198,899	$6,052,258	-11.24%	-15.93%
Small Asia	9,966	$5,830,732	$6,310,887	$6,061,422	3.96%	-3.95%
UK	1,491	$2,904,825	$3,036,120	$2,878,425	-0.91%	-5.19%
United States	10,410	$50,911,295	$58,347,041	$56,167,271	10.32%	-3.74%
All firms	58,919	$110,723,948	$122,044,758	$116,109,321	4.86%	-4.86%

US Equities: The Big Picture



	S&P 500	*NASDAQ*
Start of year	3,839.50	10466.48047
End of year	4,450.38	13,787.92
% Change	15.91%	31.73%

And Equity Risk Premiums



	1/1/22	2/1/22	3/1/22	4/1/22	5/1/22	6/1/22	7/1/22	8/1/22	9/1/22	10/1/22	11/1/22	12/1/22	1/1/23	2/1/23	3/1/23	4/1/23	5/1/23	6/1/23	7/1/23
ERP (T12m)	4.24%	4.56%	4.75%	4.73%	5.14%	5.07%	6.01%	5.42%	5.45%	6.21%	5.48%	5.26%	5.94%	5.54%	5.58%	5.44%	5.30%	5.25%	5.00%
T.Bond Rate	1.51%	1.79%	1.83%	2.33%	2.89%	2.86%	3.02%	2.65%	3.19%	3.82%	4.05%	3.61%	3.88%	3.52%	3.92%	3.47%	3.42%	3.64%	3.81%
S&P 500	4766	4515	4374	4530	4132	4132	3785	4130	3955	3596	3872	4080	3840	4077	3970	4109	4169	4180	4450

Valuing the S&P 500

An Intrinsic Value of the S&P 500

At Current Interest Rates and With Market Consensus Earnings Estimates

Earnings estimates: Analyst estimates of earnings for 2023, 2024 & 2025, followed by steady state growth (set equal to the riskfree rate)

Riskfree rate: The treasury bond rate of 4.58% will remain as the steady state.

ERP: The equity risk premium converges on 5%, the average since 2008.

Intrinsic Value Estimate (based on your choice of ERP)							
	2022	2023	2024	2025	2026	2027	*Terminal Year*
Expected Earnings	$218.09	220.65	247.29	277.49	290.20	303.49	317.39
Earnings Growth Rate		1.17%	12.07%	12.21%	4.58%	4.58%	4.58%
Expected cash payout ratio	78.81%	78.81%	78.30%	77.80%	77.29%	76.79%	76.79%
Expected Dividends + Buybacks =	$171.87	$173.89	$193.63	$215.88	$224.30	$233.04	243.71
Expected Terminal Value =						$4,874.26	
Riskfree Rate	4.58%	4.58%	4.58%	4.58%	4.58%	4.58%	4.58%
Required Return on Stocks	9.58%	9.58%	9.58%	9.58%	9.58%	9.58%	9.58%
Present Value =		$169.96	$172.71	$175.72	$166.61	$3,462.05	
Intrinsic Value of Index =	4147.04						
Intrinsic Trailing PE =	19.02						
Intrinsic Forward PE =	18.79						
Actual Index level on 10/1/23 =	4288.05						
% Under or Over Valuation =	3.40%						

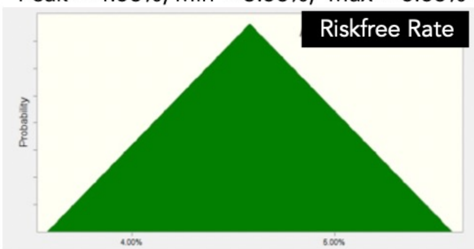
Cash Payout as % of Earnings: Starts at 2022 levels, but changes over time to reflect sustainable payout, given growth and ROE.

