

# Test 1: A riskfree rate in US dollars!

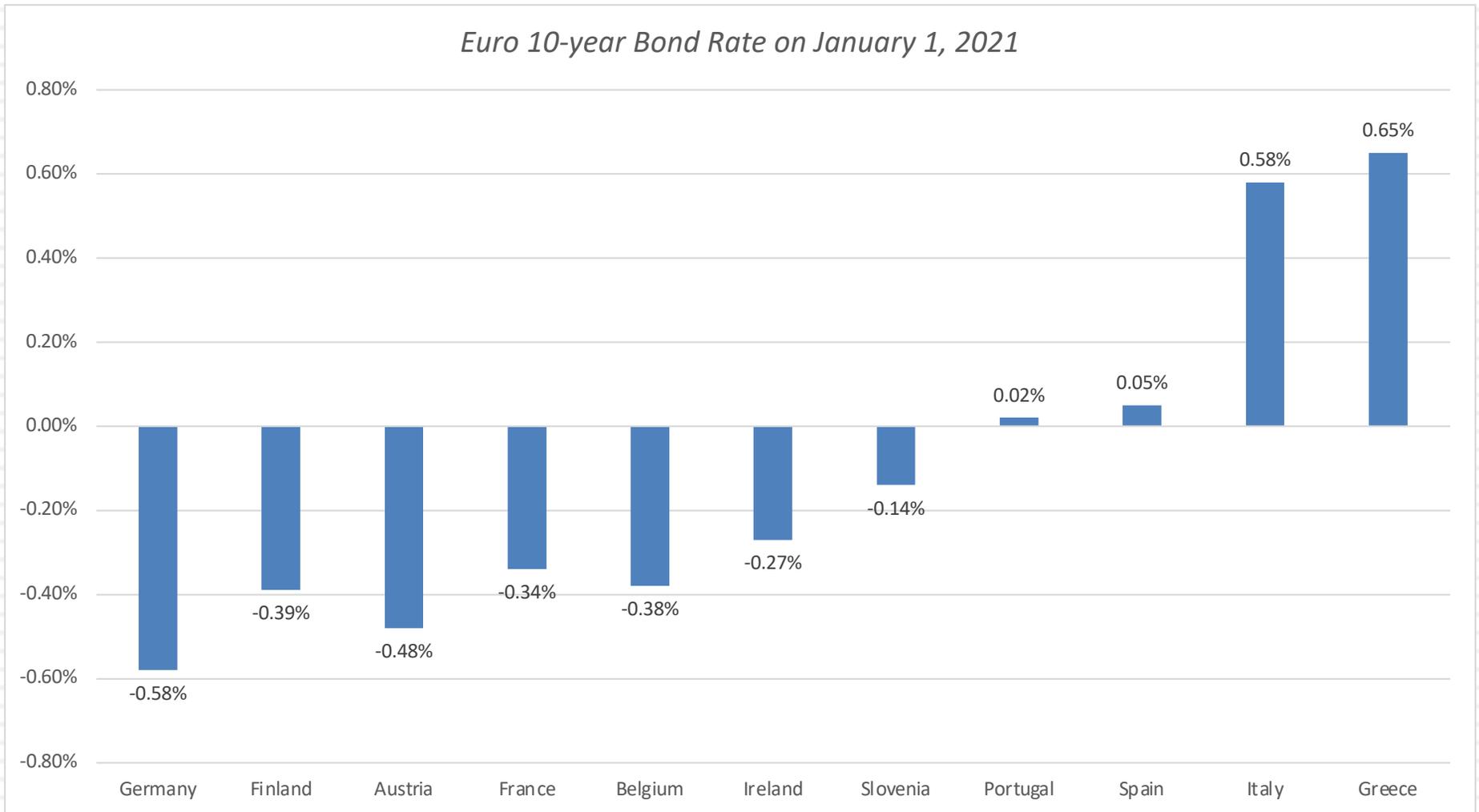
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- In valuation, we estimate cash flows forever (or at least for very long time periods). The right risk free rate to use in valuing a company in US dollars would be
  - a. A three-month Treasury bill rate (0.09%)
  - b. A ten-year Treasury bond rate (0.93%)
  - c. A thirty-year Treasury bond rate (1.4%)
  - d. A TIPs (inflation-indexed treasury) rate (-1.0%)
  - e. None of the above

What are we implicitly assuming about the US treasury when we use any of the treasury numbers?

# Test 2: A Riskfree Rate in Euros?

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# Test 3: A Riskfree Rate in Indian Rupees

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- The Indian government had 10-year Rupee bonds outstanding, with a yield to maturity of about 5.92% on January 1, 2021.
- In January 2021, the Indian government had a local currency sovereign rating of Baa3. The typical default spread (over a default free rate) for Baa3 rated country bonds in early 2021 was 1.95%. The riskfree rate in Indian Rupees is
  - a. The yield to maturity on the 10-year bond (5.92%)
  - b. The yield to maturity on the 10-year bond + Default spread (7.87%)
  - c. The yield to maturity on the 10-year bond – Default spread 3.97%
  - d. None of the above

# Sovereign Default Spread: Three paths to the same destination...

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- Sovereign dollar or euro denominated bonds: Find sovereign bonds denominated in US dollars, issued by an emerging sovereign.
  - ▣ Default spread = Emerging Govt Bond Rate (in US \$) – US Treasury Bond rate with same maturity.
- CDS spreads: Obtain the traded value for a sovereign Credit Default Swap (CDS) for the emerging government.
  - ▣ Default spread = Sovereign CDS spread (with perhaps an adjustment for CDS market frictions).
- Sovereign-rating based spread: For countries which don't issue dollar denominated bonds or have a CDS spread, you have to use the average spread for other countries with the same sovereign rating.

