



Market Risk Premium | Apr'21

An assessment of equity risk premium
in India (April 2021 and onwards)

Issue date: May 2021





Key findings of our study are:

- Historical ERP (20Y history) computed using arithmetic mean continues to be sub 8%.
- 5Y CDS for BBB-rated sovereign bonds were back to 80 to 100 points in March 2021 from peak of 239 points in March 2020 which allows benchmarking under the country-bond default spread approach.
- Implied EPR using the Gordon Growth model is in the range of 7.5% to 8.1%.

Foreword

We are pleased to issue the **third edition of the India Equity Risk Premium (2021) study**, which analyses the risk premium to be considered when determining the cost of equity using the capital asset pricing model.

The study focusses on quantitative analysis to derive the current equity risk premium under different approaches including a) historical premium, b) survey approach, c) country bond default spread approach, d) country bond default spread approach adjusted for relative country risk, e) domestic market volatility relative to a developed market, f) and implied equity risk premium.

In this issue, we have expanded the coverage of historical ERP to both Sensex and NIFTY50 indices. A detailed cross-section of the value of ERP is presented in this report, allowing a user to choose the time frame as deemed appropriate.

Continuing COVID-19 crisis has weakened a broad-based immediate recovery, and the economy's outlook in the near term remains fragile. However, with a sharp recovery in the market, the investor return expectations have rebounded to previous levels. Accordingly, **based on the current market conditions, we recommend India ERP of 7.5% (7% and 8% being the lower and upper limit of the range, respectively) beginning April 2021.**

We hope you find the results of our study of interest and value.

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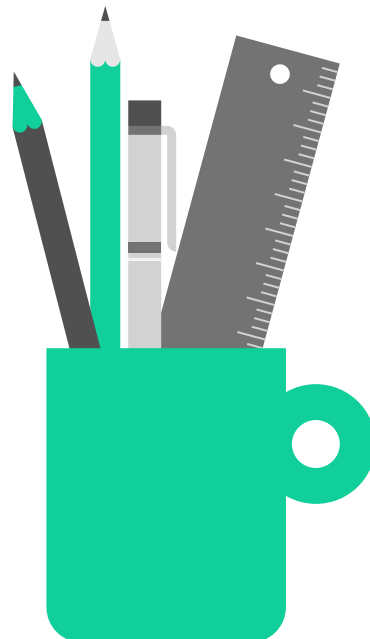
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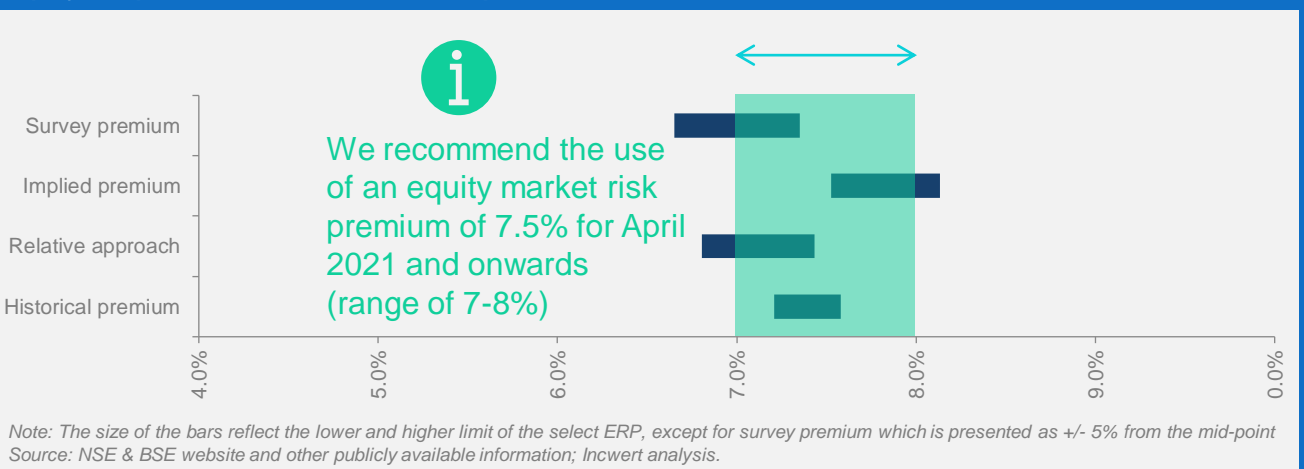
What should be the relevant risk premium in India?