My Market Assessment

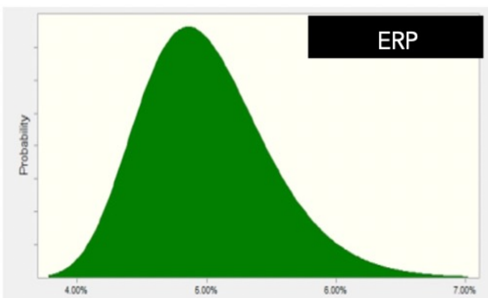
- My assessment is a bit of a cop-out, though, since your views about inflation and the economy can cause you to arrive at a different value.
  - Thus, if you expect inflation to reappear, you should expect to see treasury rates to continue rising to 5% or above, and that will give you a lower intrinsic value. If your concern is with the economy going into a severe recession, that would translate into lower earnings numbers, at least in the near term, and a lower intrinsic value.
  - Conversely, if you believe that inflation will dissipate quickly, causing rates to drop, and that the economy is headed for a soft landing, you will get a higher intrinsic value.

Valuing the Index - Uncertainties

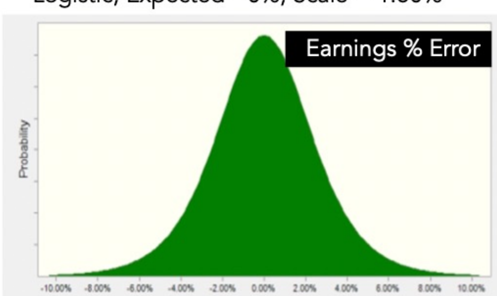
Ten-year T.Bond Rate
Peak = 4.58%, Min = 3.58%; Max = 5.58%



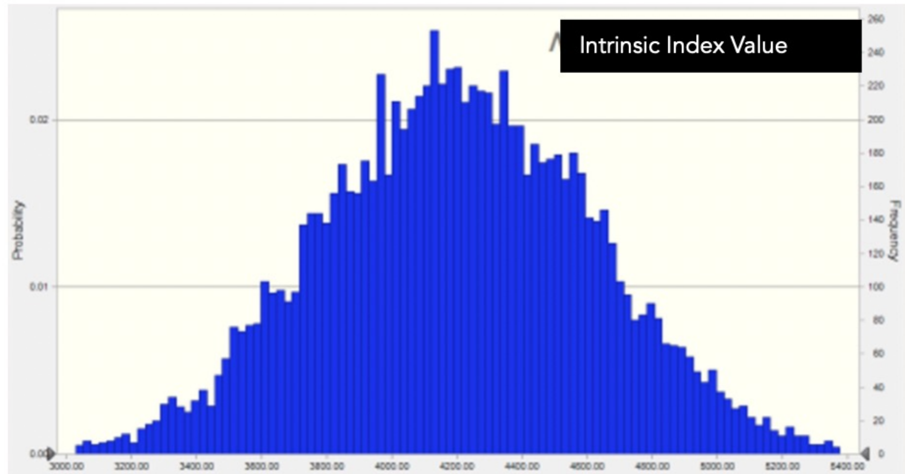
Equity Risk Premium
Lognormal: Expected =5%, Std Dev=0.5%