# Local Currency Government Bond Rates – January 2021

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Currency	Govt Bond Rate 12/31/20	Currency	Govt Bond Rate 12/31/20	Currency	Govt Bond Rate 12/31/20
Australian \$	1.05%	Indian Rupee	5.92%	Qatari Dinar	1.69%
<b>Brazilian Real</b>	<b>7.02%</b>	Indonesian Rupiah	6.24%	Romanian Lev	3.50%
British Pound	0.82%	Israeli Shekel	0.86%	Russian Ruble	5.82%
Bulgarian Lev	0.40%	Japanese Yen	0.02%	Singapore \$	0.92%
Canadian \$	0.77%	Kenyan Shilling	11.90%	South African Rand	8.94%
Chilean Peso	2.79%	Korean Won	1.65%	Swedish Krona	0.01%
Chinese Yuan	3.35%	Malyasian Ringgit	2.78%	Swiss Franc	-0.53%
Colombian Peso	4.95%	Mexican Peso	5.53%	Taiwanese \$	0.29%
Croatian Kuna	0.85%	Nigerian Naira	7.27%	Thai Baht	1.27%
Czech Koruna	1.29%	Norwegian Krone	0.89%	Turkish Lira	12.99%
Danish Krone	-0.47%	NZ \$	0.98%	US \$	0.93%
Euro	-0.58%	Pakistani Rupee	9.90%	Vietnamese Dong	2.55%
HK \$	0.72%	Peruvian Sol	4.55%	Zambian kwacha	34.00%
Hungarian Forint	2.30%	Phillipine Peso	2.94%		
Iceland Krona	3.08%	Polish Zloty	1.37%		

# Approach 1: Default spread from Government Bonds

Country	\$ Bond Rate	Riskfree Rate	Default Spread
	\$ Bonds		
Peru	3.66%	0.93%	2.73%
<b>Brazil</b>	<b>2.98%</b>	<b>0.93%</b>	<b>2.05%</b>
Colombia	1.93%	0.93%	1.00%
Poland	1.33%	0.93%	0.40%
Turkey	6.12%	0.93%	5.19%
Mexico	2.21%	0.93%	1.28%
Russia	2.43%	0.93%	1.50%
	Euro Bonds		
Bulgaria	1.00%	-0.58%	1.58%

# Approach 2: CDS Spreads – January 2021

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Country	1/1/21	CDS Spread net of US	Country	1/1/21	CDS Spread net of US	Country	1/1/21	CDS Spread net of US
Abu Dhabi	0.69%	0.46%	Greece	1.61%	1.38%	Greece	1.61%	1.38%
Algeria	1.10%	0.87%	Guatemala	2.15%	1.92%	Guatemala	2.15%	1.92%
Angola	7.50%	7.27%	Hong Kong	0.73%	0.50%	Hong Kong	0.73%	0.50%
Australia	0.23%	0.00%	Hungary	0.94%	0.71%	Hungary	0.94%	0.71%
Austria	0.18%	0.00%	Iceland	0.85%	0.62%	Iceland	0.85%	0.62%
Bahrain	3.18%	2.95%	India	1.24%	1.01%	India	1.24%	1.01%
Belgium	0.27%	0.04%	Indonesia	1.28%	1.05%	Indonesia	1.28%	1.05%
Brazil	2.15%	1.92%	Iraq	6.98%	6.75%	Iraq	6.98%	6.75%
Bulgaria	0.70%	0.47%	Ireland	0.32%	0.09%	Ireland	0.32%	0.09%
Cameroon	5.87%	5.64%	Israel	0.77%	0.54%	Israel	0.77%	0.54%
Canada	0.42%	0.19%	Italy	1.43%	1.20%	Italy	1.43%	1.20%
Chile	0.90%	0.67%	Japan	0.28%	0.05%	Japan	0.28%	0.05%
China	0.56%	0.33%	Kazakhstan	0.96%	0.73%	Kazakhstan	0.96%	0.73%
Colombia	1.52%	1.29%	Kenya	4.06%	3.83%	Kenya	4.06%	3.83%
Costa Rica	6.13%	5.90%	Korea	0.42%	0.19%	Korea	0.42%	0.19%
Croatia	1.28%	1.05%	Kuwait	0.75%	0.52%	Kuwait	0.75%	0.52%
Cyprus	1.19%	0.96%	Latvia	0.93%	0.70%	Latvia	0.93%	0.70%
Czech Republic	0.51%	0.28%	Lithuania	0.90%	0.67%	Lithuania	0.90%	0.67%
Denmark	0.16%	0.00%	Malaysia	0.70%	0.47%	Malaysia	0.70%	0.47%
Dubai	1.46%	1.23%	Mexico	1.45%	1.22%	Mexico	1.45%	1.22%
Ecuador	10.36%	10.13%	Morocco	1.56%	1.33%	Morocco	1.56%	1.33%
Egypt	4.08%	3.85%	Netherlands	0.20%	0.00%	Netherlands	0.20%	0.00%
El Salvador	7.78%	7.55%	New Zealand	0.25%	0.02%	New Zealand	0.25%	0.02%
Estonia	0.70%	0.47%	Nicaragua	4.52%	4.29%	Nicaragua	4.52%	4.29%
Finland	0.25%	0.02%	Nigeria	3.59%	3.36%	Nigeria	3.59%	3.36%
France	0.32%	0.09%	Norway	0.23%	0.00%	Norway	0.23%	0.00%
Germany	0.23%	0.00%	Oman	3.90%	3.67%	Oman	3.90%	3.67%