There is no direct or objective answer to this question, investors may have to ascertain their risk appetite depending on the purpose of the investment. Since strategic investors tend to focus on long term synergistic benefits, they would consider a long-term horizon and weigh benefits against their internal hurdle rate or the desired return on investment (RoI) while evaluating any expansion plan or business acquisition. On the contrary, time sensitive investments such that as by the private equity investors appear to be more closely linked to the recent market performance. The valuation expert may particularly focus on the context of the investment while deciding on the equity market risk.

In the graph below, we present the select outcome of a) Historical premium, i.e. historical returns earned in the past on Sensex and NIFTY50 stock relative to the return on G-sec (10Y) bonds, b) Benchmark premium based on US market equity risk premium, c) Implied premium and d) Survey by Pablo Fernandez, Javier Aguirreamalloa and Pablo Linares. Survey premium is based on the year 2020.

As valuation practitioners and business partners, we trust that you will find these of interest.

Equity risk premium for Indian market – April 2021 and onwards



1. Estimation of ERP– historical premium

Overview

This section presents the equity risk premium in India on a historical basis by analysing the data available in the public domain. Our analysis widely relies on the data as available on the recognised stock exchanges (both NSE and BSE) and the Reserve Bank of India (RBI).

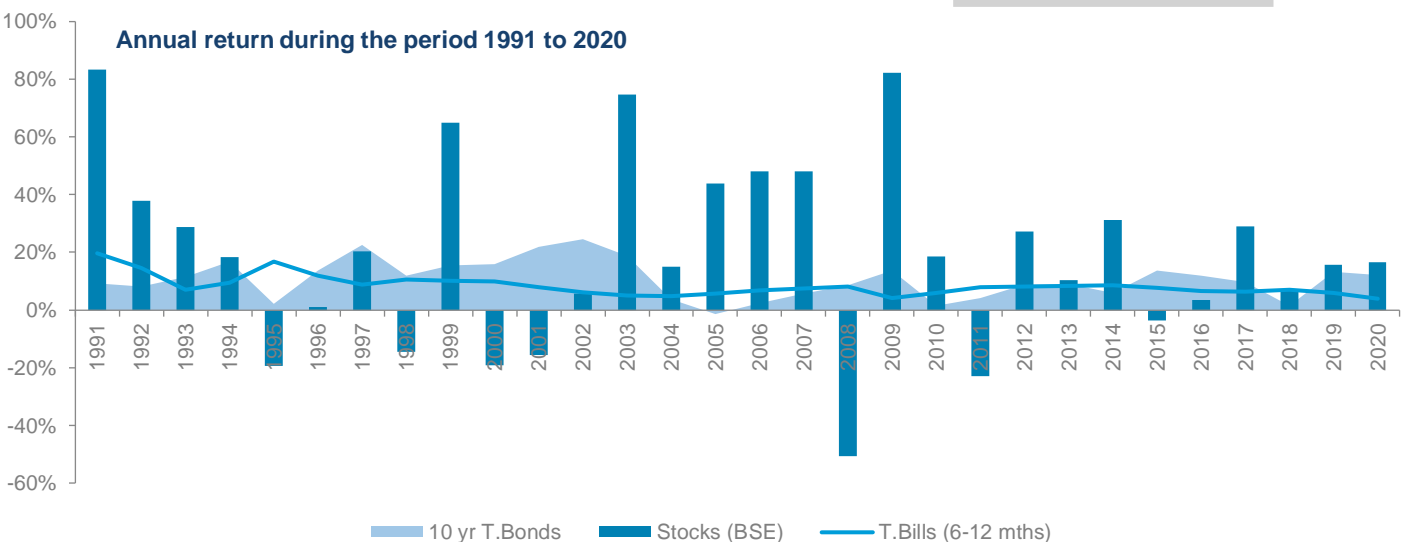
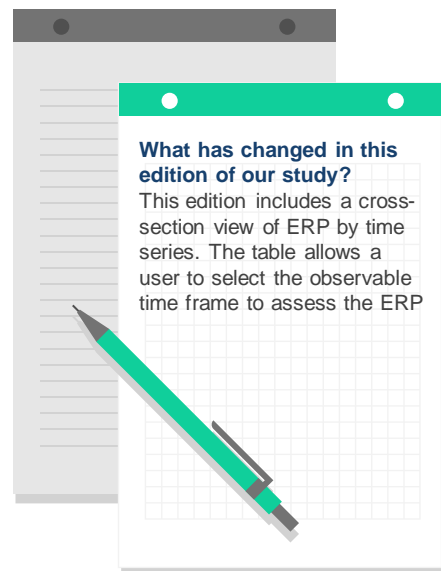
Basis for selection of variable in the risk premium function

