



THE ONE NUMBER THAT TELLS
THE WHOLE STORY: EQUITY RISK
PREMIUMS

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Risk Premiums and Asset Prices

- 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

- 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.

The macro determinants of equity risk..

- Economic risk: As the underlying economy becomes more uncertain, equity risk will rise. Higher volatility in GDP -> Higher equity risk.
- Political risk: As the uncertainty about fiscal and government policy increases, equity risk will rise.
- Information opacity: As the information provided by companies becomes more opaque and difficult to assess, equity risk premiums will rise.
- Liquidity: As liquidity of equities decreases, equity risk increases.
- Catastrophic risk: There is always the potential for catastrophic risk in investing in equities. As that perceived likelihood increases, equity risk will rise.

The ubiquitous historical risk premium

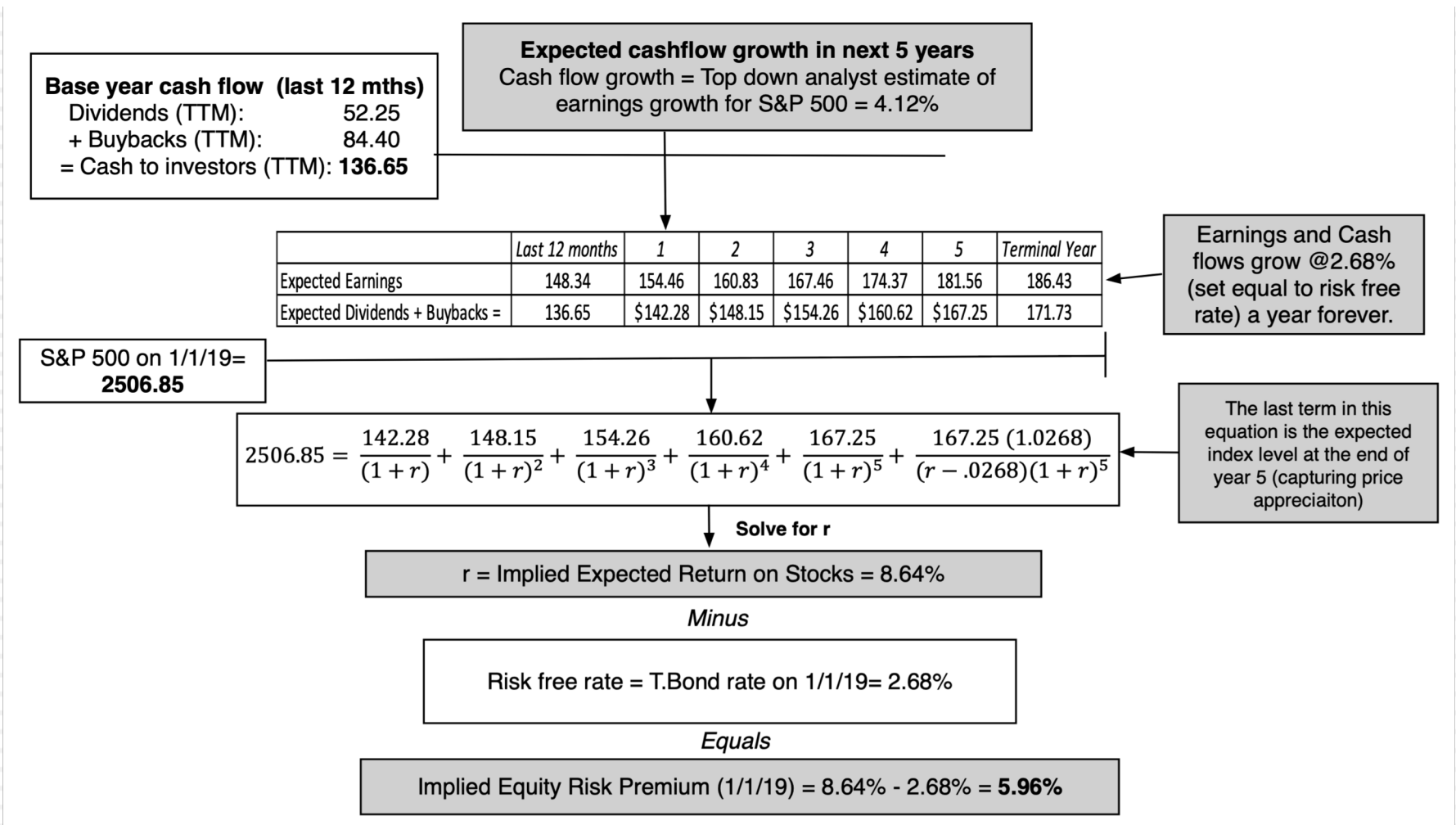
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- The historical premium is the premium that stocks have historically earned over riskless securities.
- While the users of historical risk premiums act as if it is a fact (rather than an estimate), it is sensitive to
 - ▣ How far back you go in history...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

