Political Risk and International Valuation

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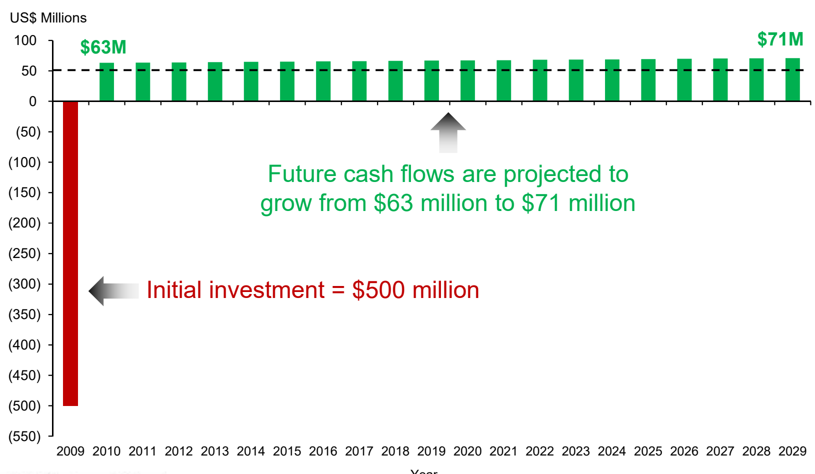
I. International Valuation

Example: Pakistan Power Plant

- Projected cash flows for an investment in a power generation plant in Pakistan by AES, a U.S. company:



I. International Valuation
Introduction

❖ Domestic ≠ International Valuation:

– Currency issues

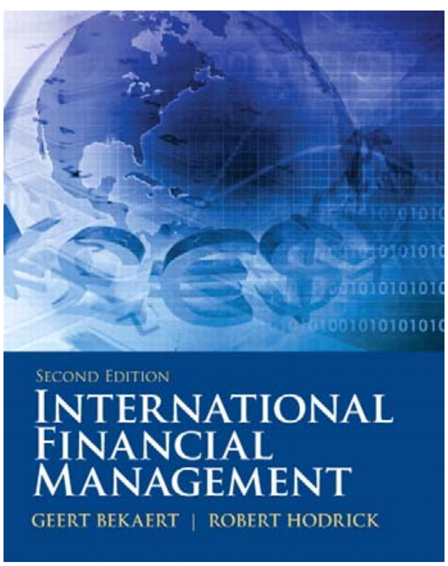
– What discount rate to use?

- Are host and home markets "integrated" or not?
- What is the shareholder base of the investing company?
- *Example:*

Discount Rate = 3.7% + 0.25 x 5% = 4.95%

[10 year U.S. Treasury] [β] [Equity Risk Premium]

– Political and country risk



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Outline

I. International Valuation

II. Political Risk

- Definition and measurement
- Standard approach to account for political risk—use sovereign spreads

III. A New Approach to Valuation with Political Risk

- Political risk spreads
- Example

IV. Conclusions

II. Political Risk
Political Risk ≠ Country Risk

❖ Political risk represents the risk that a foreign government action will negatively affect a company's cash flows.

❖ Political risk incorporates a variety of risks including:
- Risk of expropriation
- Repatriation restrictions
- Corruption
- Risk of political unrest

❖ Country risk represents the potentially adverse effects of the political, economic, and financial risks of operating in a country.

II. Political Risk
Measurement

International Country Risk Guide ("ICRG") – *example*

POLITICAL RISK COMPONENTS	(12 Components) Points (max.)
Government stability	12
Socioeconomic conditions	12
Investment profile	12
Internal conflict	12
External conflict	12
Corruption	6
Military in politics	6
Religious tensions	6
Law and order	6
Ethnic tensions	6
Democratic accountability	6
Bureaucracy quality	4
Maximum total points	**100**

Re-ordering:

Investment profile:
- Expropriation risk
- Payment delays
- Repatriation

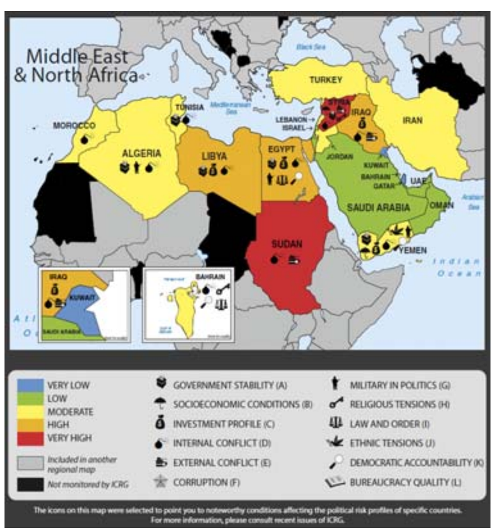
Quality of institutions:
- Law and order
- Corruption
- Bureaucratic quality

Conflict/unrest

Democratic tendencies

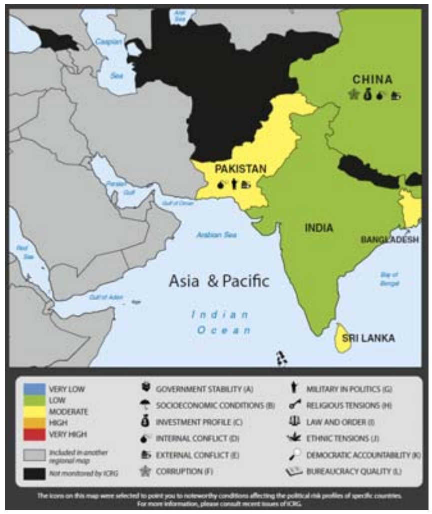
Socioeconomic & government stability

II. Political Risk
Measurement



Source: Global Maps of Political Risk, ICRG, The PRS Group, Inc., June 2015

II. Political Risk
Measurement



Source: Global Maps of Political Risk, ICRG, The PRS Group, Inc., June 2015

II. Political Risk
Measurement

❖ The ICRG ratings predict political risk events (BHLS, JIBS, 2014):

- Relative ratings of countries with OPIC political insurance claims predict claim events (1984-2014)
- Ratings relative to U.S. rating predict relative “news about political risk events”

News = ratio of political risk event news scaled by total news for that country less the comparable US ratio in a particular year

(Access World News database)

II. Political Risk
Valuation of Cross-Border Investments

Theory (for well-diversified international investors):

- ❖ Expected cash flows are discounted with discount rates reflecting exposure to systematic risks (for example, the International CAPM[1]).
- ❖ Political risks are accounted for in expected cash flows.
- ❖ Requires ex-ante probabilities of political risk events and recovery rates.

Note: 1. Capital Asset Pricing Model

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II. Political Risk
Valuation of Cross-Border Investments

- ❖ Standard approach:
  - Forecast cash flows ignoring political risk events
  - Add fudge factor to discount rate to adjust for political risk
- ❖ Most popular approach:[1]

Discount Rate = Discount Rate ignoring Political Risk + SS

where
SS = Sovereign Spread, yield of foreign country government bond in USD ***less*** yield of U.S. Treasury bond of similar maturity (typically 10 years)

- ❖ + SS approach is timely, market-based, forward looking
- ❖ – Is SS a good proxy for political risk?