# Approach 3: Typical Default Spreads: January 2021

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S&P Sovereign Rating	Moody's Sovereign Rating	Default Spread
AAA	Aaa	0.00%
AA+	Aa1	0.35%
AA	Aa2	0.44%
AA-	Aa3	0.53%
A+	A1	0.62%
A	A2	0.75%
A-	A3	1.06%
BBB+	Baa1	1.41%
BBB	Baa2	1.68%
BBB-	Baa3	1.95%
BB+	Ba1	2.21%
<b>BB</b>	<b>Ba2</b>	<b>2.65%</b>
BB	Ba3	3.18%
B+	B1	3.98%
B	B2	4.86%
B-	B3	5.75%
CCC+	Caa1	6.63%
CCC	Caa2	7.96%
CCC-	Caa3	8.83%
CC+	Ca1	10.60%
CC	Ca2	13.76%
CC-	Ca3	15.00%
C+	C1	16.00%
C	C2	17.50%
C-	C3	20.00%

# Getting to a risk free rate in a currency: Example

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- The Brazilian government bond rate in nominal reais on January 1, 2021 was 7.02%. To get to a riskfree rate in nominal reais, we can use one of three approaches.
  - Approach 1: Government Bond spread
    - The 2030 Brazil bond, denominated in US dollars, has a spread of 2.05% over the US treasury bond rate.
    - Riskfree rate in \$R = 7.02% - 2.05% = 4.97%
  - Approach 2: The CDS Spread
    - The CDS spread for Brazil, adjusted for the US CDS spread was 1.92%.
    - Riskfree rate in \$R = 7.02% - 1.92% = 5.10%
  - Approach 3: The Rating based spread
    - Brazil has a Ba2 local currency rating from Moody's. The default spread for that rating is 2.65%
    - Riskfree rate in \$R = 7.02% - 2.65% = 4.47%

# Test 4: A Real Riskfree Rate

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- In some cases, you may want a riskfree rate in real terms (in real terms) rather than nominal terms.
- To get a real riskfree rate, you would like a security with no default risk and a guaranteed real return. Treasury indexed securities offer this combination.
- In January 2020, the yield on a 10-year indexed treasury bond was 0.40%. Which of the following statements would you subscribe to?
  - a. This (0.40%) is the real riskfree rate to use, if you are valuing US companies in real terms.
  - b. This (0.40%) is the real riskfree rate to use, anywhere in the world

Explain.

