# DATA UPDATE 3 FOR 2023: INTEREST RATES & BOND RETURNS

A rising tide lifts all boats!

# 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…

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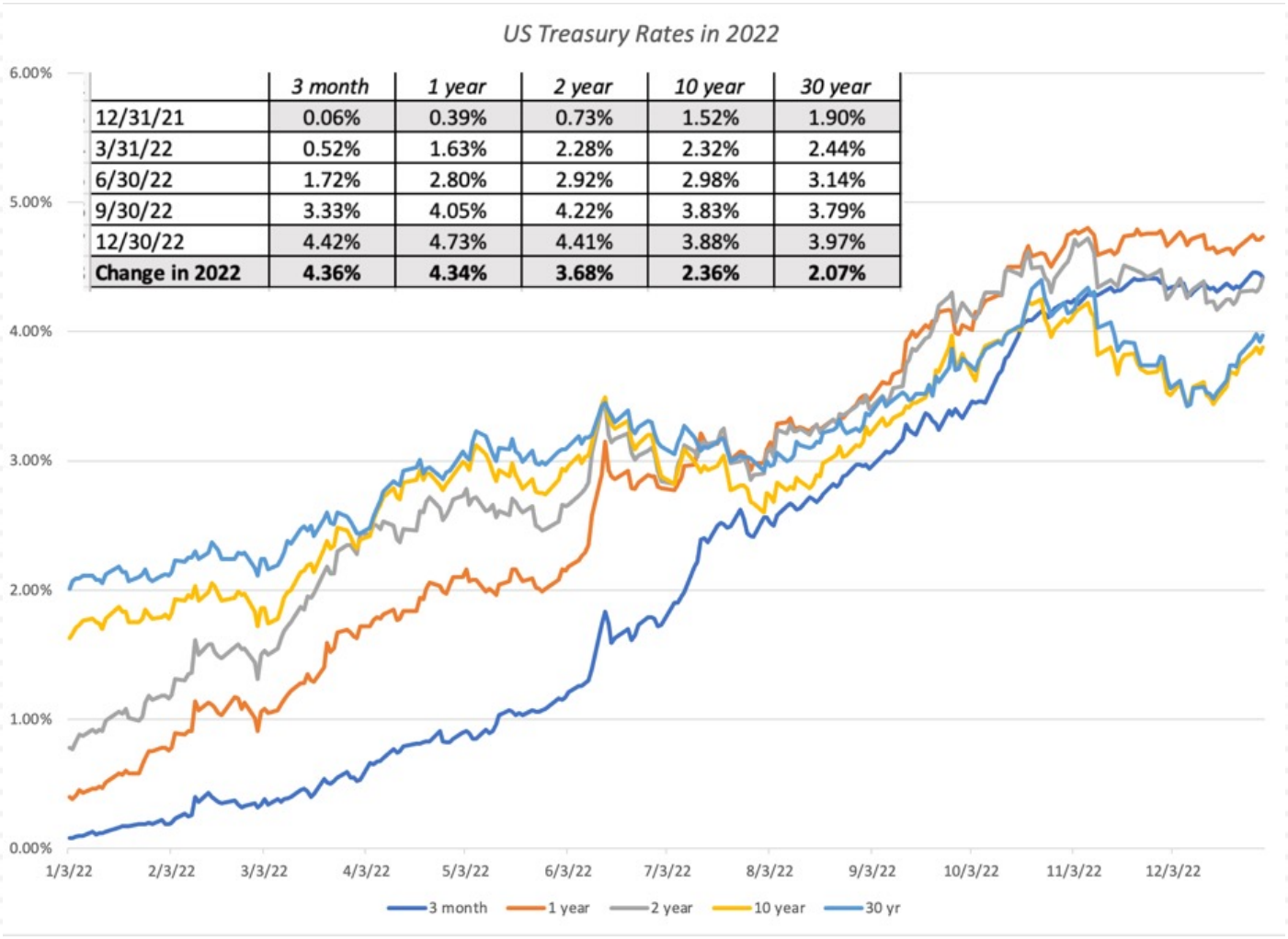


| | 3 month | 1 year | 2 year | 10 year | 30 year |
|---|---|---|---|---|---|
| 12/31/21 | 0.06% | 0.39% | 0.73% | 1.52% | 1.90% |
| 3/31/22 | 0.52% | 1.63% | 2.28% | 2.32% | 2.44% |
| 6/30/22 | 1.72% | 2.80% | 2.92% | 2.98% | 3.14% |
| 9/30/22 | 3.33% | 4.05% | 4.22% | 3.83% | 3.79% |
| 12/30/22 | 4.42% | 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%**