	Arithmetic Average		Geometric Average	
	Stocks - T. Bills	Stocks - T. Bonds	Stocks - T. Bills	Stocks - T. Bonds
1928-2018	7.93%	6.26%	6.11%	4.66%
Std Error	2.09%	2.22%		
1969-2018	6.34%	4.00%	5.01%	3.04%
Std Error	2.38%	2.71%		
2009-2018	13.00%	11.21%	12.48%	11.00%
Std Error	3.71%	5.50%		

An Implied Equity Risk Premium

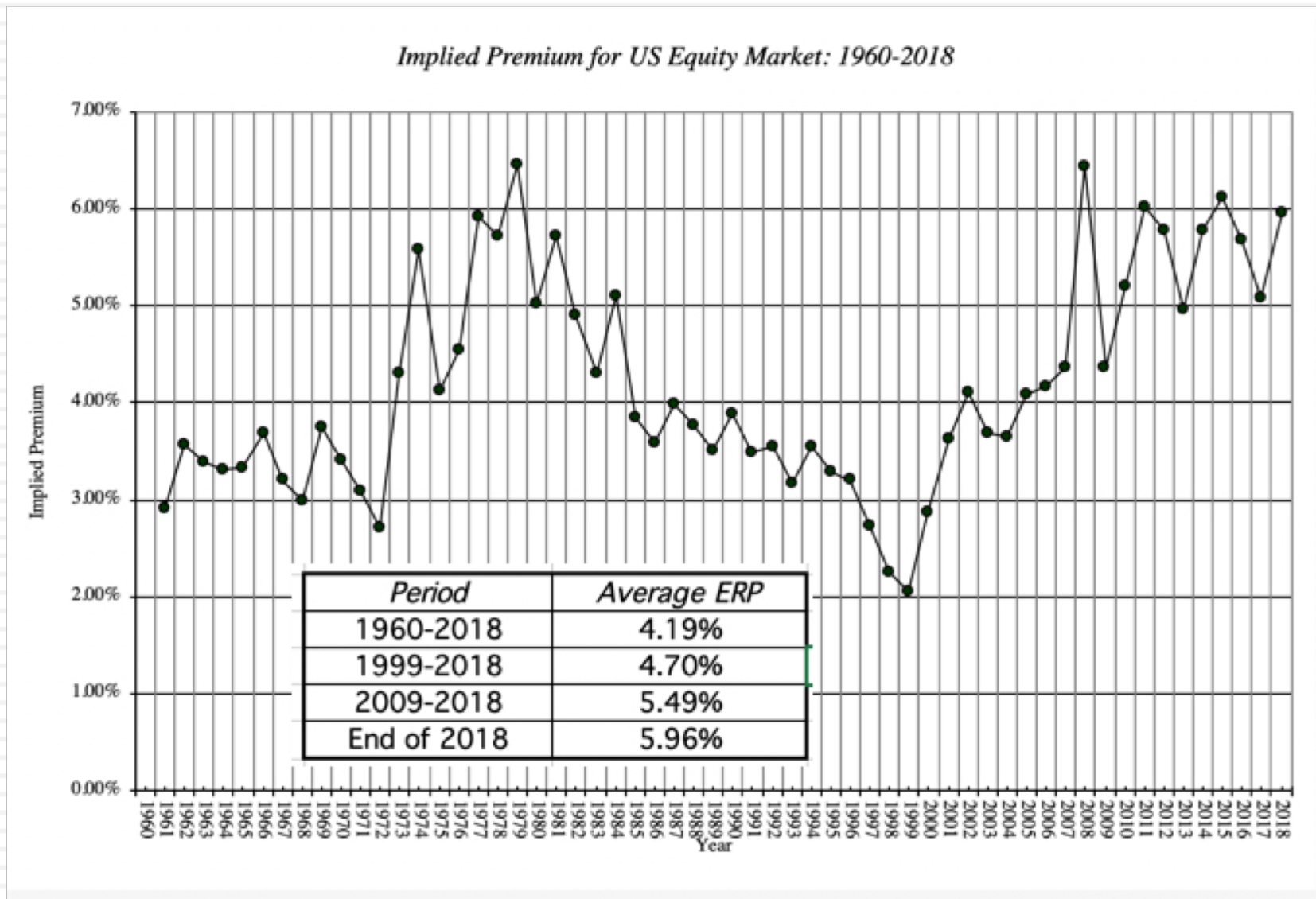
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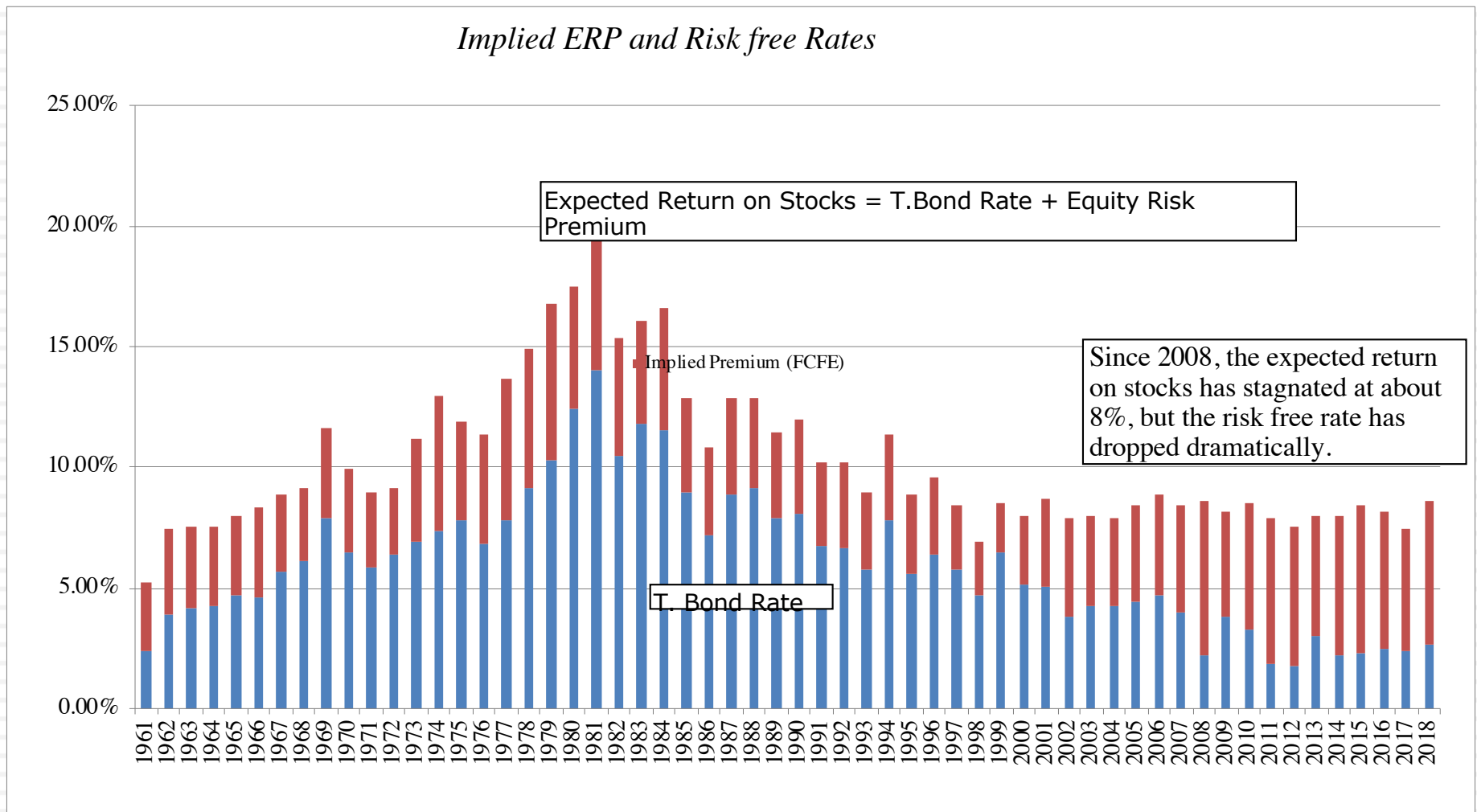
If you want market neutrality..