# No default free entity: Choices with riskfree rates....

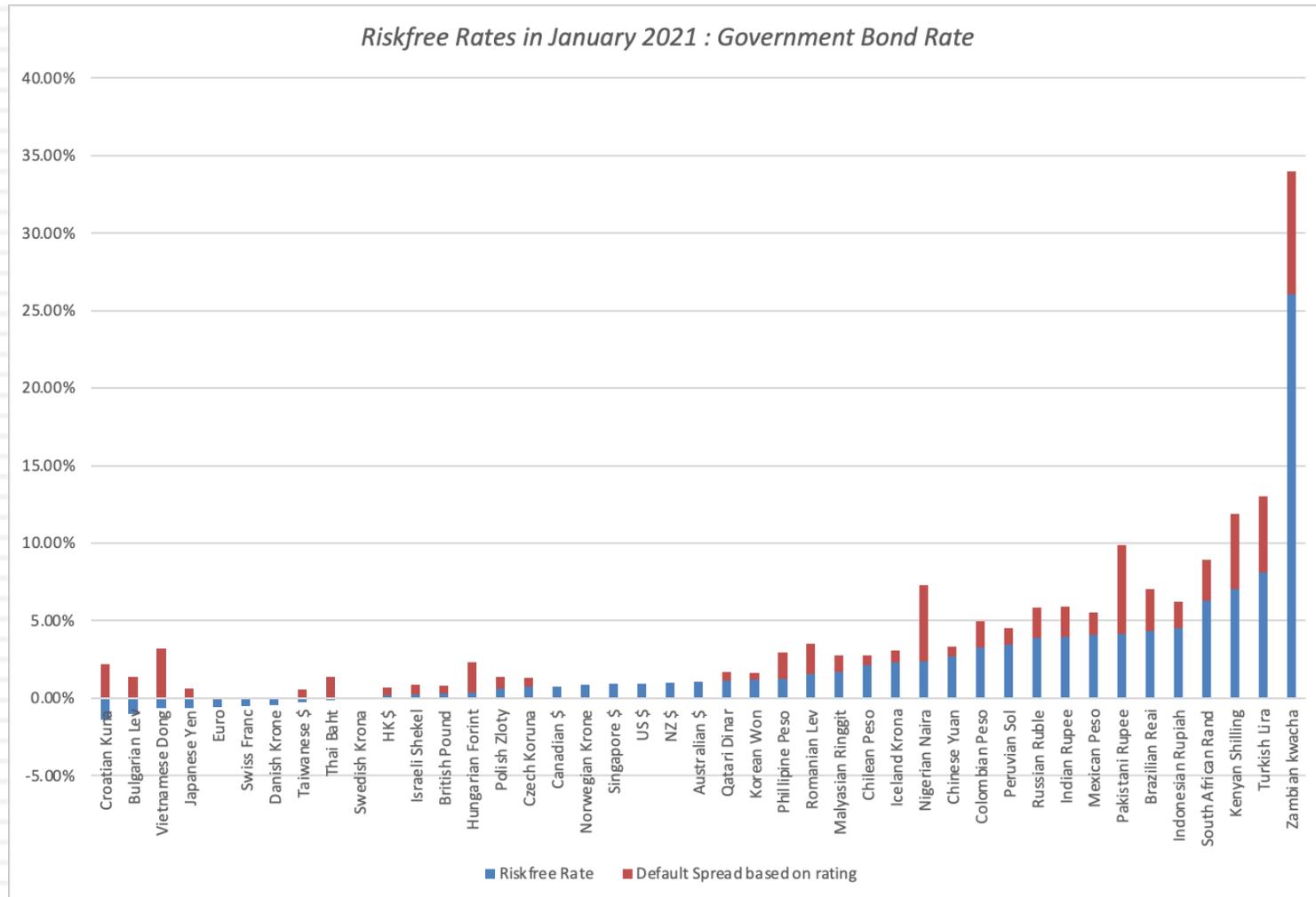
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- Estimate a range for the riskfree rate in local terms:
  - Approach 1: Subtract default spread from local government bond rate:  
Government bond rate in local currency terms - Default spread for Government in local currency
  - Approach 2: Use forward rates and the riskless rate in an index currency (say Euros or dollars) to estimate the riskless rate in the local currency.
- Do the analysis in real terms (rather than nominal terms) using a real riskfree rate, which can be obtained in one of two ways –
  - from an inflation-indexed government bond, if one exists
  - set equal, approximately, to the long term real growth rate of the economy in which the valuation is being done.
- Do the analysis in a currency where you can get a riskfree rate, say US dollars or Euros.

# Why do risk free rates vary across currencies?

## January 2021 Risk free rates

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# Risk free Rate: Don't have or trust the government bond rate?

1. Build up approach: The risk free rate in any currency can be written as the sum of two variables:

Risk free rate = Expected Inflation in currency + Expected real interest rate

Thus, if the expected inflation rate in a country is expected to be 15% and the TIPs rate is 1%, the risk free rate is 16%.

2. US \$ rate & Differential Inflation: Alternatively, you can scale up the US \$ risk free rate by the differential inflation between the US \$ and the currency in question:

$$\text{Risk free rate}_{\text{Currency}} = (1 + \text{Riskfree rate}_{\text{US \$}}) \frac{(1 + \text{Expected Inflation}_{\text{Foreign Currency}})}{(1 + \text{Expected Inflation}_{\text{US \$}})} - 1$$

Thus, if the US \$ risk free rate is 2.00%, the inflation rate in the foreign currency is 15% and the inflation rate in US \$ is 1.5%, the foreign currency risk free rate is as follows:

$$\text{Risk free rate} = (1.02) \frac{(1.15)}{(1.015)} - 1 = 15.57\%$$

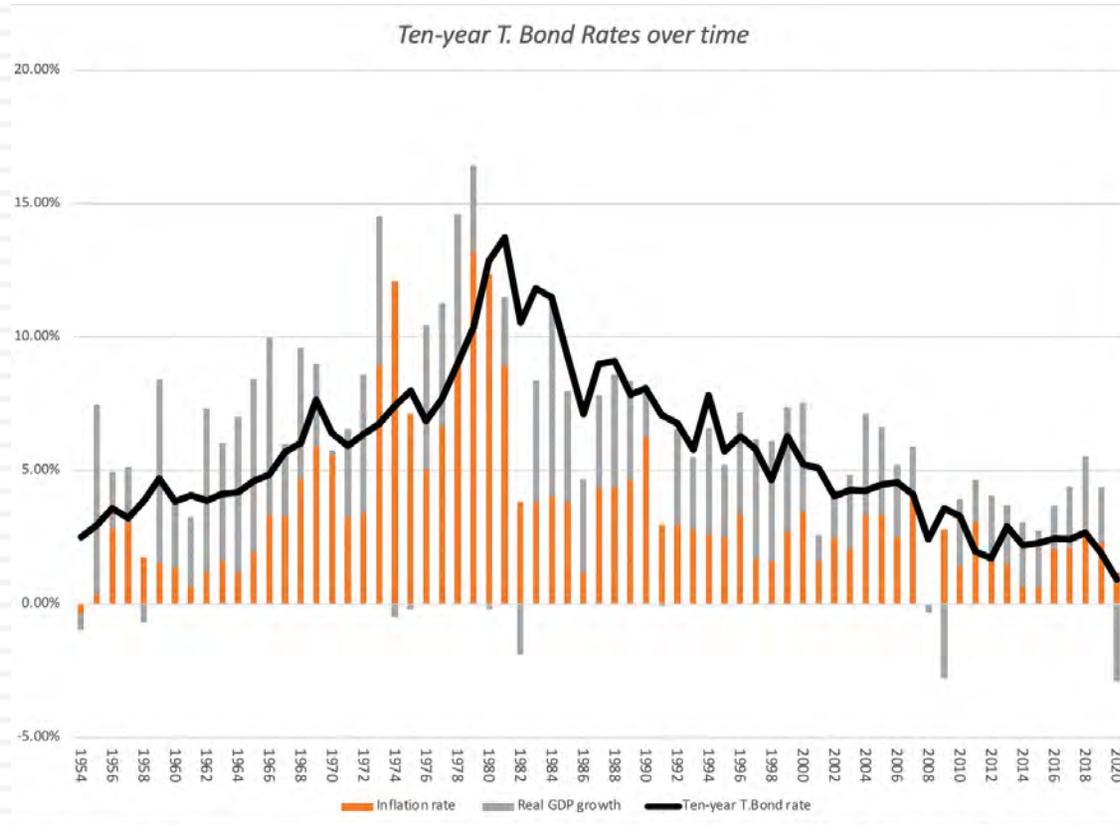
# One more test on riskfree rates...