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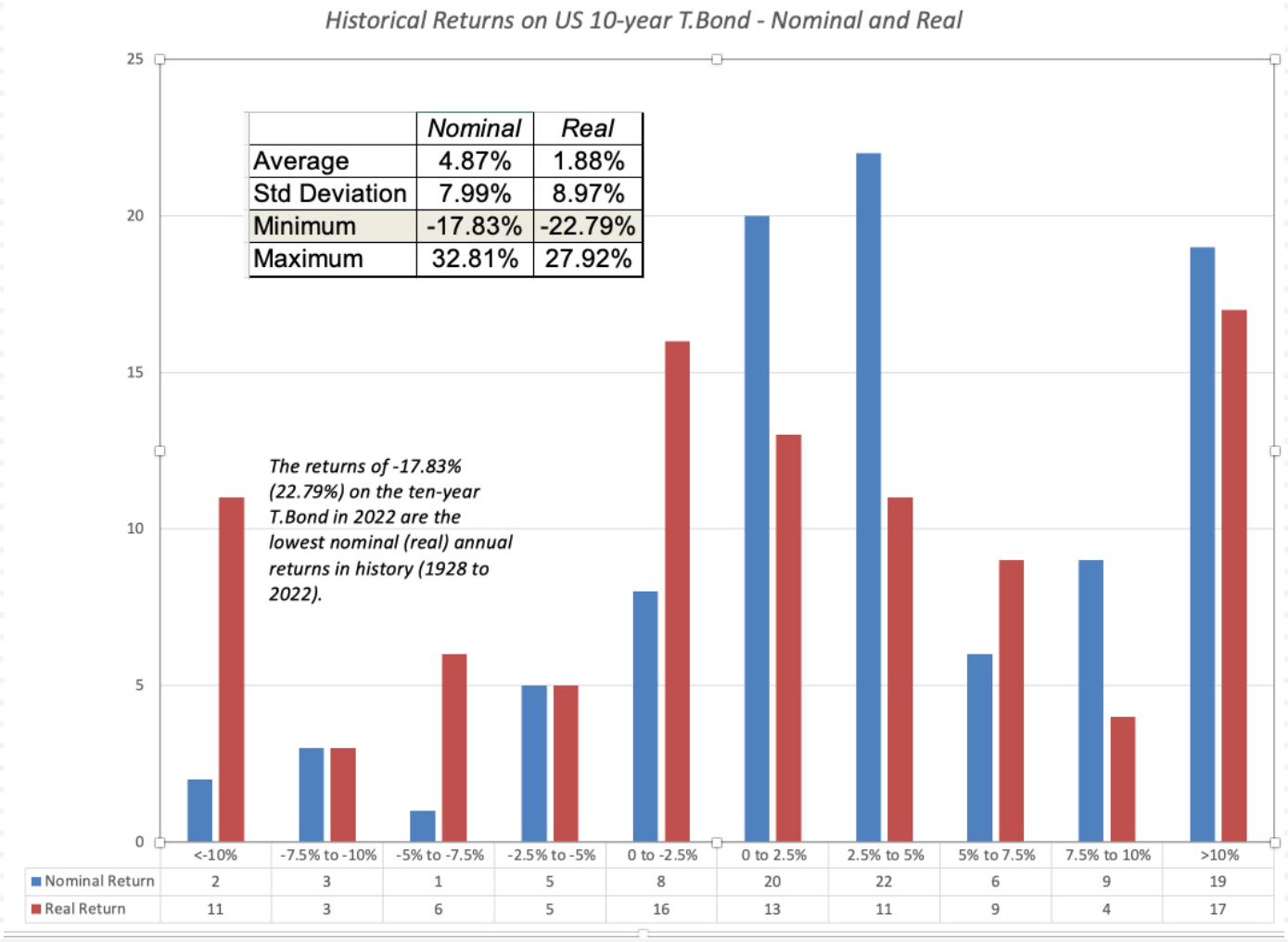
*Real Return*