- Because your job description proscribes market views: If your job is to value individual companies, not pass judgment on the overall market, you should use the current implied equity risk premium and move on, no matter how much you disagree with it.
- Because you have a bad history at market timing: If you have a history of bad market timing, you should stick with the current implied ERP.

If you want to value (or time) markets, you have to decide on a reasonable ERP

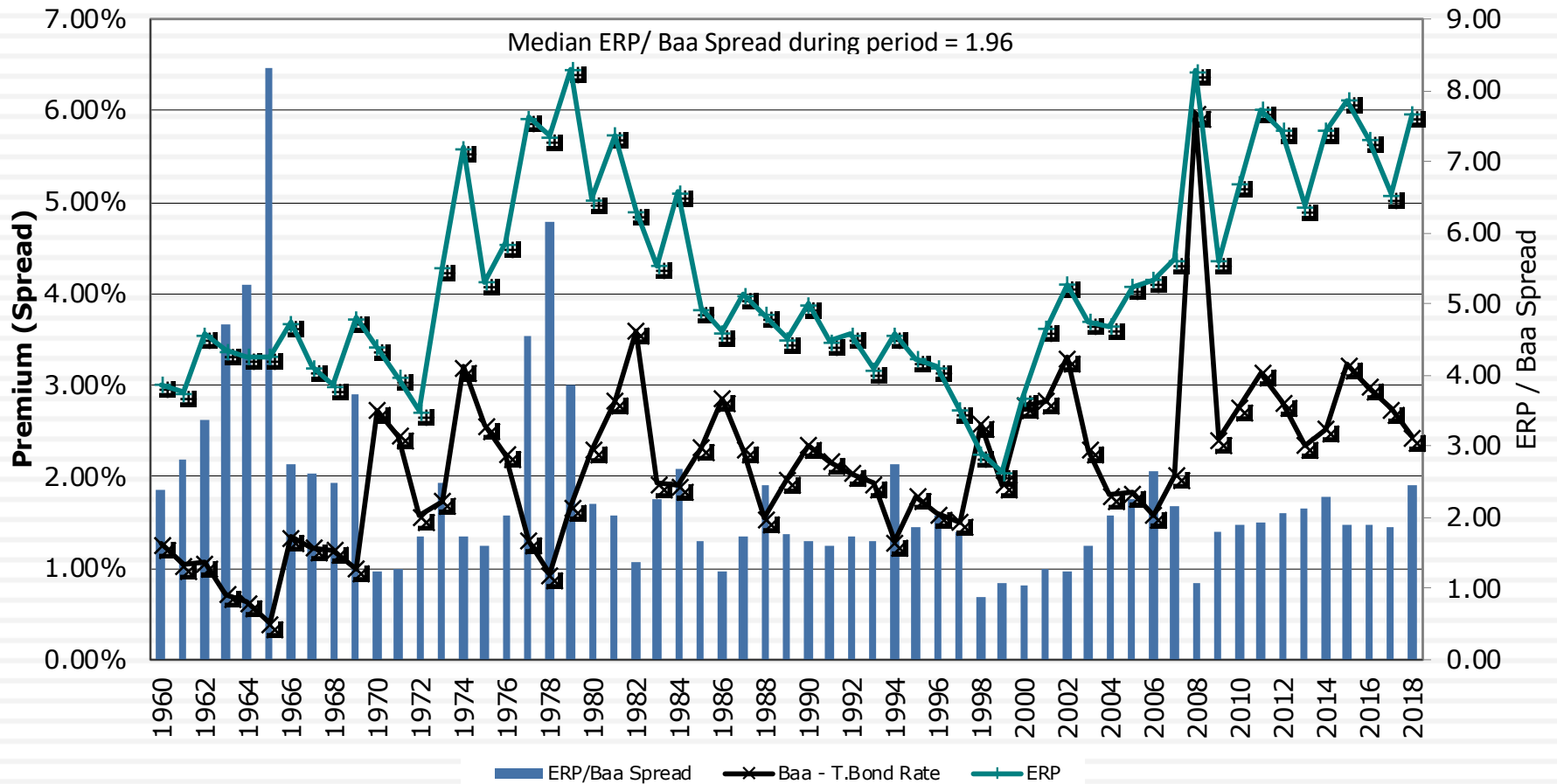


Implied Premium versus Risk Free Rate



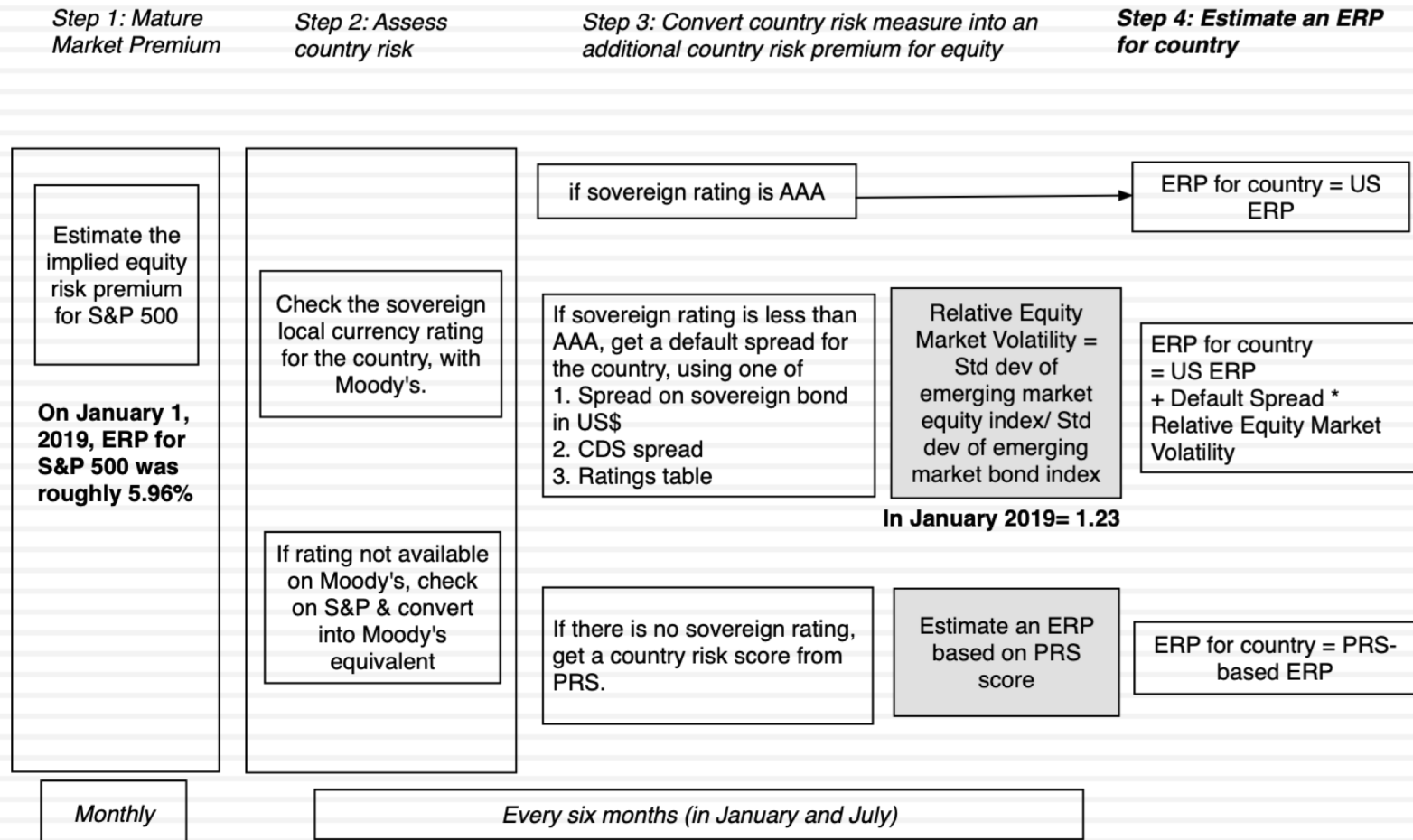
Equity Risk Premiums and Bond Default Spreads