Note: 1. Damadoran (2007)

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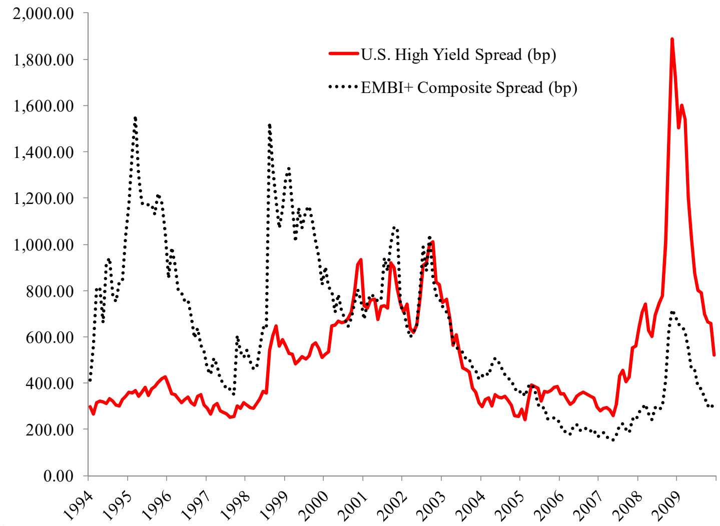
II. Political Risk
Sovereign Spreads and Global Risk Conditions



II. Political Risk
Sovereign Spreads Overstate Political Risk

- Political risk is only ***one*** of the determinants of sovereign spread.
- Use panel regression model of sovereign spreads (20 years of monthly data; 44 countries) on determinants.[1]
- Regression model:
  - Highly significant coefficients
  - Pricing errors are small (≈ 100 bps on average, for spreads of over 450 bps on average)
  - Great "fit"; R2 ≈ 70%

Note: 1. Bekaert, Harvey, Lundblad and Siegel (2016, JCF)

II. Political Risk
Determinants of Sovereign Spreads

- **Global factors**: Barclays U.S. Corporate High Yield spread over Treasuries.
- **Local economic factors**: The IRCG index of local economic and financial risk.
- **Liquidity factors**: An index based on the incidence of daily zero returns on sovereign bonds.
- **Crisis factors**: A 12-month moving average of realized bond volatility.
- **Political factors**: The ICRG political risk indicator.

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II. Political Risk
Empirical Framework

- Specification:

$$SS_{j,t} = c_0 + c_1 Global_t + c_2 ZR_{j,t} + c_3 Local_{j,t} + c_4 BVol_{jt} + c_5 PR_{j,t} + \varepsilon_{j,t}$$

- ***Global*** U.S. Corporate High Yield less Treasury Yield
- ***ZR*** Average illiquidity of sovereign bonds in country ***j*** less zero Average life of sovereign bonds in country ***j***
- ***Local*** ICRG Economic + Financial Risk in country ***j*** less ICRG Economic + Financial Risk in USA
- ***BVol*** Realized Bond Volatility (12 month moving average)
- ***PR*** ICRG Political Risk in country ***j*** less ICRG Political Risk in USA

- Estimation:
  - Pooled OLS
  - Standard errors corrected for heteroskedasticity and correlation across time and across countries

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II. Political Risk
Explaining Sovereign Spreads

	Sovereign spreads	Corporate spreads
Constant	-373.73	213.85
	26.54	*40.19*
Ln(Average Life)	144.18	-126.14
	8.87	*17.95*
U.S. high yield spread	0.36	0.39
	0.02	*0.02*
Bond illiquidity	104.05	
	20.28	
Ln(Economics + financial risk)	362.75	435.24
	45.96	*80.99*
Bond volatility	76.69	38.10
	4.00	*5.56*
Ln(Political Risk)	681.81	1016.39
	36.99	*91.39*
Adj. R^2	0.70	0.68

Source: Bekaert, G., et al., Political risk and international valuation, J. Corp. Finance (2016),