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

# In historical context…





# And in terms of co-movement…



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

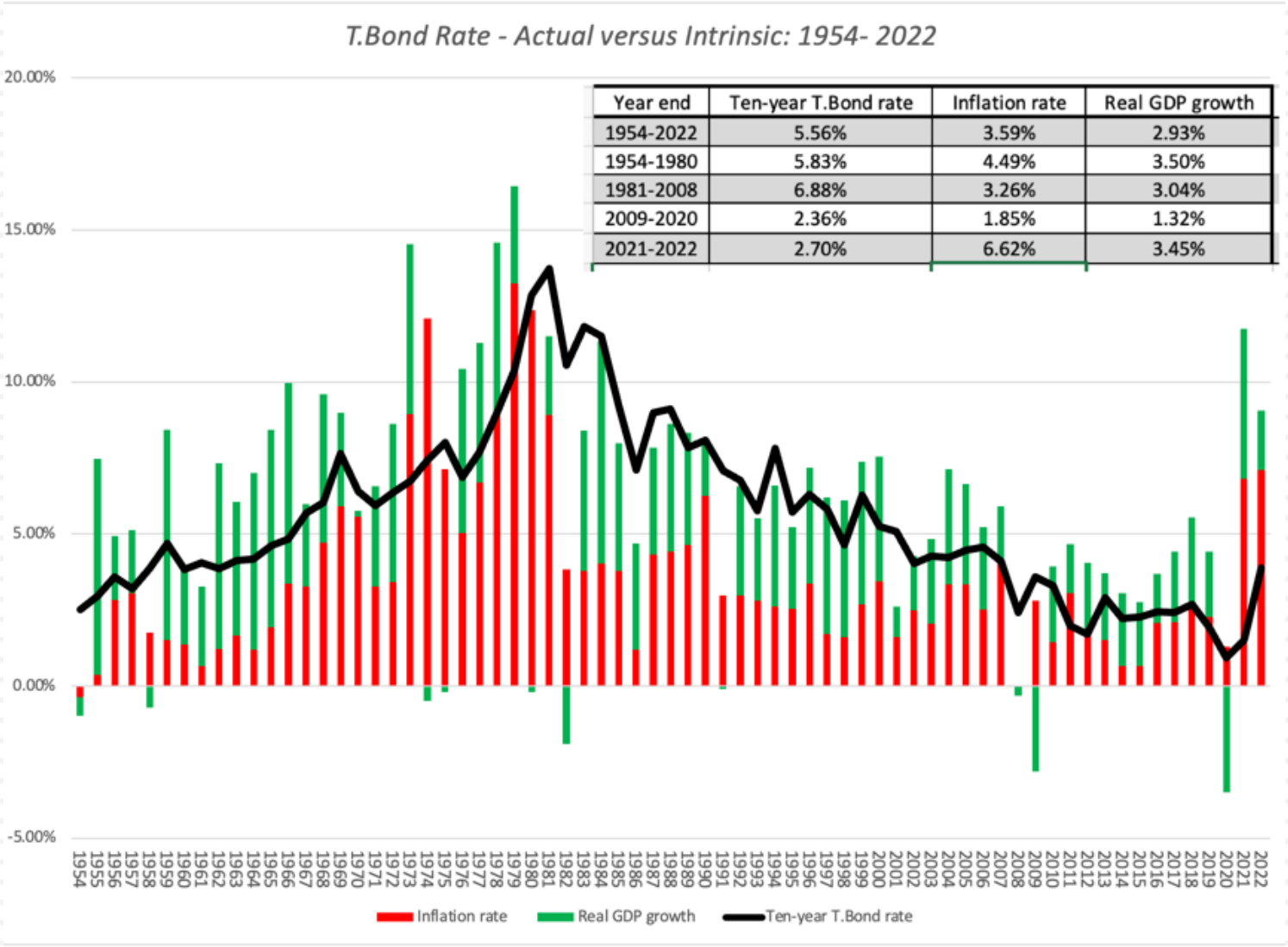
| | | **Bond Returns** | |
|---|---|---|---|
| | | *Positive* | *Negative* |
| **Stock Return** | *Positive* | 55 | 14 |
| | *Negative* | 21 | 5 |