ERP is computed as excess return earned from investment in stock over the base return from investment in risk-free security. In the computation of the ERP, due consideration has been given to the following:

- Selection of market index (BSE Sensex & NIFTY50)
- Selection of risk-free security (Treasury bond, Treasury bills, etc.)
- Selection of bond/bill maturity period
- Selection of observable period (1-year, 5-years, 10-years, etc.)
- Selection of statistical approach – mean (arithmetic/geometric), average, min-max, etc.

Historical returns for India (1991-2020)				
December ending	Total returns (Sensex)	Total returns (NIFTY50)	T.Bills (6-12 mths)	10 yr T.Bonds
1991-2020	19.5%	18.9%	8.3%	10.5%
2001-2020	19.1%	18.5%	6.6%	9.4%
2011-2020	11.4%	11.2%	7.0%	9.0%

Note: 1) Computation of return presented in the table above is simple mean of the series of annual returns
 2) Annual return on Sensex and NIFTY50 is computed as of December each year.
 3) Yield on Subsidiary General Ledger transactions is not available for the period prior to 1996, as such the weighted average interest rate on central government dated securities and weighted average call money rates have been considered as a proxy for the yield on bonds and treasury bills respectively.
 Source: BSE Sensex; NSE; RBI;



1. Estimation of ERP– historical premium

Conclusion

Based on our analysis, we observe that the equity market in India has delivered an average return of 19.5% (based on Sensex) and 18.9% (based on NIFTY50) over the period 1991 to 2020, which is significantly higher when compared to the average return on treasury bond (10.5%) or bill (8.3%) over the same period. High equity return, however, comes with a burden of higher volatility of 32% and a wide range in the distribution of returns.

The equity risk premium, calculated as a difference between the average returns on stock (based on Sensex) and the average returns on treasury bill for the period 1991 to 2020 is 11.1%. Similarly, the difference between the average returns on stock and average returns on treasury bond over the period 1991 to 2020 is 8.9%.

Similarly, the equity risk premium based on NIFTY50 is 8.4% over the bond return and 10.6% over the Treasury bill return.

The bar considered in our summary assessment uses ERP based on Sensex and NIFT50 returns over the period 2000-2020

These estimates are not free from noises. Given the limited coverage period of 30 years, the standard error in these estimates is high. Equity Risk Premium over the Treasury bill and bond bear high standard error of 5.9% and 6.0% respectively for Sensex returns and 5.7% and 5.8% for NIFTY50 returns.

Historical risk premiums tend to rise when markets are buoyant and investors are less risk-averse and fall as markets collapse and investor fears rise.