Equity Risk Premiums and Bond Default Spreads



A Template for Estimating the ERP

ERP Estimation Procedure - January 1, 2019



ERP : Jan 2019

Andorra	8.60%	2.64%	Italy	9.02%	3.06%
Austria	6.51%	0.55%	Jersey (States of)	6.80%	0.84%
Belgium	6.80%	0.84%	Liechtenstein	5.96%	0.00%
Cyprus	10.13%	4.17%	Luxembourg	5.96%	0.00%
Denmark	5.96%	0.00%	Malta	7.63%	1.67%
Finland	6.51%	0.55%	Netherlands	5.96%	0.00%
France	6.65%	0.69%	Norway	5.96%	0.00%
Germany	5.96%	0.00%	Portugal	9.02%	3.06%
Greece	14.99%	9.03%	Spain	8.18%	2.22%
Guernsey (States of)	6.80%	0.84%	Sweden	5.96%	0.00%
Iceland	7.63%	1.67%	Switzerland	5.96%	0.00%
Ireland	7.14%	1.18%	Turkey	10.96%	5.00%
Isle of Man	6.65%	0.69%	United Kingdom	6.65%	0.69%
			Western Europe	7.11%	1.15%

Canada	5.96%	0.00%
United States	5.96%	0.00%
North America	5.96%	0.00%

Caribbean	13.61%	7.65%
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Argentina	13.60%	7.64%
Belize	14.99%	9.03%
Bolivia	10.96%	5.00%
Brazil	10.13%	4.17%
Chile	6.94%	0.98%
Colombia	8.60%	2.64%
Costa Rica	12.21%	6.25%
Ecuador	14.99%	9.03%
El Salvador	16.37%	10.41%
Guatemala	9.43%	3.47%
Honduras	12.21%	6.25%
Mexico	7.63%	1.67%
Nicaragua	13.60%	7.64%
Panama	8.60%	2.64%
Paraguay	9.43%	3.47%
Peru	7.63%	1.67%
Suriname	13.60%	7.64%
Uruguay	8.60%	2.64%
Venezuela	28.10%	22.14%
Central and South America	10.61%	4.65%