*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

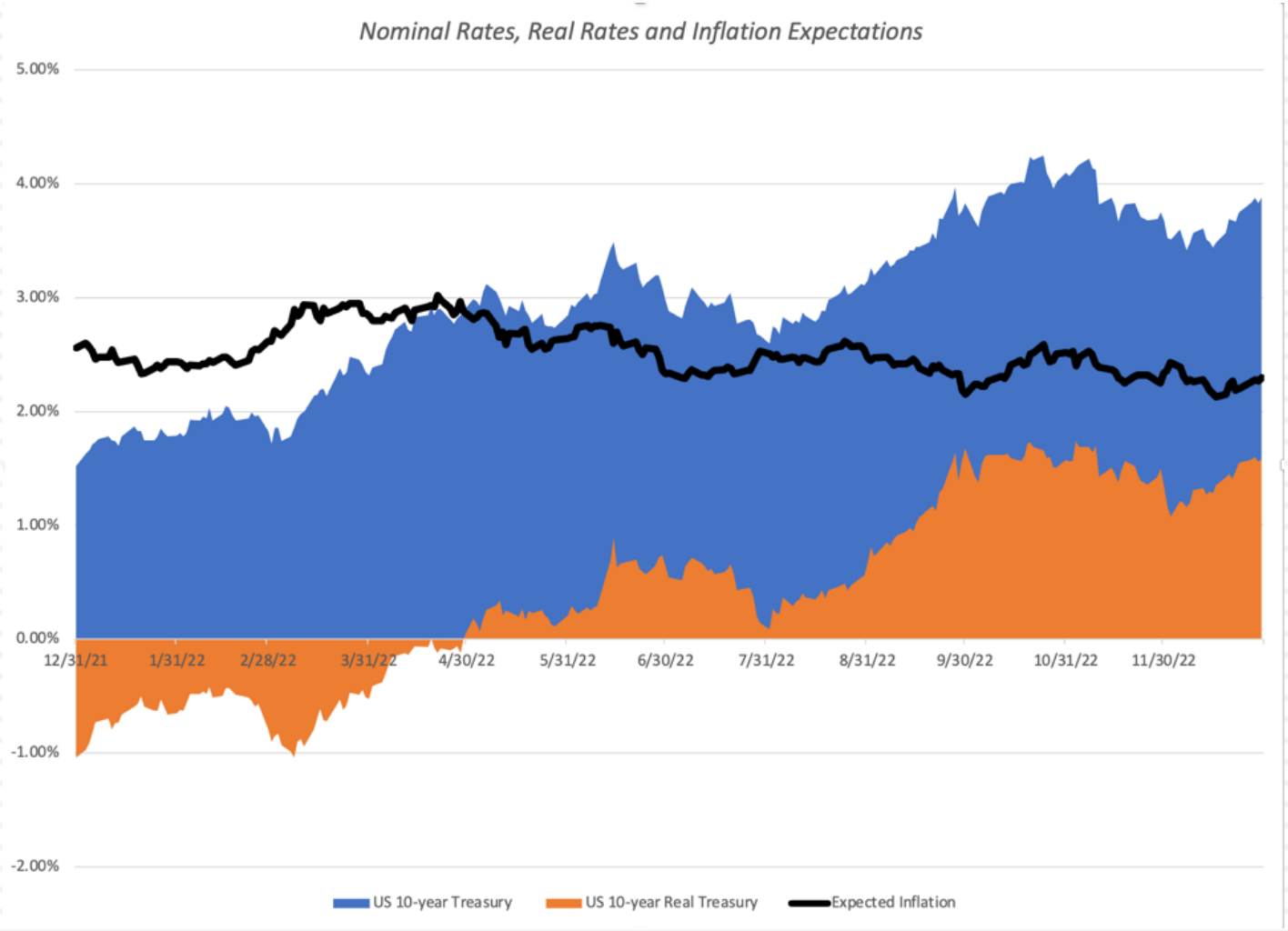





| Year end | Ten-year T.Bond rate | Inflation rate | Real GDP growth |
|---|---|---|---|
| 1954-2022 | 5.56% | 3.59% | 2.93% |
| 1954-1980 | 5.83% | 4.49% | 3.50% |
| 1981-2008 | 6.88% | 3.26% | 3.04% |
| 2009-2020 | 2.36% | 1.85% | 1.32% |
| 2021-2022 | 2.70% | 6.62% | 3.45% |