Earnings Error in 2023 and 2024
Logistic; Expected =0%, Scale = 1.50%



Intrinsic Index Value on October 1, 2023
Across 10,000 Simulations

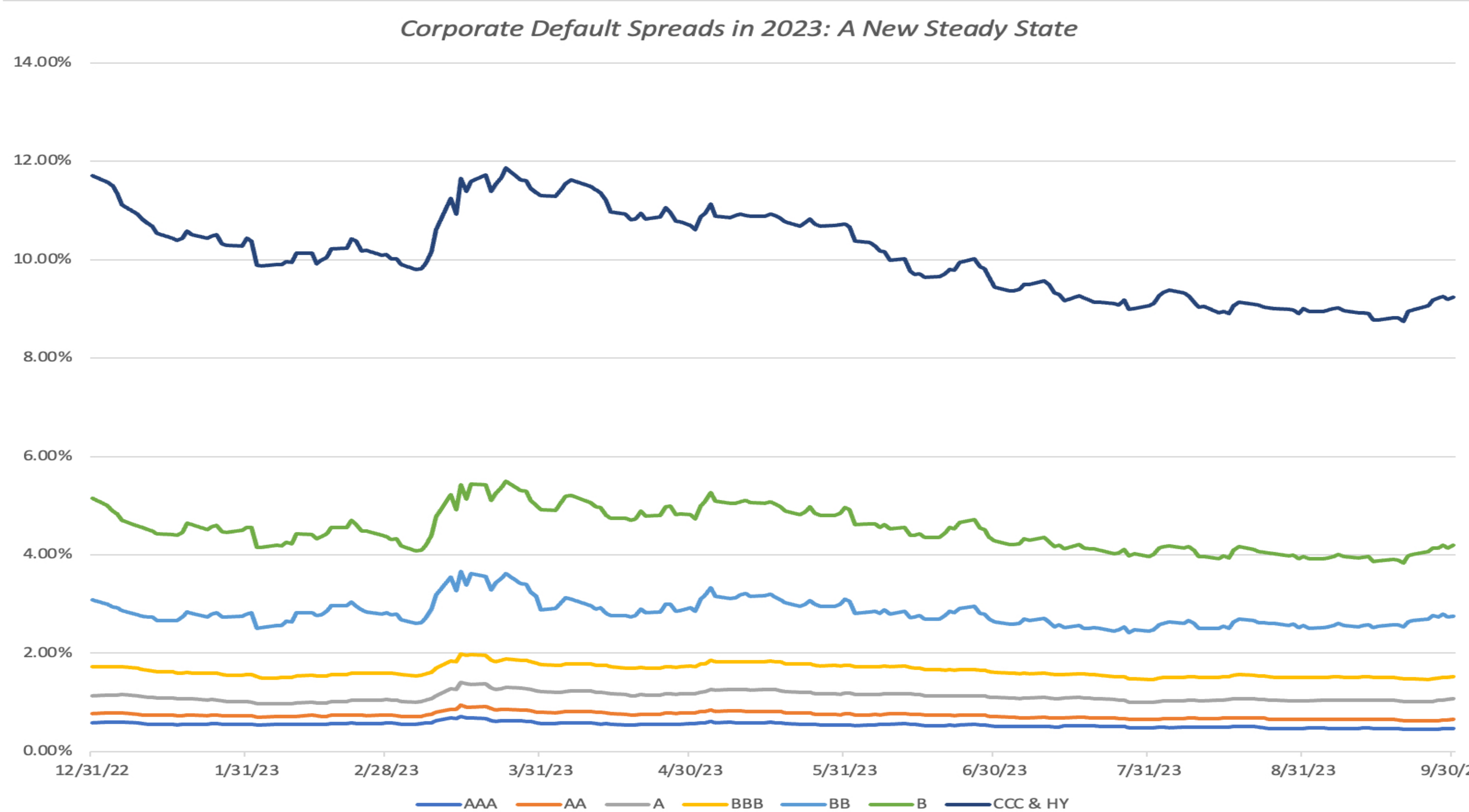


Percentile	*Index Value*	*% Under or Over*
0.00%	2607.30	64.46%
10.00%	3658.01	17.22%
20.00%	3842.43	11.60%
30.00%	3976.30	7.84%
40.00%	4096.14	4.69%
50.00%	4198.95	2.12%
60.00%	4308.41	-0.47%
70.00%	4427.83	-3.16%
80.00%	4563.73	-6.04%
90.00%	4744.06	-9.61%
100.00%	5640.43	-23.98%

