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Equity Risk Premium International Scorecard

June 2024

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Equity Risk Premium International Scorecard

Equity risk premiums (ERP) by country are summarized below. Further details on our calculations and methodologies can be found on the subsequent pages.

	ERP	Risk-free rate	EBITDA multiple
North America			
USA	3.00%	4.21%	18.8
Canada	5.75%	3.28%	10.3
Western Europe			
Austria	8.25%	2.97%	8.5
Belgium	5.00%	3.07%	13.7
France	6.25%	3.14%	9.5
Germany	8.25%	2.36%	8.5
Luxembourg	5.00%	2.87%	13.7
Netherlands	5.00%	2.72%	13.7
Switzerland	6.50%	0.70%	14.7
Northern Europe			
Denmark	8.25%	2.45%	8.5
Estonia	8.75%	3.68%	6.4
Finland	7.75%	2.98%	7.7
Iceland	8.25%	6.93%	8.5
Ireland	6.75%	2.89%	8.1
Latvia	8.75%	3.68%	6.4
Lithuania	8.75%	3.68%	6.4
Norway	7.75%	3.51%	7.7
Sweden	7.75%	2.14%	7.7
United Kingdom	6.75%	4.06%	8.1
Southern Europe			
Croatia	6.75%	3.38%	8.7
Greece	8.75%	3.62%	6.5
Italy	9.25%	3.93%	6.0
Portugal	7.50%	3.15%	7.9
Spain	6.50%	3.33%	9.1
Central & Eastern Europe			
Bulgaria	16.25%	4.10%	3.4
Kazakhstan	0.75%	13.30%	9.4
Poland	10.75%	5.74%	4.6
Romania	8.75%	6.88%	5.3
Russia	4.25%	15.11%	5.3

	ERP	Risk-free rate	EBITDA multiple
Latin America			
Brazil	4.50%	12.06%	6.1
Chile	4.75%	5.95%	9.3
Mexico	3.50%	10.16%	8.1
Peru	6.25%	7.06%	7.0
Africa			
Egypt	2.50%	24.19%	4.0
Ivory Coast	12.50%	7.83%	3.8
Morocco	5.25%	3.83%	10.7
South Africa	5.50%	10.13%	6.3
Tunisia	3.50%	10.41%	7.9
Western Asia			
Israel	5.00%	4.97%	10.1
Jordan	7.25%	7.07%	6.1
Turkey	0.00%	26.80%	9.0
East Asia			
Australia	6.50%	4.16%	8.3
China	5.50%	2.29%	12.3
Hongkong	5.75%	3.57%	10.1
Japan	7.00%	0.93%	10.4
New Zealand	3.75%	4.63%	13.3
South Korea	6.50%	3.31%	9.1
Taiwan	5.00%	1.68%	14.9
South Asia			
India	0.00%	6.98%	18.1
Indonesia	8.75%	7.14%	5.2
Malaysia	5.00%	3.87%	11.2
Philippines	4.00%	6.69%	10.3
Singapore	5.50%	3.17%	11.0
Thailand	5.75%	2.78%	11.0
Vietnam	4.25%	2.90%	15.8

About Equity Risk Premium (ERP)[1]

Equity risk premium (ERP), sometimes called market risk premium (MRP) or market equity risk premium (MERP), is a function of a market return and a risk free rate. It is the excess return above a risk-free rate that is required by investors when they invest in a broad portfolio of investments.

$$ERP = r_e - r_f$$

Where :

r_e = *Cost of equity*

r_f = *Risk-free rate*

ERP is a component of discount rate, which can be applied in present value models used to calculate the values of companies, assets and financial securities. It is one of the most heavily researched business valuation topics in academic circles.

ERP is used for many purposes. In the area of company, asset and financial security valuations, it is a component of discount rate. It is also used in financial planning, portfolio management, economics, hedge funds and risk management, to name a few. ERP can also be used as an economic indicator. "A high ERP at short horizons tends to be followed by higher GDP growth, higher inflation, and lower unemployment."[2]

Some academics distinguish between Conditional and Non-Conditional ERP. **Conditional ERP** considers current economic and market factors. **Non-Conditional ERP** seeks to predict long-term expected economic and market factors. Non-Conditional ERP can be helpful for future (target) asset allocation, such as that used in financial planning. Conditional ERP can be helpful for historical and current valuation parameters.