Cross-sectional view of ERP based on return on Sensex and 10Y G-Sec bonds

From 1991 to 2020 (in per cent)

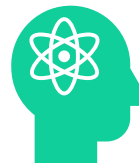
To the end of	From the beginning of																				
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
1991	73.9																				
1992	51.9	29.9																			
1993	40.3	23.6	17.2																		
1994	30.6	16.2	9.3	1.4																	
1995	20.2	6.8	-1.0	-10.0	-21.5																
1996	14.7	2.9	-3.9	-10.9	-17.0	-12.6															
1997	12.3	2.1	-3.5	-8.7	-12.1	-7.4	-2.2														
1998	7.5	-2.0	-7.4	-12.3	-15.7	-13.8	-14.4	-26.5													
1999	12.1	4.4	0.8	-1.9	-2.6	2.1	7.0	11.5	49.6												
2000	7.4	0.0	-3.7	-6.7	-8.0	-5.3	-3.5	-4.0	7.3	-35.0											
2001	3.3	-3.7	-7.4	-10.5	-12.2	-10.7	-10.3	-12.4	-7.6	-36.3	-37.5										
2002	1.5	-5.1	-8.6	-11.5	-13.1	-11.9	-11.8	-13.7	-10.5	-30.5	-28.2	-18.9									
2003	5.7	0.0	-2.7	-4.7	-5.4	-3.4	-2.1	-2.1	2.8	-8.9	-0.2	18.5	55.9								
2004	6.1	0.9	-1.6	-3.3	-3.7	-1.8	-0.4	-0.2	4.2	-4.8	2.7	16.1	33.6	11.3							
2005	8.7	4.0	2.0	0.8	0.7	2.9	4.6	5.5	10.1	3.5	11.2	23.4	37.5	28.2	45.2						
2006	11.0	6.8	5.1	4.2	4.5	6.8	8.7	10.0	14.5	9.5	16.9	27.8	39.5	34.0	45.4	45.6					
2007	12.8	9.0	7.6	6.9	7.4	9.8	11.8	13.2	17.6	13.6	20.5	30.2	40.1	36.1	44.4	43.9	42.3				
2008	8.8	5.0	3.4	2.5	2.6	4.5	5.9	6.6	9.9	5.5	10.6	17.5	23.5	17.0	18.5	9.6	-8.5	-59.2			
2009	12.0	8.5	7.3	6.6	7.0	9.0	10.7	11.8	15.2	11.8	17.0	23.8	29.9	25.6	28.5	24.3	17.2	4.6	68.4		
2010	12.2	9.0	7.8	7.2	7.6	9.6	11.1	12.2	15.4	12.3	17.0	23.0	28.3	24.4	26.5	22.8	17.1	8.7	42.6	16.9	
2011	10.3	7.2	6.0	5.3	5.6	7.3	8.6	9.3	12.1	9.0	13.0	18.0	22.1	17.9	18.9	14.5	8.2	-0.3	19.4	-5.1	
2012	10.7	7.7	6.6	6.0	6.3	7.9	9.2	9.9	12.6	9.7	13.4	18.1	21.8	18.0	18.8	15.0	9.9	3.5	19.1	2.7	
2013	10.3	7.4	6.3	5.8	6.0	7.6	8.7	9.4	11.8	9.1	12.5	16.7	19.9	16.3	16.9	13.3	8.7	3.1	15.6	2.4	
2014	10.9	8.2	7.2	6.7	7.0	8.5	9.7	10.4	12.7	10.2	13.4	17.3	20.4	17.1	17.7	14.7	10.8	6.3	17.2	7.0	
2015	9.8	7.1	6.1	5.6	5.8	7.2	8.2	8.8	10.9	8.5	11.4	14.9	17.5	14.3	14.5	11.5	7.7	3.4	12.3	2.9	
2016	9.1	6.5	5.5	5.0	5.2	6.5	7.4	7.9	9.8	7.5	10.1	13.3	15.6	12.5	12.6	9.7	6.1	2.1	9.7	1.3	
2017	9.5	7.0	6.1	5.6	5.8	7.0	8.0	8.5	10.3	8.2	10.7	13.7	15.9	13.0	13.2	10.5	7.3	3.8	10.8	3.6	
2018	9.3	7.0	6.1	5.6	5.8	7.0	7.9	8.4	10.1	8.0	10.4	13.2	15.2	12.5	12.6	10.1	7.1	4.0	10.3	3.8	
2019	9.1	6.8	5.9	5.5	5.7	6.8	7.6	8.1	9.7	7.7	10.0	12.6	14.5	11.9	11.9	9.6	6.8	3.8	9.6	3.7	
2020	8.9	6.7	5.9	5.5	5.6	6.7	7.5	7.9	9.5	7.6	9.7	12.2	13.9	11.5	11.5	9.2	6.6	3.9	9.1	3.7	