The Risk Capital Story

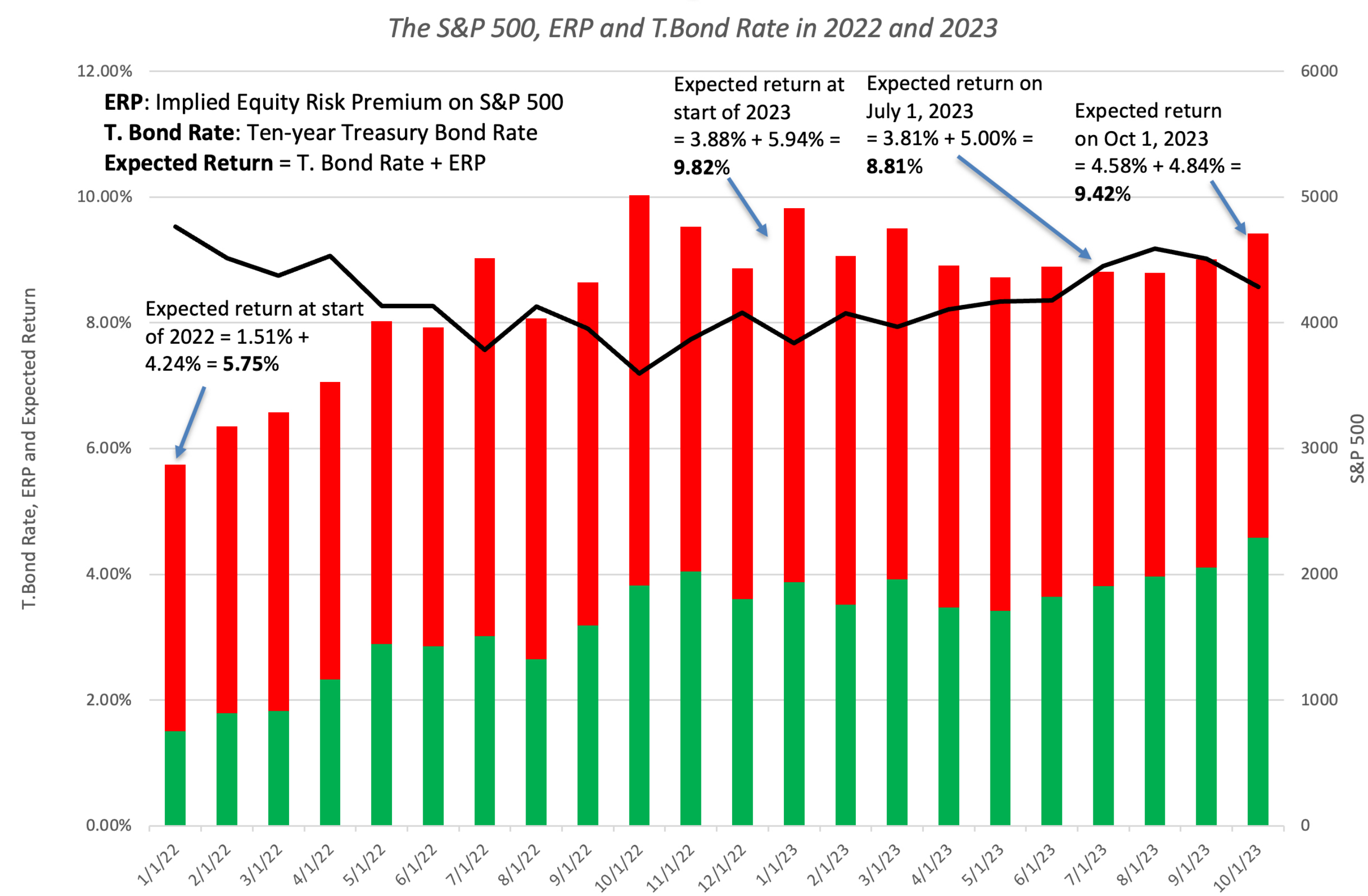
Aswath Damodaran

Price of Risk - Bond Market



	AAA	AA	A	BBB	BB	B	CCC & HY
Start of 2023	0.58%	0.77%	1.14%	1.72%	3.08%	5.15%	11.70%
6/30/23	0.51%	0.71%	1.10%	1.61%	2.64%	4.28%	9.43%
9/30/23	0.47%	0.65%	1.07%	1.53%	2.75%	4.19%	9.23%
YTD Change	-0.11%	-0.12%	-0.07%	-0.19%	-0.33%	-0.96%	-2.47%
3Q 2023 Change	-0.04%	-0.06%	-0.03%	-0.08%	0.11%	-0.09%	-0.20%