Angola	14.99%	9.03%
Benin	12.21%	6.25%
Botswana	7.14%	1.18%
Burkina Faso	13.60%	7.64%
Cameroon	13.60%	7.64%
Cape Verde	13.60%	7.64%
Congo (DR)	14.99%	9.03%
Congo (Rep)	18.46%	12.50%
Côte d'Ivoire	10.96%	5.00%
Egypt	14.99%	9.03%
Ethiopia	12.21%	6.25%
Gabon	16.37%	10.41%
Ghana	14.99%	9.03%
Kenya	13.60%	7.64%
Morocco	9.43%	3.47%
Mozambique	19.83%	13.87%
Namibia	9.43%	3.47%
Nigeria	13.60%	7.64%
Rwanda	13.60%	7.64%
Senegal	10.96%	5.00%
South Africa	9.02%	3.06%
Swaziland	13.60%	7.64%
Tanzania	12.21%	6.25%
Tunisia	13.60%	7.64%
Uganda	13.60%	7.64%
Zambia	16.37%	10.41%
Africa	12.63%	6.67%

Albania	12.21%	6.25%
Armenia	12.21%	6.25%
Azerbaijan	10.13%	4.17%
Belarus	14.99%	9.03%
Bosnia and Herzegovina	14.99%	9.03%
Bulgaria	8.60%	2.64%
Croatia	10.13%	4.17%
Czech Republic	6.94%	0.98%
Estonia	6.94%	0.98%
Georgia	10.13%	4.17%
Hungary	9.02%	3.06%
Kazakhstan	9.02%	3.06%
Kyrgyzstan	13.60%	7.64%
Latvia	7.63%	1.67%
Lithuania	7.63%	1.67%
Macedonia	10.96%	5.00%
Moldova	14.99%	9.03%
Montenegro	12.21%	6.25%
Poland	7.14%	1.18%
Romania	9.02%	3.06%
Russia	9.43%	3.47%
Serbia	10.96%	5.00%
Slovakia	7.14%	1.18%
Slovenia	8.18%	2.22%
Tajikistan	9.43%	3.47%
Ukraine	18.46%	12.50%
Eastern Europe & Russia	9.24%	3.28%

Abu Dhabi	6.65%	0.69%
Bahrain	13.60%	7.64%
Iraq	16.37%	10.41%
Israel	6.94%	0.98%
Jordan	12.21%	6.25%
Kuwait	6.65%	0.69%
Lebanon	14.99%	9.03%
Oman	9.02%	3.06%
Qatar	6.80%	0.84%
Ras Al Khaimah (Emirate of)	7.14%	1.18%
Saudi Arabia	6.94%	0.98%
Sharjah	7.63%	1.67%
United Arab Emirates	6.65%	0.69%
Middle East	7.96%	2.00%

Country	PRS	ERP	CRP	Country	PRS	ERP	CRP
Algeria	65	13.60%	7.64%	Malawi	61	16.37%	10.41%
Brunei	80.5	6.94%	0.98%	Mali	61.3	16.37%	10.41%
Gambia	63.3	14.99%	9.03%	Myanmar	62	16.37%	10.41%
Guinea	54.3	22.61%	16.65%	Niger	54.5	22.61%	16.65%
Guinea-Bissau	62	16.37%	10.41%	Sierra Leone	54.8	22.61%	16.65%
Guyana	66.5	12.21%	6.25%	Somalia	53.5	22.61%	16.65%
Haiti	60	18.46%	12.50%	Sudan	38.8	28.10%	22.14%
Iran	69.3	10.13%	4.17%	Syria	51.8	22.61%	16.65%
Korea, D.P.R.	53	22.61%	16.65%	Togo	61	16.37%	10.41%
Liberia	53.5	22.61%	16.65%	Yemen, Republic	48	28.10%	22.14%
Libya	66.5	12.21%	6.25%	Zimbabwe	59.3	18.46%	12.50%
Madagascar	64	14.99%	9.03%				