When applying a Conditional ERP to a business valuation discount rate, the measurement date actual risk-free rate should be applied. When applying a Non-Conditional ERP to a business valuation discount rate, a long-term normalized risk-free rate should be applied.

Many business appraisers apply a Non-Conditional ERP. Some argue that perpetuity value, which is a large component in many business valuations, is in the future and for this reason a Non-Conditional ERP is necessary. While this may be true, it is difficult to reliably estimate future Non-Conditional ERP and, in the case of abnormal market conditions, when market conditions will revert to long-term norms, if at all.

Conditional ERP has a link to current economic and market conditions. Non-Conditional ERP requires no such link. Future events can be estimated based on current events and probable scenarios. Even in the case of the random walk theory, which suggests that future events are based on a series of random unpredictable events, there is still a link to each previous step. Each future random step is only one step away from the previous event. When applying Non-Conditional ERP, one must be aware that it remains a hypothesis of future events.

[1] This section has been reprinted with permission from *USA Equity Risk Premium: June 2021* by Andrew Pike.

[2] Fernando Duarte and Carlo Rosa; "The Equity Risk Premium: A Review of Models"; Federal Reserve Bank of New York Staff Reports, no. 714; February 2015; JEL classification: C58, G00, G12, G17.]

ERP Measurement Techniques

There are several approaches to estimate ERP: Implied, Historical, Survey, Supply Side, Credit Spread, and Market Approach. Each approach represents a family of methods with which to estimate ERP.

- **Implied**
  Ex-ante excess equity returns are implied from market capitalizations and analyst forecasts.
- **Supply Side**
  Regress excess returns from economic and/or company fundamentals
- **Historical**
  Midpoint of ex-post historical excess returns
- **Survey**
  Poll a sample set of people for their opinions
- **Credit Spread**
  Extrapolate excess equity returns from corporate bond credit spreads
- **Market Approach**
  Regress valuation multiples against ERP derived from another method

The methods under the Implied approach arrive at a tight range of results relative to the other approaches. This family of methods captures current economic and capital market circumstances, as well as current company fundamentals. The other approaches arrive at a wide range of results. However, several methods under the Implied approach rely on a substantial number of quality analyst forecasts for each company and ignore market mispricing.

In our study, we applied Implied approaches for select regions that have substantial analyst coverage and Market approaches for countries not covered by these regions. ERP calculations require a sufficient number of equities and sovereign debt yields in a given market.

[3] Reprinted with permission from *USA Equity Risk Premium: June 2021* by Andrew Pike.

Implied ERP[3]

Implied ERP is based on both free cash flow to the firm (FCFF) and free cash flow to equity (FCFE) methods with portfolio-level market capitalizations and cash flow forecasts.

Discount rates were implied to equate portfolio-level equity value to portfolio-level market capitalization. ERP was implied from the resulting discount rates.

The FCFF method is a present value model based on forecasted discretionary cash flows that are available to all financiers. This is discounted by weighted average cost of capital (WACC). The FCFE method is based on forecasted discretionary cash flows that are available to equity financiers and cost of equity.

FCFF

$$V_{FCFF} = \sum_{i}^{n} \frac{FCFF_i}{WACC}$$

Where :

$FCFF_i$ = Discretionary cash flows available to all financiers

$WACC$ = Weighted average cost of capital

FCFE

$$V_{FCFE} = \sum_{i}^{n} \frac{FCFE_i}{k_e}$$

Where :

$FCFE_i$ = Discretionary cash flows available to equity financiers

k_e = Cost of equity

WACC is the weighted average between cost of equity and after-tax cost of debt. In theory, WACC should also include cost of preferred stock, but that was not relevant in our study. ERP can be derived from cost of equity.

WACC

$$WACC = \frac{D}{EV} \times r_d \times (1 - T) + \frac{E}{EV} \times r_e$$

Where:

WACC	= Weighted average cost of capital
EV	= Enterprise value
D	= Market value of net debt
R_d	= Cost of debt
T	= Tax rate
E	= Market value of equity
r_e	= Cost of equity

Cost of Equity

$$r_f = r_e + \beta \times ERP$$

Where:

r_f	= Risk-free rate
β	= Systematic risk
ERP	= Equity Risk Premium

ERP

$$ERP_{implied} = \frac{r_e - r_f}{\beta}$$

Market Approach

Financial theory proves that multiples-based valuation methods (based on multiples and a measure of earnings or cash flow) are mathematically linked to income approach valuation methods (based on forecasts and discount rates). The formula below calculates the value of an asset today (V_0) based on next period cash flow (CF_1), a rate of return (r), and a stable rate of growth (g).