Price of Risk - Equities



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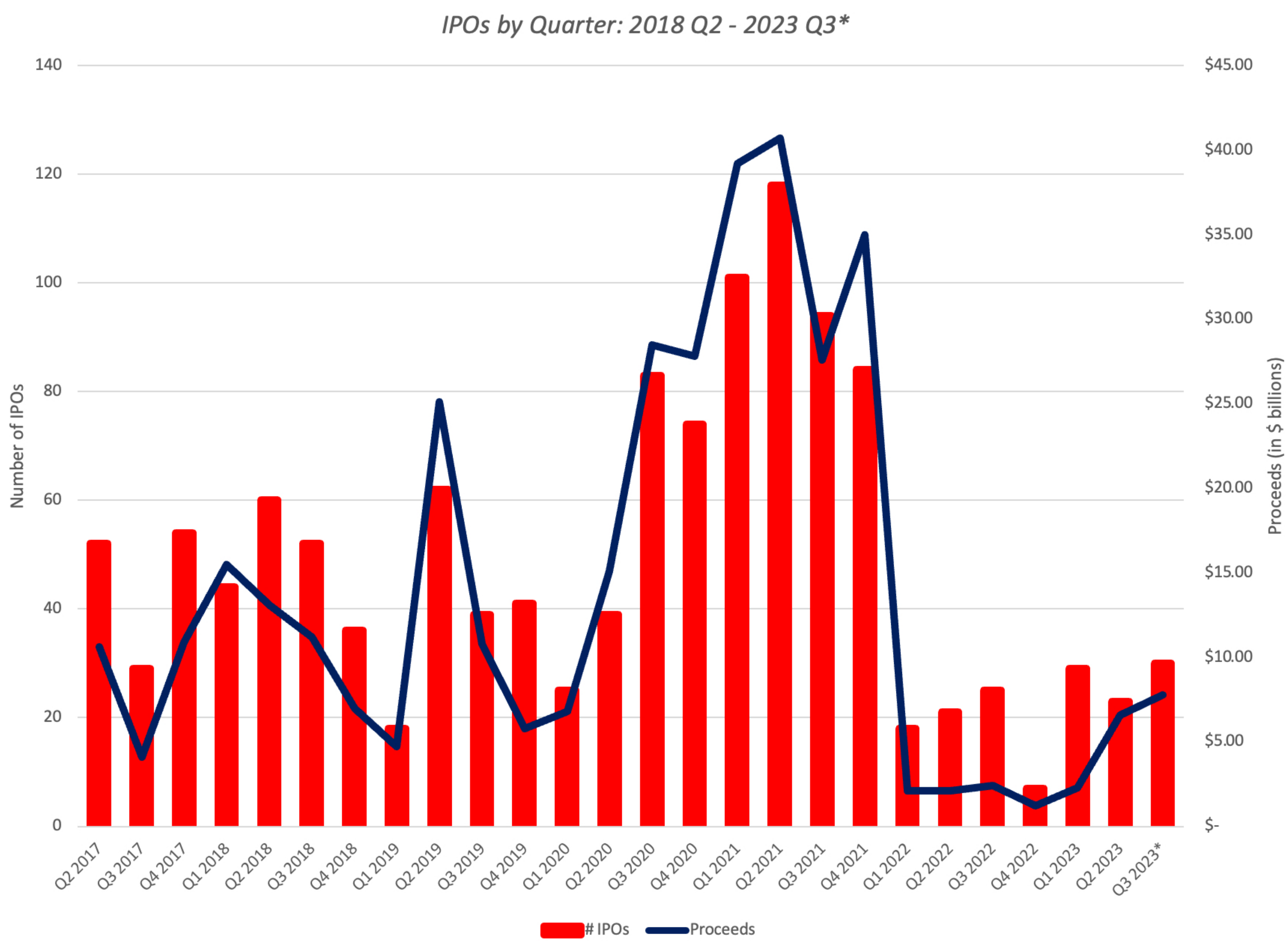
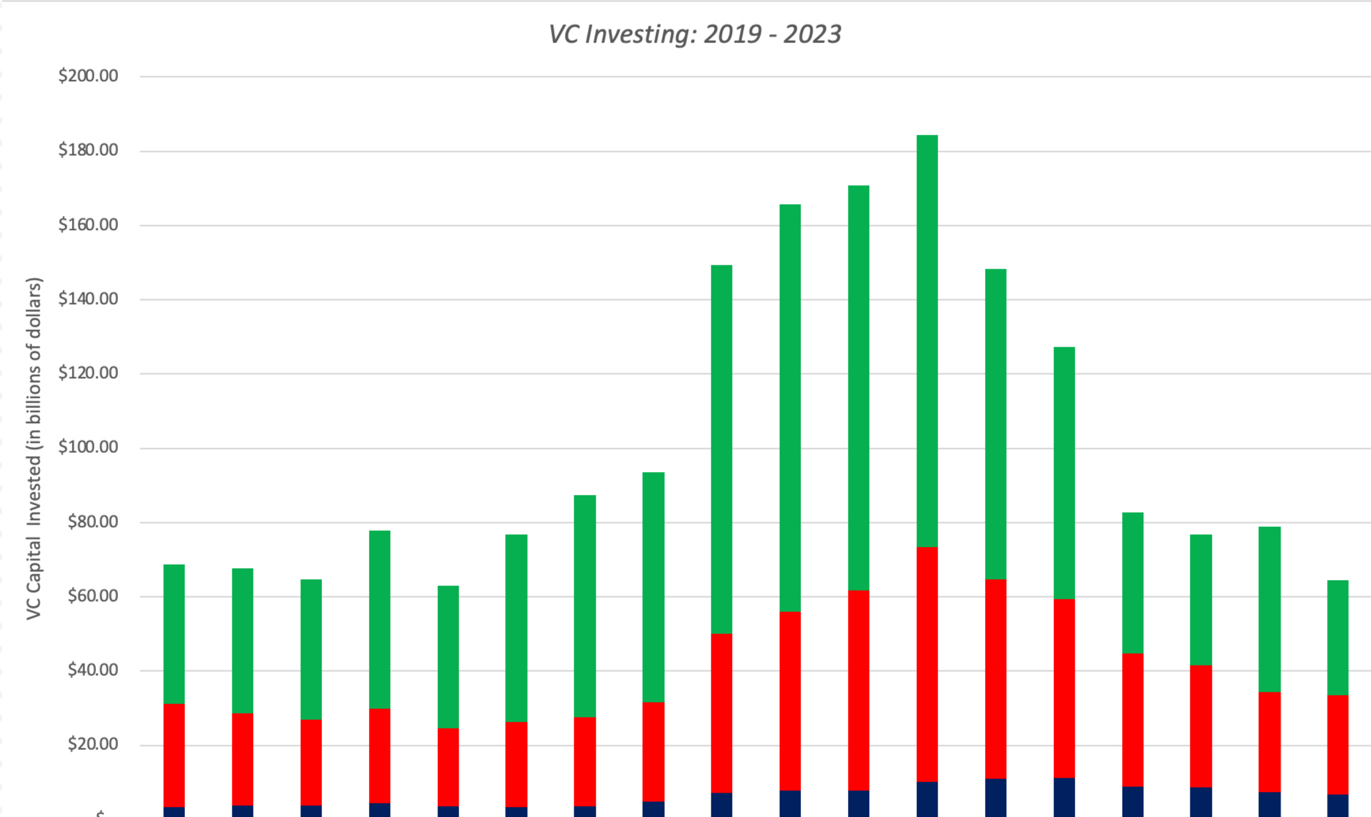
T.Bond Rate	1.51%	1.79%	1.83%	2.33%	2.89%	2.86%	3.02%	2.65%	3.19%	3.82%	4.05%	3.61%	3.88%	3.52%	3.92%	3.47%	3.42%	3.64%	3.81%	3.97%	4.11%	4.58%
S&P 500	4766	4515	4374	4530	4132	4132	3785	4130	3955	3596	3872	4080	3840	4077	3970	4109	4169	4180	4450	4589	4508	4288