From 1991 to 2020 (in per cent)

To the end of	From the beginning of									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
2011	-27.2									
2012	-4.4	18.4								
2013	-2.4	9.9	1.5							
2014	4.5	15.1	13.4	25.3						
2015	0.1	7.0	3.2	4.0	-17.2					
2016	-1.3	3.9	0.3	-0.1	-12.8	-8.4				
2017	1.7	6.5	4.1	4.8	-2.1	5.5	19.4			
2018	2.2	6.4	4.4	4.9	-0.2	5.5	12.5	5.6		
2019	2.2	5.9	4.1	4.5	0.4	4.8	9.2	4.0	2.5	
2020	2.4	5.7	4.1	4.5	1.0	4.7	8.0	4.2	3.5	4.4

How to read the table?

The top row of each table specifies the starting year and the left column specifies the ending year. To find any statistic for a given time period, find the intersection of start and end dates.



Note: 1) Long horizon equity risk premia is computed as index total returns (Sensex or NIFTY50) minus return on long-term government bonds

Cross-sectional view of ERP based on return on NIFTY50 and 10Y G-Sec bonds

From 1991 to 2020 (in per cent)

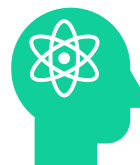
To the end of	From the beginning of																				
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
1991	60.6																				
1992	44.9	29.2																			
1993	38.7	27.7	26.2																		
1994	28.4	17.6	11.8	-2.5																	
1995	17.9	7.3	-0.1	-13.2	-23.8																
1996	12.8	3.2	-3.2	-13.1	-18.3	-12.8															
1997	10.9	2.6	-2.7	-10.0	-12.4	-6.8	-0.7														
1998	6.0	-1.8	-7.0	-13.6	-16.4	-13.9	-14.4	-28.1													
1999	11.2	5.1	1.6	-2.5	-2.5	2.9	8.1	12.5	53.1												
2000	7.2	1.2	-2.2	-6.3	-6.9	-3.6	-1.2	-1.4	11.9	-29.3											
2001	3.2	-2.5	-6.1	-10.1	-11.2	-9.0	-8.3	-10.2	-4.2	-32.9	-36.5										
2002	1.4	-4.0	-7.3	-11.1	-12.1	-10.5	-10.1	-11.9	-7.9	-28.2	-27.7	-19.0									
2003	5.5	0.9	-1.7	-4.5	-4.7	-2.3	-0.8	-0.9	4.6	-7.5	-0.3	17.8	54.6								
2004	5.7	1.5	-0.8	-3.3	-3.4	-1.1	0.4	0.5	5.3	-4.2	2.0	14.9	31.8	9.0							
2005	7.9	4.2	2.3	0.3	0.5	3.0	4.7	5.4	10.2	3.0	9.5	21.0	34.3	24.1	39.3						
2006	9.9	6.5	4.9	3.2	3.7	6.2	8.1	9.1	13.8	8.1	14.4	24.5	35.4	29.0	39.0	38.8					
2007	12.2	9.2	7.9	6.6	7.3	9.9	11.9	13.2	17.8	13.3	19.4	28.8	38.3	34.2	42.6	44.3	49.9				
2008	8.3	5.2	3.7	2.2	2.6	4.6	6.1	6.7	10.1	5.4	9.7	16.3	22.2	15.7	17.4	10.1	-4.3	-58.5			
2009	11.2	8.4	7.2	6.0	6.6	8.8	10.4	11.4	14.9	11.1	15.6	22.1	28.0	23.6	26.5	23.3	18.1	2.3	63.0		
2010	11.5	8.9	7.8	6.7	7.3	9.3	10.9	11.8	15.2	11.7	15.8	21.6	26.7	22.7	25.0	22.1	18.0	7.3	40.2	17.4	
2011	9.7	7.1	5.9	4.8	5.2	7.1	8.4	9.0	11.9	8.5	11.9	16.7	20.7	16.5	17.5	13.9	8.9	-1.3	17.7	-4.9	
2012	10.1	7.7	6.7	5.6	6.1	7.8	9.1	9.8	12.5	9.4	12.6	17.0	20.7	16.9	17.9	14.8	10.8	3.0	18.4	3.5	
2013	9.7	7.3	6.3	5.3	5.7	7.4	8.6	9.1	11.6	8.7	11.6	15.6	18.7	15.1	15.8	12.9	9.2	2.4	14.6	2.5	
2014	10.4	8.2	7.2	6.3	6.8	8.4	9.6	10.2	12.6	9.9	12.7	16.4	19.4	16.2	16.9	14.4	11.4	5.9	16.6	7.3	
2015	9.3	7.2	6.2	5.3	5.7	7.2	8.2	8.7	10.9	8.2	10.7	14.1	16.7	13.5	13.9	11.4	8.3	3.1	11.9	3.4	
2016	8.7	6.6	5.7	4.8	5.1	6.5	7.4	7.9	9.9	7.3	9.6	12.7	14.9	11.9	12.1	9.7	6.7	1.9	9.5	1.9	
2017	9.1	7.1	6.2	5.4	5.7	7.1	8.0	8.5	10.4	8.0	10.2	13.1	15.3	12.5	12.7	10.5	8.0	3.8	10.7	4.1	
2018	8.9	7.0	6.1	5.3	5.6	6.9	7.8	8.2	10.0	7.8	9.8	12.5	14.5	11.8	12.0	9.9	7.5	3.7	9.9	4.0	
2019	8.6	6.7	5.9	5.1	5.4	6.6	7.5	7.8	9.6	7.4	9.3	11.8	13.7	11.1	11.2	9.2	7.0	3.4	9.0	3.6	
2020	8.4	6.6	5.8	5.1	5.3	6.5	7.3	7.7	9.3	7.2	9.0	11.4	13.1	10.7	10.8	8.9	6.7	3.4	8.6	3.6	