Bangladesh	10.96%	5.00%
Cambodia	13.60%	7.64%
China	6.94%	0.98%
Fiji	10.96%	5.00%
Hong Kong	6.65%	0.69%
India	8.60%	2.64%
Indonesia	8.60%	2.64%
Japan	6.94%	0.98%
Korea	6.65%	0.69%
Macao	6.80%	0.84%
Malaysia	7.63%	1.67%
Maldives	13.60%	7.64%
Mauritius	8.18%	2.22%
Mongolia	14.99%	9.03%
Pakistan	14.99%	9.03%
Papua New Guinea	13.60%	7.64%
Philippines	8.60%	2.64%
Singapore	5.96%	0.00%
Solomon Islands	14.99%	9.03%
Sri Lanka	12.21%	6.25%
Taiwan	8.18%	2.22%
Thailand	8.18%	2.22%
Vietnam	10.96%	5.00%
Asia	7.43%	1.47%

Australia	5.96%	0.00%
Cook Islands	12.21%	6.25%
New Zealand	5.96%	0.00%
Australia & New Zealand	5.96%	0.00%

Black #: Total ERP

Red #: Country risk premium

Regional #: GDP weighted average

An Alternative: Implied ERP for other markets

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- Inputs for the computation
 - ▣ Sensex on 9/5/07 = 15446
 - ▣ Dividend yield on index = 3.05%
 - ▣ Expected growth rate - next 5 years = 14%
 - ▣ Growth rate beyond year 5 = 6.76% (set equal to riskfree rate)
- Solving for the expected return:

$$15446 = \frac{537.06}{(1+r)} + \frac{612.25}{(1+r)^2} + \frac{697.86}{(1+r)^3} + \frac{795.67}{(1+r)^4} + \frac{907.07}{(1+r)^5} + \frac{907.07(1.0676)}{(r - .0676)(1+r)^5}$$

- Expected return on stocks = 11.18%
- Implied equity risk premium for India = 11.18% - 6.76% = 4.42%

Why country risk premiums matter, even if you are valuing just US companies: Coca Cola in 2012

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<i>Region</i>	<i>Revenues</i>	<i>Total ERP</i>	<i>CRP</i>
Western Europe	19%	6.67%	0.67%
Eastern Europe & Russia	5%	8.60%	2.60%
Asia	15%	7.63%	1.63%
Latin America	15%	9.42%	3.42%
Australia	4%	6.00%	0.00%
Africa	4%	9.82%	3.82%
North America	40%	6.00%	0.00%
Coca Cola	100%	7.14%	1.14%

Things to watch out for

1. Aggregation across regions. For instance, the Pacific region often includes Australia & NZ with Asia
2. Obscure aggregations including Eurasia and Oceania

Which equity risk premium should you use?

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If you assume this

Premiums revert back to historical norms and your time period yields these norms

Market is correct in the aggregate or that your valuation should be market neutral

Market makes mistakes even in the aggregate but is correct over time

Premium to use

Historical risk premium

Current implied equity risk premium

Average implied equity risk premium over time.

Predictor	Correlation with implied premium next year	Correlation with actual return- next 5 years	Correlation with actual return – next 10 years
Current implied premium	0.763	0.427	0.500
Average implied premium: Last 5 years	0.718	0.326	0.450
Historical Premium	-0.497	-0.437	-0.454
Default Spread based premium	0.047	0.143	0.160