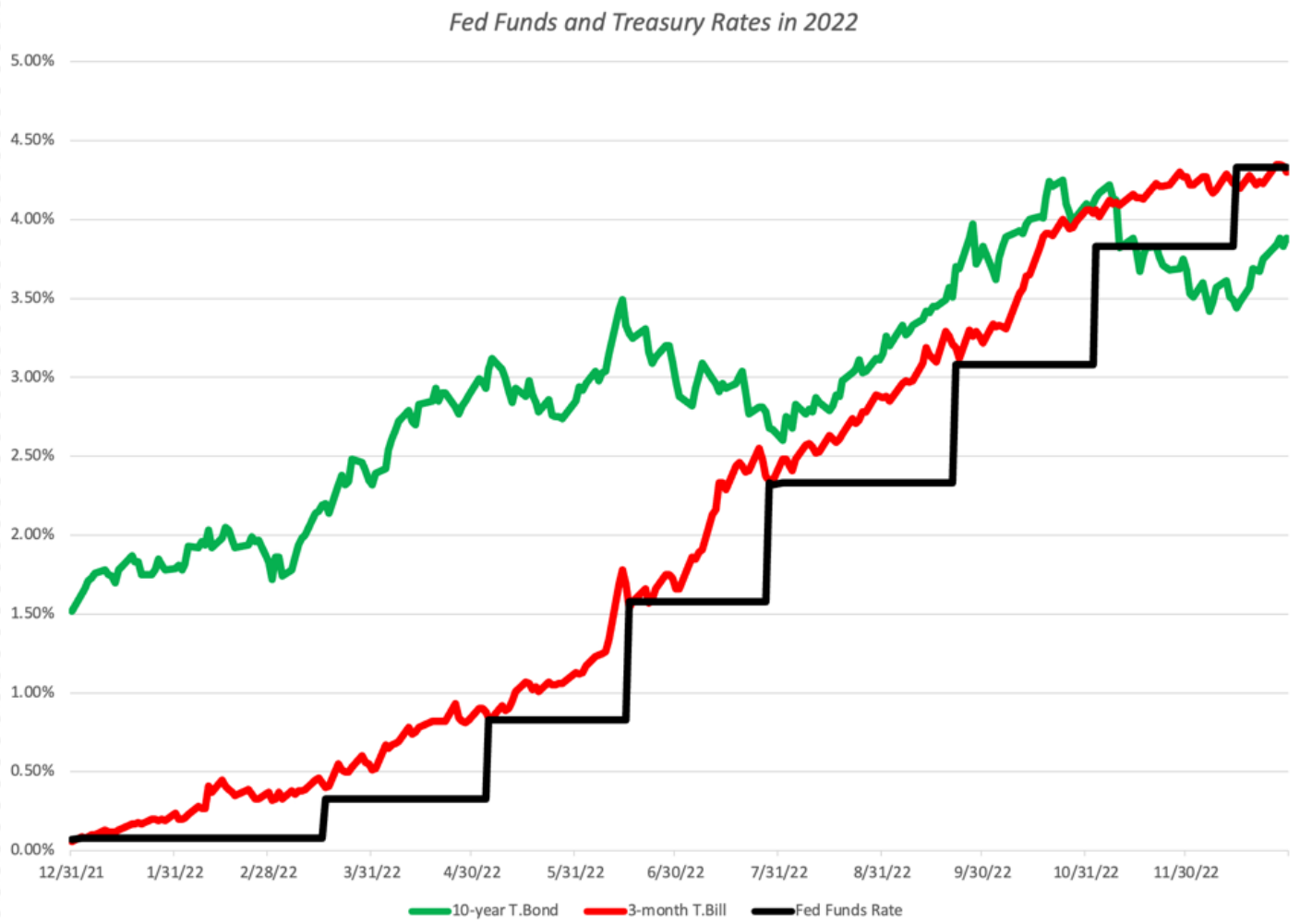
# Inflation and Interest Rates





# The Fed: Follower or Leader?





# The Fed Fixation: Time to let go?



- I do think that the Fed and other Central Banks, in the aftermath of the 2008 crisis, overcorrected and misread their mission as keeping economies afloat and financial markets booming, and in the process, they gave risk capital a false sense that they could take huge risks, without demanding sufficient premiums, and come in for soft landing.