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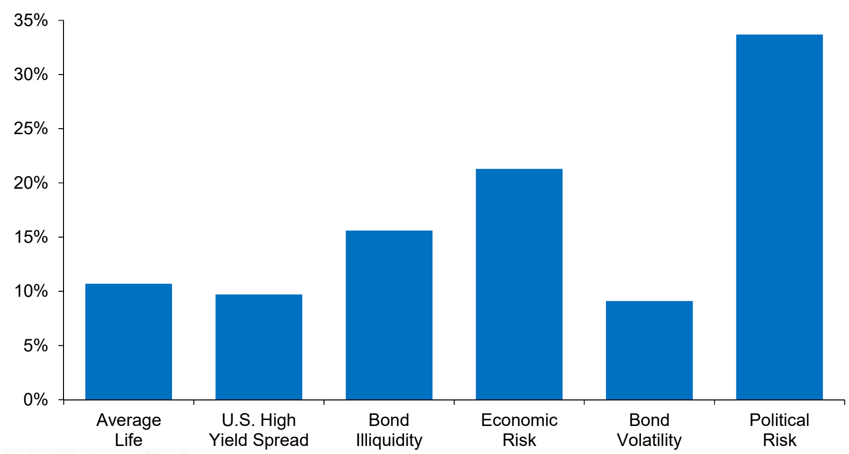
II. Political Risk
Variation Accounted for by Different Factors

- Because the expected cash flows should already account for the financial and economic risks, using full sovereign spreads double counts these risks, resulting in overstated discount rates and valuations that are too low.



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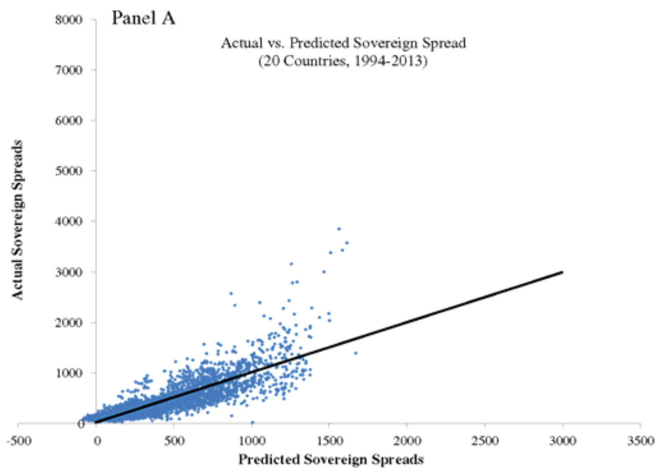
II. Political Risk
Determinants of Sovereign Spreads



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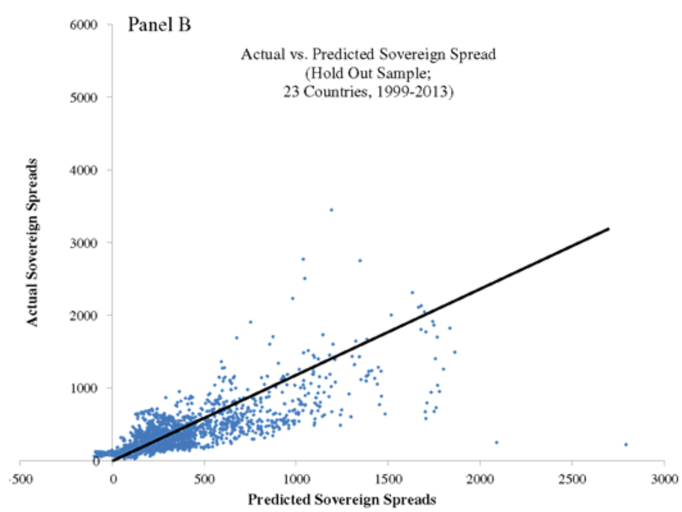