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- On January 1, 2021, the 10-year treasury bond rate in the United States was 0.93%, low by historic standards. Assume that you were valuing a company in US dollars then, but were wary about the risk free rate being too low. Which of the following should you do?
  - a. Replace the current 10-year bond rate with a more reasonable normalized riskfree rate (the average 10-year bond rate over the last 30 years has been about 5-6%)
  - b. Use the current 10-year bond rate as your riskfree rate but make sure that your other assumptions (about growth and inflation) are consistent with the riskfree rate.
  - c. Something else...

# Some perspective on risk free rates

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Year end	Ten-year T.Bond rate	Inflation rate	Real GDP growth	Intrinsic riskfree rate	The Fed Effect
1954-2020	5.65%	3.50%	2.92%	6.42%	-0.78%
1954-1980	5.83%	4.49%	3.50%	7.98%	-2.15%
1981-2008	6.88%	3.26%	3.04%	6.30%	0.58%
2010-2020	2.25%	1.76%	1.74%	3.50%	-1.03%

# Negative Interest Rates?

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- In 2021, there were at least three currencies (Swiss Franc, Japanese Yen, Euro) with negative interest rates and perhaps two more (Croatian Kuna, Bulgarian Lev). Using the fundamentals (inflation and real growth) approach, how would you explain negative interest rates?
  - ▣ How negative can rates get? (Is there a bound?)
  - ▣ Would you use these negative interest rates as risk free rates?
    - If no, why not and what would you do instead?
    - If yes, what else would you have to do in your valuation to be internally consistent?

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# Discount Rates: II

## The Equity Risk Premium

## II. The Equity Risk Premium

### The ubiquitous historical risk premium

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- The historical premium is the premium that stocks have historically earned over riskless securities.
- While the users of historical risk premiums act as if it is a fact (rather than an estimate), it is sensitive to
  - ▣ How far back you go in history...
  - ▣ Whether you use T.bill rates or T.Bond rates
  - ▣ Whether you use geometric or arithmetic averages.
- For instance, looking at the US:

	<i>Arithmetic Average</i>		<i>Geometric Average</i>	
	Stocks - T. Bills	Stocks - T. Bonds	Stocks - T. Bills	Stocks - T. Bonds
1928-2020	8.28%	6.43%	6.47%	4.84%
<b>Std Error</b>	<b>2.06%</b>	<b>2.18%</b>		
1971-2020	7.67%	4.90%	6.35%	3.91%
<b>Std Error</b>	<b>2.38%</b>	<b>2.70%</b>		
2011-2020	13.83%	9.70%	13.24%	9.35%
<b>Std Error</b>	<b>3.88%</b>	<b>4.87%</b>		

Aswath

# The perils of trusting the past.....

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- Noisy estimates: Even with long time periods of history, the risk premium that you derive will have substantial standard error. For instance, if you go back to 1928 (about 90 years of history) and you assume a standard deviation of 20% in annual stock returns, you arrive at a standard error of greater than 2%:

$$\text{Standard Error in Premium} = 20\%/\sqrt{90} = 2.1\%$$

- Survivorship Bias: Using historical data from the U.S. equity markets over the twentieth century does create a sampling bias. After all, the US economy and equity markets were among the most successful of the global economies that you could have invested in early in the century.

# Risk Premium for a Mature Market? Broadening the sample to 1900-2017

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<i>Country</i>	<i>Geometric Mean</i>	<i>Standard Error</i>
<b>Australia</b>	5.00%	1.70%
<b>Austria</b>	2.90%	14.10%
<b>Belgium</b>	2.20%	1.90%
<b>Canada</b>	3.50%	1.70%
<b>Denmark</b>	2.20%	1.70%
<b>Finland</b>	5.20%	2.70%
<b>France</b>	3.10%	2.10%
<b>Germany</b>	5.10%	2.60%
<b>Ireland</b>	2.70%	1.80%
<b>Italy</b>	3.20%	2.70%
<b>Japan</b>	5.10%	3.00%
<b>Netherlands</b>	3.30%	2.00%
<b>New Zealand</b>	4.00%	1.60%
<b>Norway</b>	2.40%	2.50%
<b>Portugal</b>	5.30%	2.90%
<b>South Africa</b>	5.30%	1.80%
<b>Spain</b>	1.80%	1.90%
<b>Sweden</b>	3.10%	2.00%
<b>Switzerland</b>	2.20%	1.60%
<b>U.K.</b>	3.70%	1.60%
<b>U.S.</b>	4.40%	1.90%
<b>Europe</b>	3.00%	1.40%
<b>World-ex U.S.</b>	2.80%	1.30%
<b>World</b>	3.20%	1.40%