- I think that the fixation with the Fed is both unhealthy and counter productive. It has not only made investors passive bystanders in the great interest resetting, but has also given poorly performing active investors, individual and institution, an easy excuse for their underperformance.
- Much as we bemoan our portfolio performance during the year, the market developments of 2022 are, on balance, healthy insofar as they bring risk capital back to earth.

# Default Risk and Spreads

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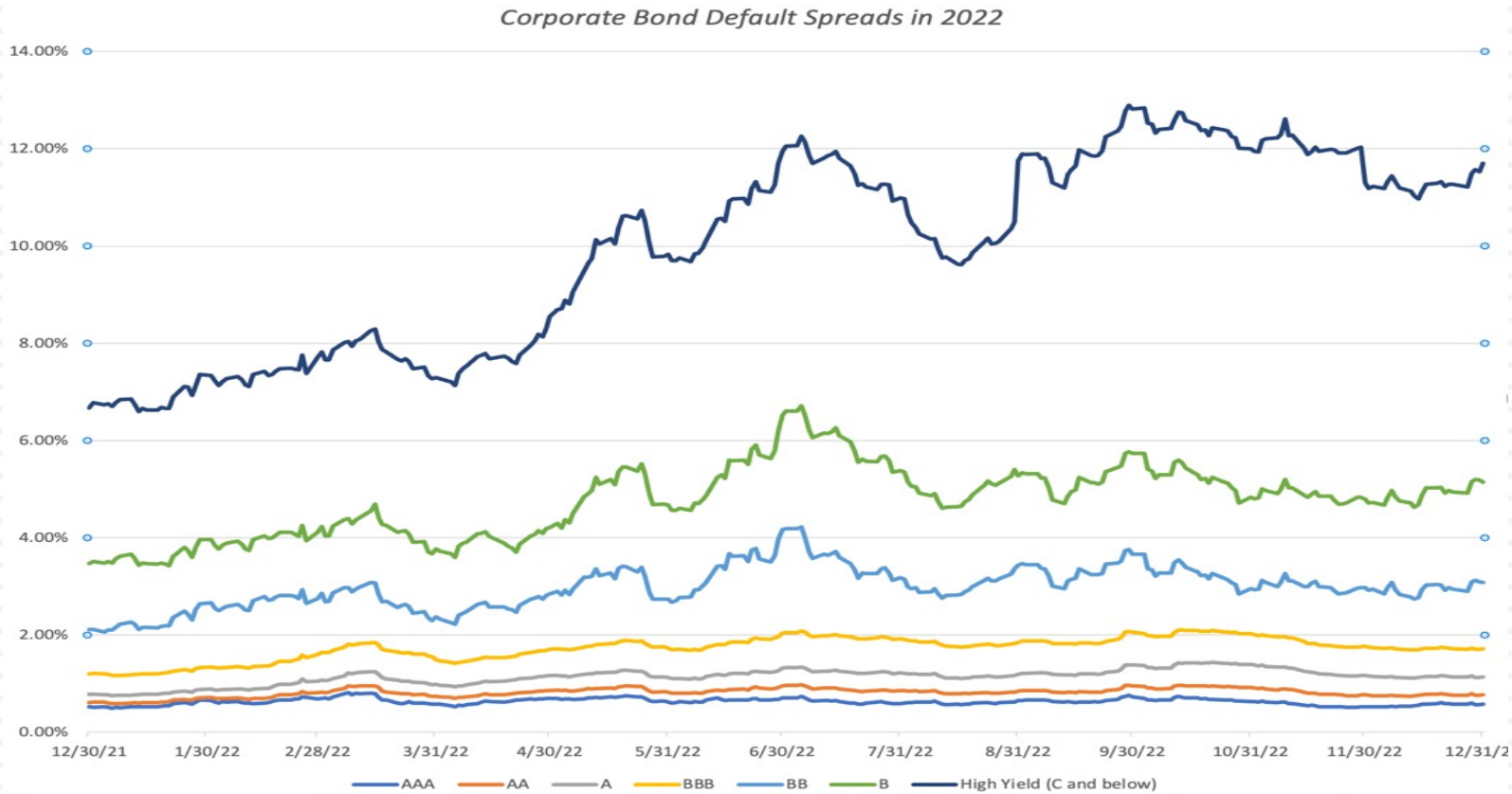