From 1991 to 2020 (in per cent)

To the end of	From the beginning of									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
2011	-27.2									
2012	-3.5	20.2								
2013	-2.5	9.8	-0.7							
2014	4.8	15.5	13.1	26.8						
2015	0.6	7.6	3.3	5.3	-16.2					
2016	-0.7	4.6	0.6	1.1	-11.8	-7.4				
2017	2.2	7.1	4.5	5.8	-1.2	6.3	20.1			
2018	2.3	6.5	4.3	5.2	-0.1	5.2	11.5	2.9		
2019	2.1	5.7	3.7	4.4	-0.1	3.9	7.7	1.5	0.1	
2020	2.3	5.5	3.7	4.3	0.6	3.9	6.8	2.3	2.0	3.9

How to read the table?

The top row of each table specifies the starting year and the left column specifies the ending year. To find any statistic for a given time period, find the intersection of start and end dates.



Note: 1) Long horizon equity risk premia is computed as index total returns (Sensex or NIFTY50) minus return on long-term government bonds

2a. Implied premium - Gordon's growth model using dividend as a base

Overview

The implied premium approach makes use of some very basic yet powerful valuation tools to find out the equity premium from the current market conditions, in conjunction with the expected future cash flows. In the table set below, ERP has been evaluated based on Gordon's Dividend Discount model which is one of the most well-known models in the genre of valuation.

$$\text{Price}_{\text{Year}=0} = \frac{\text{Dividend expected next year}}{K_{\text{equity}} - \text{Growth}_{\text{dividend income}}}$$

Implied equity risk premium - India

We have used BSE Sensex data to derive the implied equity risk premium. As at 31 March 2021, the BSE Sensex Index closed at 49,509 points and the average dividend yield on the index was approximately 1.36%.

The sustainable growth in dividend for companies in the index is assessed to be 12.3% based on the annual compounded growth in the dividend between 1991 and 2020. The yield on the 10-year G-sec bond was 6.3% as of 31 March 2021, the equity risk premium is accordingly estimated to be 7.5%.