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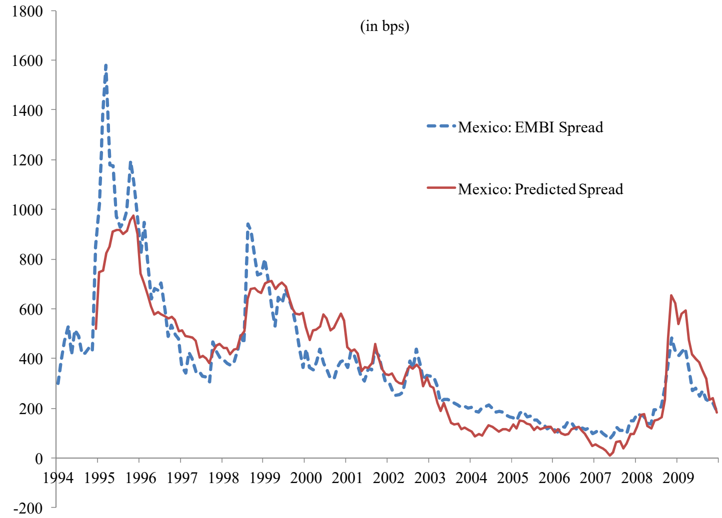
II. Political Risk
Determinants of Sovereign Spreads: Mexico

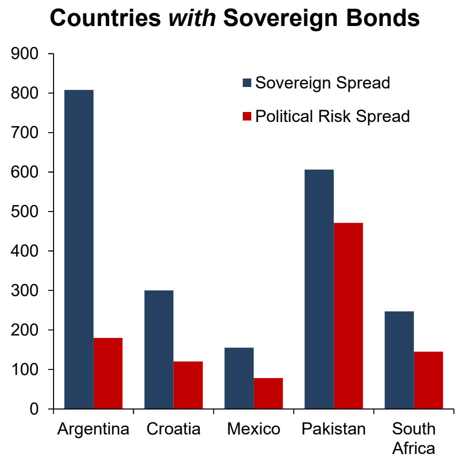


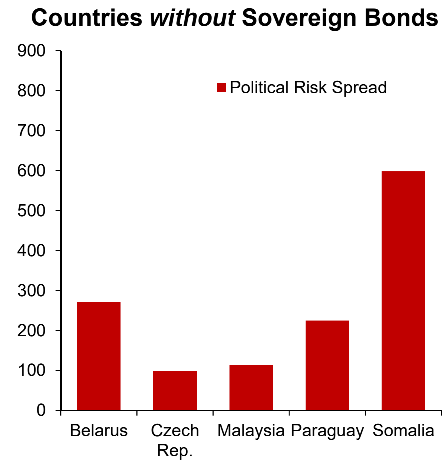
III. A New Approach
International Valuation with Political Risk

- Introduce Political Risk Spread ("PRS"):[1]
  - Use regression to estimate fraction of predictable sovereign spread accounted for by political risk
  - Apply to actual sovereign spread
- Can also compute PRS for countries without sovereign bonds
  - Only need ICRG rating
- PRS is forward looking and moves with SS, but isolates political risk component

Note: 1. Bekaert, Harvey, Lundblad and Siegel (2014, JIBS)

III. A New Approach
Examples of SS and PRS
[December 2013, in bps]





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III. A New Approach
Political risk distribution (in bps)

Political risk percentiles	Actual sovereign spread	$NPRSS_{i,t}$	$WPRSS_{i,t}$
90th	718	341	531
75th	466	208	307
50th	427	168	271
25th	309	115	176
10th	292	77	122

Source: Bekaert, G., et al., Political risk and international valuation, J. Corp. Finance (2016),

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III. A New Approach
International Valuation with Political Risk

❖ Two approaches are presented in my article; BHLS (2016, JCF):

- Approach 1 adjusts the discount rate with the political risk spread to discount expected cash flows in valuation.
- Approach 2 solves for the probability of a political risk event using bond discount rate cleansed of political risk. Afterwards, it uses the estimated political risk probability in valuation.