Risk Capital – An IPO Metric



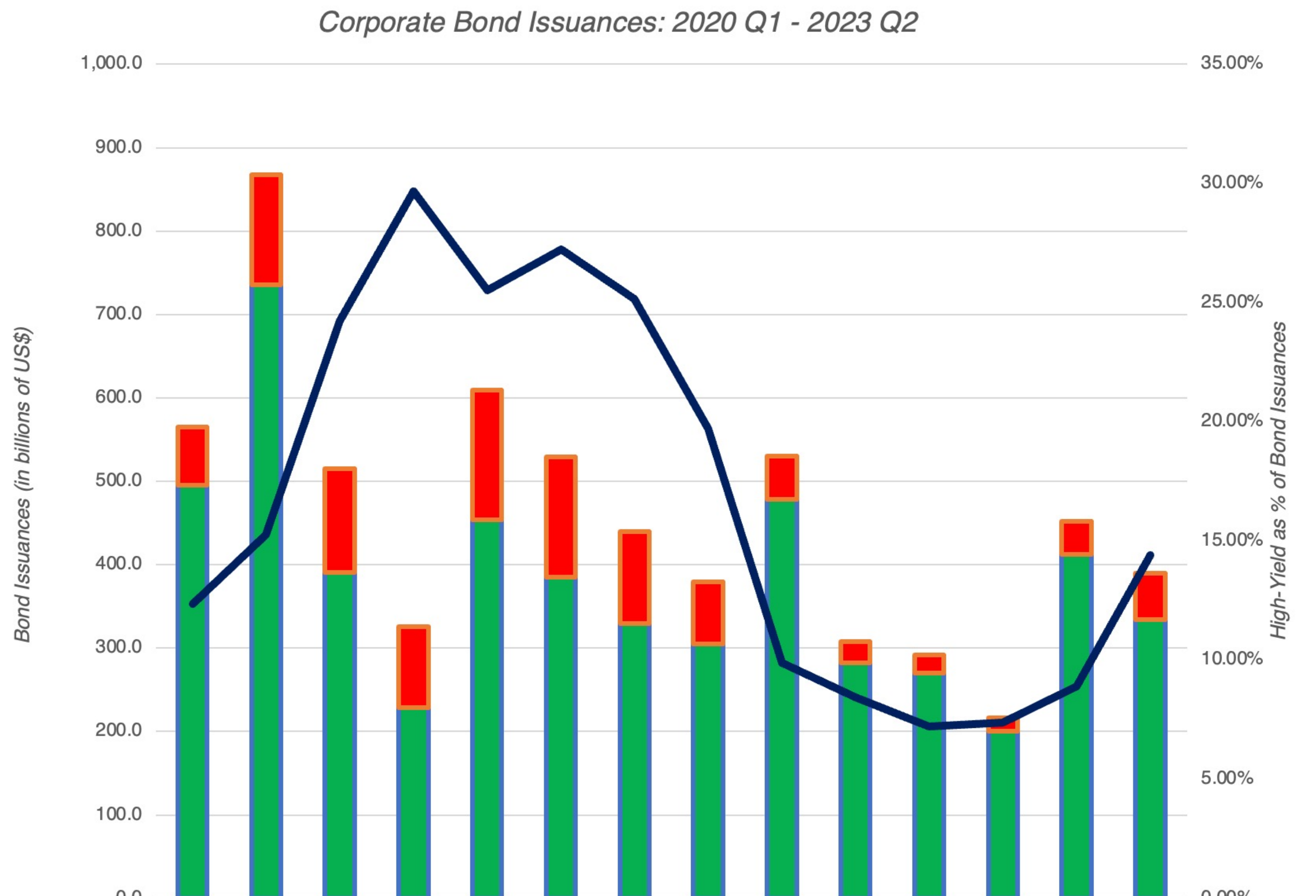
Risk Capital – A VC Metric



	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	Q3 2022	Q4 2022	Q1 2023	Q2 2023
Late Stage	$37.50	$39.10	$37.90	$48.00	$38.30	$50.40	$59.80	$62.00	$99.20	$109.8	$109.1	$110.9	$83.60	$67.80	$38.00	$35.10	$44.60	$30.90
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	$48.20	$35.90	$32.90	$26.90	$26.70
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	$11.20	$8.90	$8.70	$7.40	$6.80

Angel Seed Early Stage Late Stage

Risk Capital – A Bond Issuance Metric



	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22	4Q22	1Q23	2Q23
High Yield	69.9	132.4	124.8	96.5	155.6	144.0	110.7	74.7	52.4	26.0	21.0	15.9	40.2	56.1
Investment Grade	495.3	735.1	390.4	229.0	453.8	385.2	329.2	304.7	478.1	282.1	270.4	200.2	412.0	333.8
% from High Yield	12.37%	15.26%	24.22%	29.66%	25.53%	27.22%	25.16%	19.69%	9.87%	8.45%	7.22%	7.36%	8.90%	14.39%

Risk Capital – Summing up

- Looking across the risk capital metrics, it looks like notwithstanding the recovery we have seen in equities this year, risk capital is still on the side lines, perhaps because that recovery is concentrated in large and money-making companies.
- Until you start see stock market gains widen and include smaller, money-losing companies, it is unlikely that we will see bounce backs in the venture capital and high-yield bond markets.
- Even when that recovery comes, I believe that we will not return to the excesses of the last decade.