# The simplest way of estimating an additional country risk premium: The country default spread

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- Default spread for country: In this approach, the country equity risk premium is set equal to the default spread for the country, estimated in one of three ways:
  - The default spread on a dollar denominated bond issued by the country. (In January 2021, that spread was % for the Brazilian \$ bond) was 2.05%.
  - The sovereign CDS spread for the country. In January 2021, the ten-year CDS spread for Brazil, adjusted for the US CDS, was 1.92%.
  - The default spread based on the local currency rating for the country. Brazil's sovereign local currency rating is Ba2 and the default spread for a Ba2 rated sovereign was about 2.65% in January 2021.
- Add the default spread to a “mature” market premium: This default spread is added on to the mature market premium to arrive at the total equity risk premium for Brazil, assuming a mature market premium of 4.72%.
  - Country Risk Premium for Brazil = 2.65%
  - Total ERP for Brazil = 4.72% + 2.65% = 7.37%

# An equity volatility based approach to estimating the country total ERP

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- This approach draws on the standard deviation of two equity markets, the emerging market in question and a base market (usually the US). The total equity risk premium for the emerging market is then written as:
  - Total equity risk premium = Risk Premium<sub>US</sub> \*  $\sigma_{\text{Country Equity}} / \sigma_{\text{US Equity}}$
- The country equity risk premium is based upon the volatility of the market in question relative to U.S market.
  - Assume that the equity risk premium for the US is 4.72%.
  - Assume that the standard deviation in the Bovespa (Brazilian equity) is 30% and that the standard deviation for the S&P 500 (US equity) is 18%.
  - Total Equity Risk Premium for Brazil = 4.72% (30%/18%) = 7.89%
  - Country equity risk premium for Brazil = 7.89% - 4.72% = 3.17%

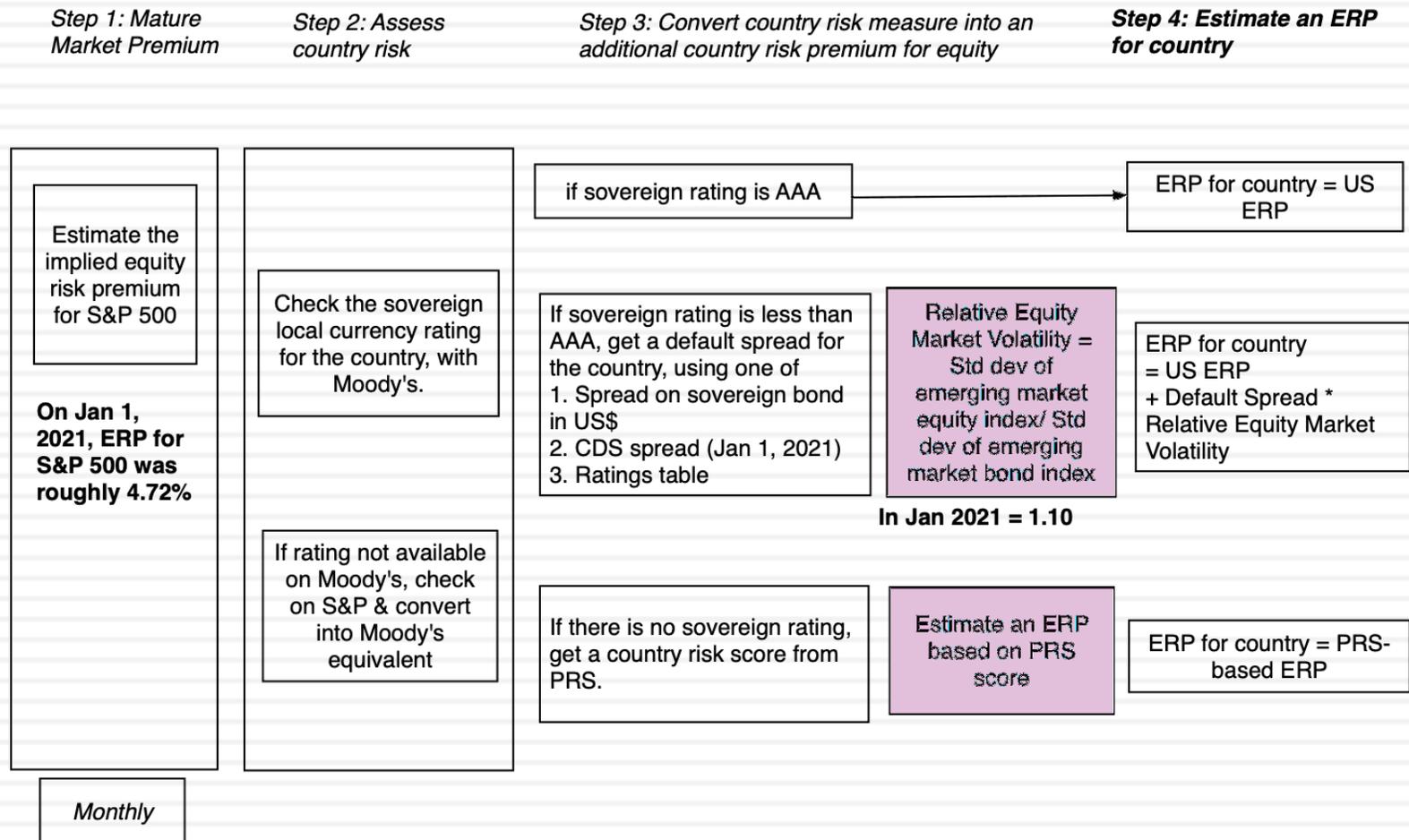
# A melded approach to estimating the additional country risk premium