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III. A New Approach
Analytics

1. Adjust promised sovereign yield by subtracting *NPRSS* ➡ $r_b = r_b^* - NPRSS$

2. Given recovery rate, solve for constant probability (p) of political risk event ➡ $$\sum_{t=1}^{T} \frac{CF_t(1-p)^t + R_t p(1-p)^{t-1}}{(1+r_b)^t} = \sum_{t=1}^{T} \frac{CF_t}{(1+r_b^*)^t}$$

3. Apply to cross-border valuation

   a. By adjusting *E[CF]* based on extracted p and discounting at unadjusted discount rate (r_e) ➡ $$\sum_{t=1}^{T} \frac{CF_t(1-p)^t + R_t p(1-p)^{t-1}}{(1+r_e)^t}$$

   b. Adjust cost of capital (r_e*) and discount unadjusted cash flows ➡ $$1 + r_e^* = (1+r_e)\left(1 + \frac{NPRSS}{1+r_b}\right)$$

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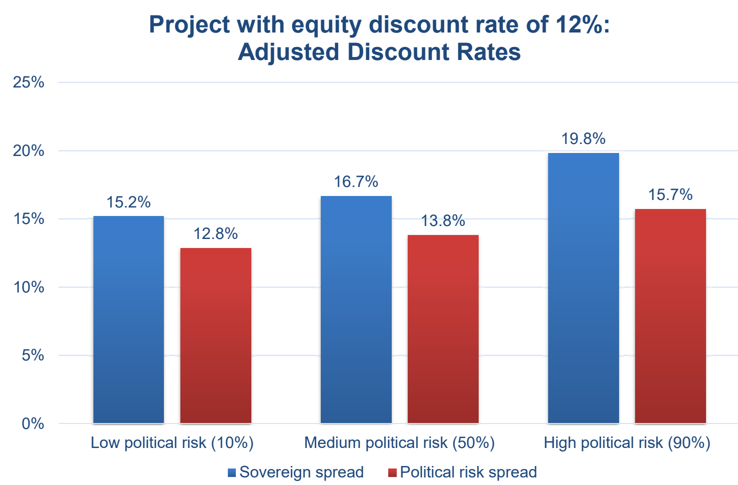
III. A New Approach
Example: Pakistan Power Plant

- The difference between applying the standard approach versus the new approach can be substantial.
- Numerical example: Pakistan power plant - AES

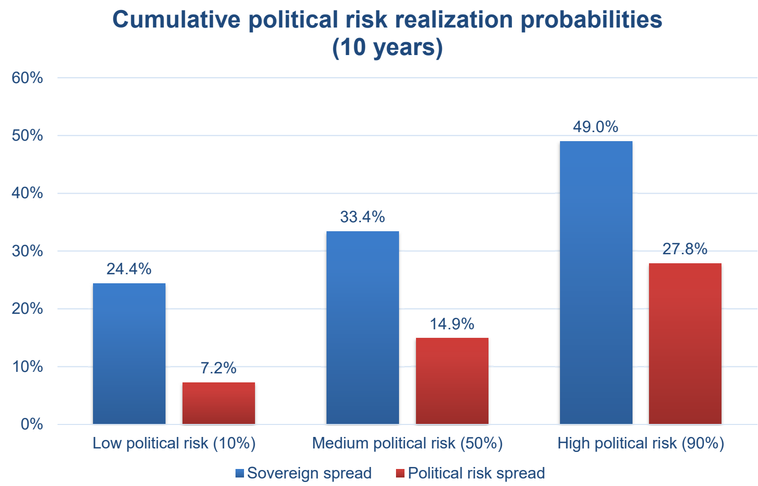
	No Adjustment	**Standard Approach** (Add SS)	**New Approach** (Use PRS)
Adjusted Discount Rate	4.95%	11.91%	7.44%
NPV	$332 million	**($7 million)**	$178 million

- AES is still operating two power plants in Pakistan.

III. A New Approach
Numerical Examples



III. A New Approach
Numerical Examples



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IV. Conclusions

- ❖ Accounting for political risk plays an important role in international valuation.
- ❖ Existing approaches adjust discount rates by adding the target country's sovereign yield spread.
- ❖ Most variation in sovereign yield spreads is *not* due to variation in political risk.
- ❖ An extracted Political Risk Spread is about 50% of the total sovereign spread.
- ❖ Using full Sovereign Spreads leads to over-statement of the cost of capital of 2% to 5%.

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