| Date | AAA | AA | A | BBB | BB | B | HY |
|---|---|---|---|---|---|---|---|
| 12/31/21 | 0.52% | 0.61% | 0.78% | 1.20% | 2.11% | 3.47% | 6.67% |
| 3/31/22 | 0.58% | 0.74% | 0.99% | 1.49% | 2.37% | 3.77% | 7.29% |
| 6/30/22 | 0.71% | 0.96% | 1.32% | 2.04% | 4.17% | 6.52% | 11.94% |
| 9/30/22 | 0.73% | 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%**

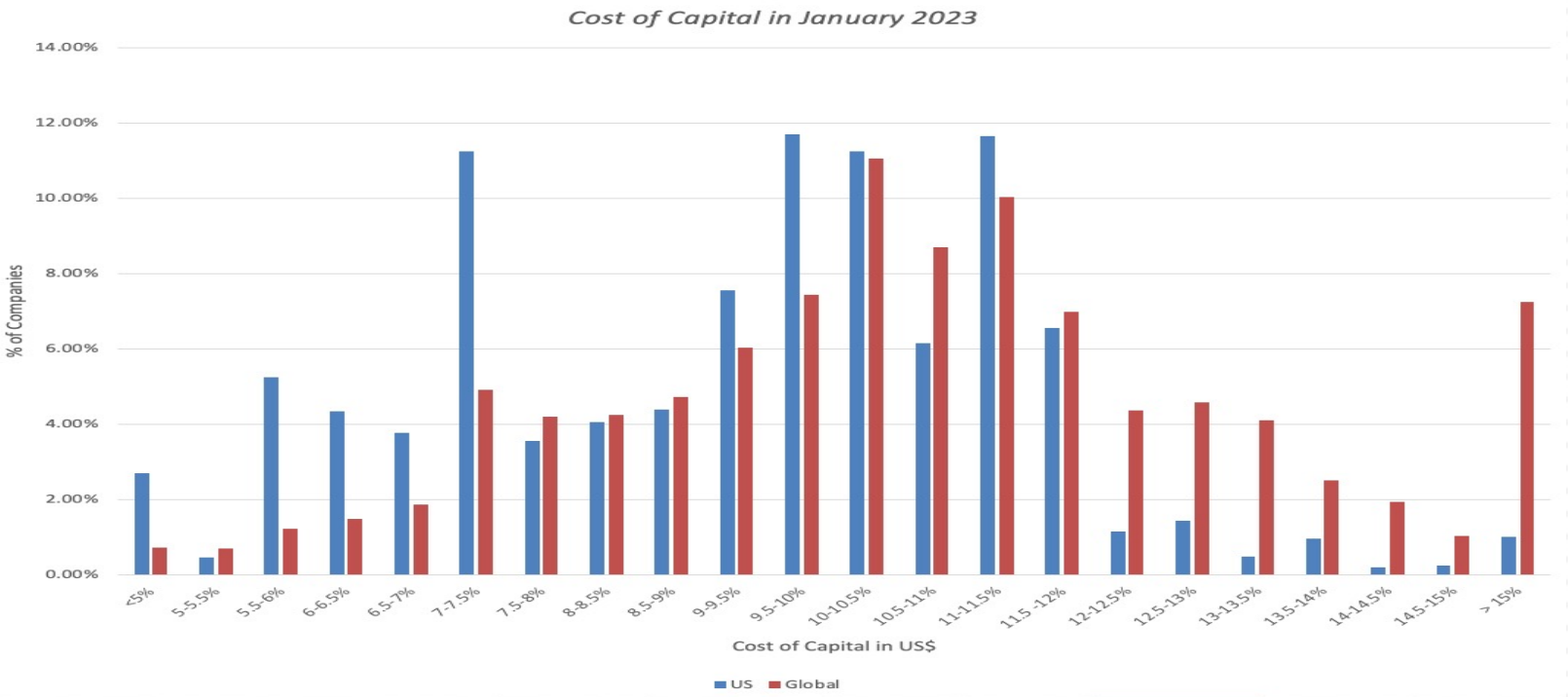
=

*Real Return*

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

# Consequences for Companies

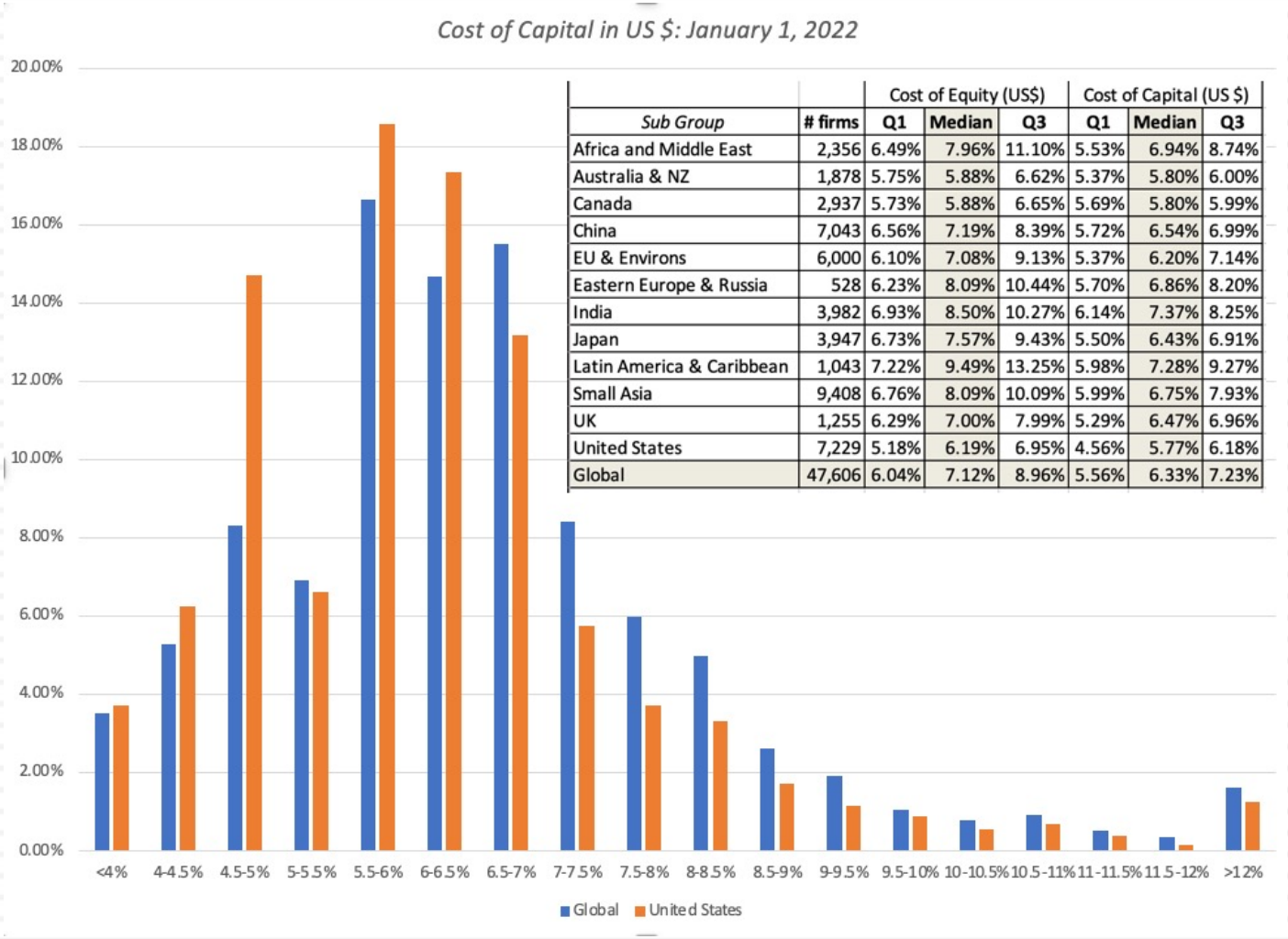




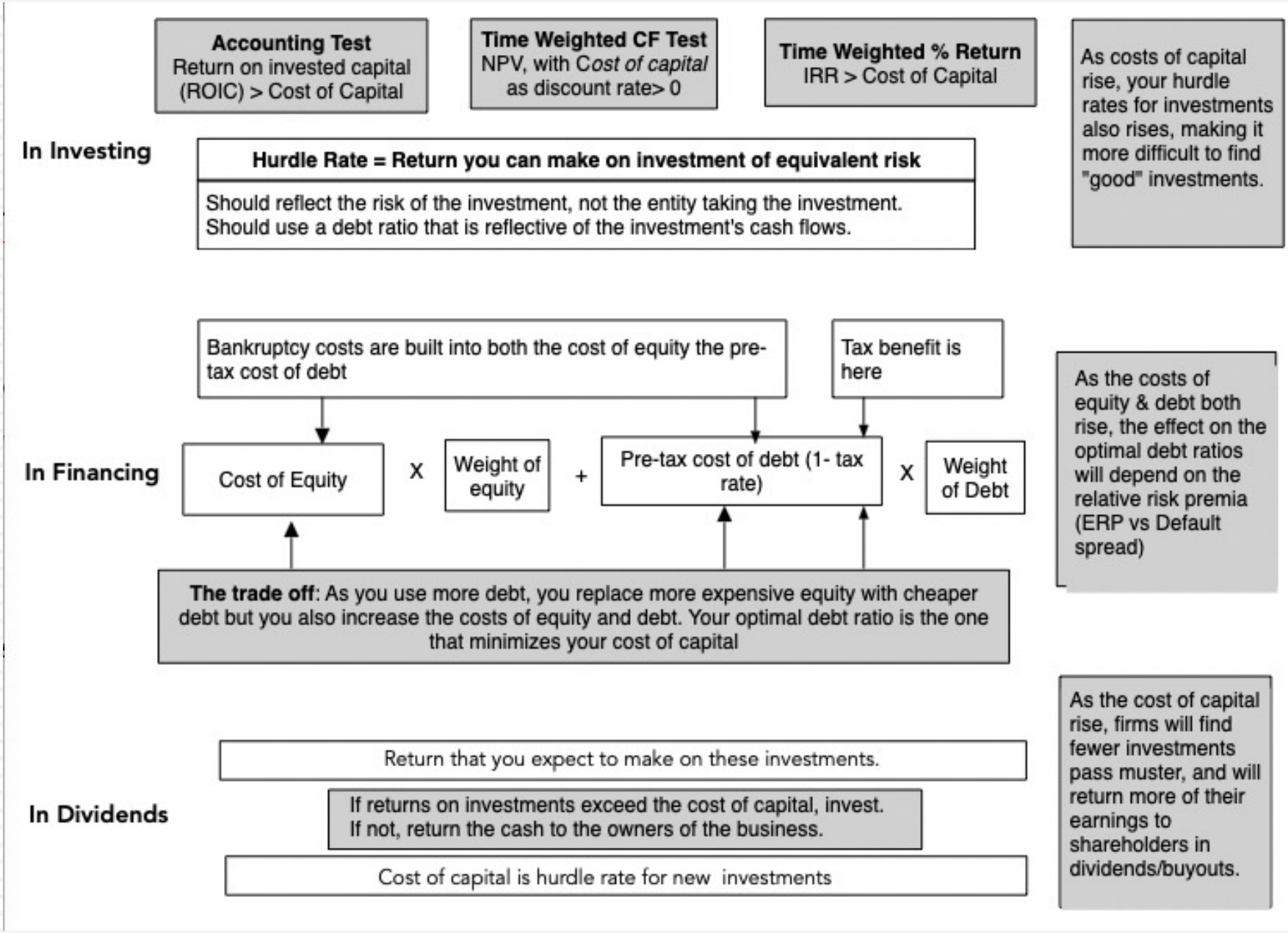

| Sub Group | # firms | Average | 10th | 25th | Median | 75th | 90th |
|---|---|---|---|---|---|---|---|
| Africa and Middle East | 2,409 | 12.19% | 7.77% | 9.08% | **11.35%** | 14.26% | 18.22% |
| Australia & NZ | 1,895 | 9.67% | 7.09% | 8.76% | **10.39%** | 10.49% | 11.44% |
| Canada | 2,900 | 10.05% | 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 with a year ago…






| | | 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.

# Interest Rates in 2023: Playing Prognosticator?



| | *No recession* | *Steep Recession* |
|---|---|---|
| *Inflation subsides to pre-pandemic levels* | T.Bond rate drops to 2%, | T.Bond rate drops to 2%. |
| | Default spreads decrease | Default spreads increase |
| *Inflation stays high* | T.Bond rate rises to 5%, | T.Bond rate rises, but < 5% |
| | Default spreads decrease | Default spreads increase |