$$\frac{V_0}{CF_1} = \frac{1}{r - g}$$

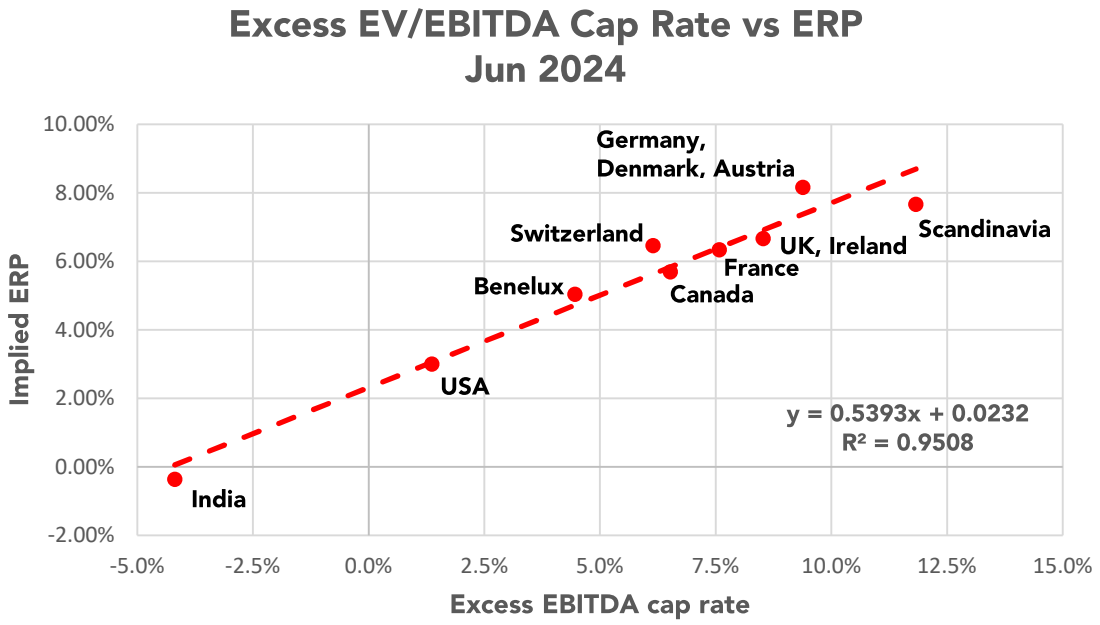
Applying algebra, we can rearrange the formula to equate a valuation multiple (value of an asset today dividend by cash flow) to a capitalization rate (discount rate minus stable growth).

$$V_0 = \frac{CF_1}{r - g}$$

In theory this sounds compelling, but does it work? Using Implied ERP methods, we estimated ERPs for 9 regions and regressed these against prior fiscal year EBITDA valuation multiples.

As ERP excludes risk-free rate, we converted prior fiscal year EBITDA multiples to capitalization rates and removed risk-free rate. We refer to the result as "excess cap rate." The relationship is strong – more than 80% of the changes in the Implied ERPs can be attributed to changes in the EBITDA multiples.

Excess EV/EBITDA Cap Rate vs ERP December 2023



We applied the regression equation in the graphic above to each country that is not in the Implied ERP regions where a sufficient number of equities and sovereign debt yields were available. The countries where we applied Implied ERP and where we applied Market Approach ERP are listed below.

Implied ERP

- Austria
- Belgium
- Canada
- Denmark
- Finland
- France
- Germany
- Iceland
- India
- Ireland
- Luxembourg
- Netherlands
- Norway
- Sweden
- Switzerland
- United Kingdom
- USA

Market Approach ERP

- Australia
- Brazil
- Bulgaria
- Chile
- China
- Croatia
- Egypt
- Estonia
- Greece
- Hong Kong
- Indonesia
- Ireland
- Israel
- Italy
- Ivory Coast
- Japan
- Jordan
- Kazakhstan
- Latvia
- Lithuania
- Malaysia
- Mexico
- Morocco
- New Zealand
- Peru
- Philippines
- Poland
- Portugal
- Romania
- Russia
- Singapore
- South Africa
- South Korea
- Spain
- Taiwan
- Thailand
- Tunisia
- Turkey
- Vietnam

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