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- Country ratings measure default risk. While default risk premiums and equity risk premiums are highly correlated, one would expect equity spreads to be higher than debt spreads.
- Another is to multiply the bond default spread by the relative volatility of stock and bond prices in that market. Using this approach for Brazil in January 2021, you would get:
  - Country Equity risk premium = Default spread on country bond\*  $\frac{\sigma_{\text{Country Equity}}}{\sigma_{\text{Country Bond}}}$ 
    - Standard Deviation in Bovespa (Equity) = 30%
    - Standard Deviation in Brazil government bond = 20%
    - Default spread for Brazil= 2.65%
  - Brazil Country Risk Premium = 2.65% (30%/20%) = 3.98%
  - Brazil Total ERP = Mature Market Premium + CRP = 4.72% + 3.98% = 8.70%

# A Template for Estimating the ERP

## ERP Estimation Procedure - January 1, 2021



# ERP : Jan 2021

Andorra	Caal	7.26%	11.98%	Italy	Baa3	2.13%	6.85%
Austria	Aa1	0.38%	5.10%	Jersey	Aaa	0.00%	4.72%
Belgium	Aa3	0.59%	5.31%	Liechtenstein	Aaa	0.00%	4.72%
Cyprus	Ba2	2.91%	7.63%	Luxembourg	Aaa	0.00%	4.72%
Denmark	Aaa	0.00%	4.72%	Malta	A2	0.82%	5.54%
Finland	Aa1	0.38%	5.10%	Netherlands	Aaa	0.00%	4.72%
France	Aa2	0.48%	5.20%	Norway	Aaa	0.00%	4.72%
Germany	Aaa	0.00%	4.72%	Portugal	Baa3	2.13%	6.85%
Greece	Ba3	3.49%	8.21%	Spain	Baa1	1.55%	6.27%
Guernsey	Aaa	0.00%	4.72%	Sweden	Aaa	0.00%	4.72%
Iceland	A2	0.82%	5.54%	Switzerland	Aaa	0.00%	4.72%
Ireland	A2	0.82%	5.54%	Turkey	B2	5.33%	10.05%
Isle of Man	Aa3	0.59%	5.31%	UK	Aa3	0.59%	5.31%
				<b>Western Europe</b>		<b>0.84%</b>	<b>5.56%</b>

Canada	Aaa	0.00%	4.72%
United States	Aaa	0.00%	4.72%
<b>North America</b>		<b>0.00%</b>	<b>4.72%</b>

<b>Caribbean</b>		<b>5.31%</b>	<b>10.03%</b>
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Argentina	Ca	11.62%	16.34%
Belize	Caa3	9.68%	14.40%
Bolivia	B2	5.33%	10.05%
Brazil	Ba2	2.91%	7.63%
Chile	A1	0.68%	5.40%
Colombia	Baa2	1.84%	6.56%
Costa Rica	B2	5.33%	10.05%
Ecuador	Caa3	9.68%	14.40%
El Salvador	B3	6.30%	11.02%
Guatemala	Ba1	2.42%	7.14%
Honduras	B1	4.36%	9.08%
Mexico	Baa1	1.55%	6.27%
Nicaragua	B3	6.30%	11.02%
Panama	Baa1	1.55%	6.27%
Paraguay	Ba1	2.42%	7.14%
Peru	A3	1.16%	5.88%
Suriname	Caa3	9.68%	14.40%
Uruguay	B1	4.36%	9.08%
Venezuela	C	19.18%	23.90%
<b>Latin America</b>		<b>3.99%</b>	<b>8.71%</b>

Country	Rating	CRP	ERP
Angola	Caa1	7.26%	11.98%
Benin	B2	5.33%	10.05%
Botswana	A2	0.82%	5.54%
Burkina Faso	B2	5.33%	10.05%
Cameroon	B2	5.33%	10.05%
Cape Verde	B2	5.33%	10.05%
Congo (DR)	Caa1	7.26%	11.98%
Congo (Rep of)	Caa2	8.72%	13.44%
Côte d'Ivoire	Ba3	3.49%	8.21%
Egypt	B2	5.33%	10.05%
Ethiopia	B2	5.33%	10.05%
Gabon	Caa1	7.26%	11.98%
Ghana	B3	6.30%	11.02%
Kenya	B2	5.33%	10.05%
Mali	Caa1	7.26%	11.98%
Morocco	Ba1	2.42%	7.14%
Mozambique	Caa2	8.72%	13.44%
Namibia	Ba3	3.49%	8.21%
Niger	B3	6.30%	11.02%
Nigeria	B2	5.33%	10.05%
Rwanda	B2	5.33%	10.05%
Senegal	Ba3	3.49%	8.21%
South Africa	Ba2	2.91%	7.63%
Swaziland	B3	6.30%	11.02%
Tanzania	B2	5.33%	10.05%
Togo	B3	6.30%	11.02%
Tunisia	B2	5.33%	10.05%
Uganda	B2	5.33%	10.05%
Zambia	Ca	11.62%	16.34%
<b>Africa</b>		<b>4.94%</b>	<b>9.66%</b>

Albania	B1	4.36%	9.08%
Armenia	Ba3	3.49%	8.21%
Azerbaijan	Ba2	2.91%	7.63%
Belarus	B3	6.30%	11.02%
Bosnia & Herzegovina	B3	6.30%	11.02%
Bulgaria	Baa1	1.55%	6.27%
Croatia	Ba1	2.42%	7.14%
Czech Republic	Aa3	0.59%	5.31%
Estonia	A1	0.68%	5.40%
Georgia	Ba2	2.91%	7.63%
Hungary	Baa3	2.13%	6.85%
Kazakhstan	Baa3	2.13%	6.85%
Kyrgyzstan	B2	5.33%	10.05%
Latvia	A3	1.16%	5.88%
Lithuania	A3	1.16%	5.88%
Macedonia	Ba3	3.49%	8.21%
Moldova	B3	6.30%	11.02%
Montenegro	B1	4.36%	9.08%
Poland	A2	0.82%	5.54%
Romania	Baa3	2.13%	6.85%
Russia	Baa3	2.13%	6.85%
Serbia	Ba3	3.49%	8.21%
Slovakia	A2	0.82%	5.54%
Slovenia	A3	1.16%	5.88%
Tajikistan	B3	6.30%	11.02%
Ukraine	B3	6.30%	11.02%
Uzbekistan	Baa2	1.84%	6.56%
<b>E. Europe &amp; Russia</b>		<b>2.08%</b>	<b>6.80%</b>

Abu Dhabi	Aa2	0.48%	5.20%
Bahrain	B2	5.33%	10.05%
Iraq	Caa1	7.26%	11.98%
Israel	A1	0.68%	5.40%
Jordan	B1	4.36%	9.08%
Kuwait	A1	0.68%	5.40%
Lebanon	C	19.18%	23.90%
Oman	Ba3	3.49%	8.21%
Qatar	Aa3	0.59%	5.31%
Ras Al Khaima	Aaa	0.00%	4.72%
Saudi Arabia	A1	0.68%	5.40%
Sharjah	Baa2	1.84%	6.56%
United Arab Emirates	Aa2	0.48%	5.20%
<b>Middle East</b>		<b>1.53%</b>	<b>6.25%</b>

Country	FRS	CRP	ERP
Algeria	57.25	8.72%	13.44%
Brunei	80	0.82%	5.54%
Gambia	63.75	6.30%	11.02%
Guinea	53.5	11.62%	16.34%
Guinea-Bissau	62	7.26%	11.98%
Guyana	65.75	5.33%	10.05%
Haiti	52.75	11.62%	16.34%
Iran	59.25	8.72%	13.44%
Korea, D.P.R.	50.75	11.62%	16.34%
Liberia	53.5	11.62%	16.34%
Libya	58.25	8.72%	13.44%
Madagascar	63.25	6.30%	11.02%
Malawi	58.75	8.72%	13.44%
Myanmar	63.75	6.30%	11.02%
Sierra Leone	58.75	8.72%	13.44%
Somalia	50.5	11.62%	16.34%
Sudan	38.25	19.18%	23.90%
Syria	47	19.18%	23.90%
Yemen, Republic	50	19.18%	23.90%
Zimbabwe	52.25	11.62%	16.34%

Bangladesh	Ba3	3.49%	8.21%
Cambodia	B2	5.33%	10.05%
China	A1	0.68%	5.40%
Fiji	Ba3	3.49%	8.21%
Hong Kong	Aa3	0.59%	5.31%
India	Baa3	2.13%	6.85%
Indonesia	Baa2	1.84%	6.56%
Japan	A1	0.68%	5.40%
Korea	Aa2	0.48%	5.20%
Laos	Caa2	8.72%	13.44%
Macao	Aa3	0.59%	5.31%
Malaysia	A3	1.16%	5.88%
Maldives	B3	6.30%	11.02%
Mauritius	Baa1	1.55%	6.27%
Mongolia	B3	6.30%	11.02%
Pakistan	B3	6.30%	11.02%
Papua New Guinea	B2	5.33%	10.05%
Philippines	Baa2	1.84%	6.56%
Singapore	Aaa	0.00%	4.72%
Solomon Islands	B3	6.30%	11.02%
Sri Lanka	Caa1	7.26%	11.98%
Taiwan	Aa3	0.59%	5.31%
Thailand	Baa1	1.55%	6.27%
Vietnam	Ba3	3.49%	8.21%

Australia	Aaa	0.00%	4.72%
Cook Islands	B1	4.36%	9.08%
New Zealand	Aaa	0.00%	4.72%
<b>Australia &amp; NZ</b>		<b>0.00%</b>	<b>4.72%</b>

Blue: Moody's Rating  
 Red: Added Country Risk  
 Green #: Total ERP