Implied equity risk premium on as at 31 March 2021 using DDM

			Comments
Current year index (SENSEX)	(a)	49509	31 March 2021 closing index
Expected dividend yield	(b)	1.36%	Avg dividend yield on index
Dividend growth expected	(c)	12.3%	Historical dividend growth
Dividend ₁	a*b*(1+c)	755	
Return on equity		K _e	
K _e		13.8%	Applying Gordon growth model
Risk free rate		6.3%	Yield on 10Y G-Sec as at 31 March 2021
Implied Equity premium		7.5%	

Source: BSE; Incwert analysis.



2b. Implied premium –Gordon’s growth model using FCFE as a base

Implied equity risk premium as at 31 March 2021 using earnings

			Comments
NIFTY50 index	(a)	14,691	31 March 2021 closing index
PE ratio	(b)	21.18	Historical average
Earnings growth expected			Variable
K_e		14.5%	Three-stage growth model
Risk free rate		6.3%	Yield on 10Y G-Sec as at 31 March 2021
Implied Equity premium		8.1%	

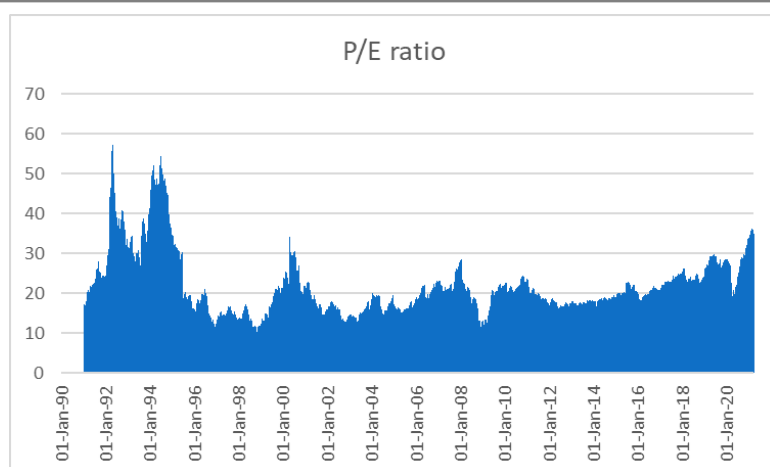
Overview

This method generalises the DDM methodology to have an allowance for periods of high growth and use cash flows instead of dividend.

We note that the average free cash flow to equity (FCFE) to net income (NI) ratio for Nifty 50 stocks during the 12-month period ended March 2021 is approximately one. Hence, as a practical expedient, we considered earnings as a proxy to the FCFE.

Three-stage growth model has been considered with the following growth built-up assumptions–

- FY2022 – real GDP growth of 7.5% and inflation of 4.2%
- FY2023 – real GDP growth of 10.1 % and inflation of 4.2%
- FY2024 to FY2027 – real GDP growth of 6.5%-7.0% and inflation of 4.0%
- FY2028 to FY2050 – real GDP growth of 4.9% (estimated based on PwC’s ‘The World in 2050’ report) and inflation of 4%
- Beyond FY2050 – the sum of expected inflation and the expected real rate is assumed to be equivalent to the treasury bond rate of 6.3%



$$\text{Market Capitalisation of Index} = \frac{CF_1}{(1+k)} + \frac{CF_2}{(1+k)^2} + \dots + \frac{CF_T}{(1+k)^T}$$

Where,

CF_n = Weighted average cash-flows from companies constituting the index for year n

K = discount rate

Based on the above assumptions, the implied discount rate which equates the discounted cash flows of the market cap of Nifty is estimated to be 14.5%. Based on a risk-free rate of 6.3% and index beta of 1, ERP is estimated to be approximately 8.1%.

3. Relative approach – country risk premium built-up to the mature market ERP

Overview

The Relative approach for calculating equity risk premium, albeit not widely used by valuation experts or analysts, computes ERP by adding country-specific risk premium to the base risk premium for a mature market.

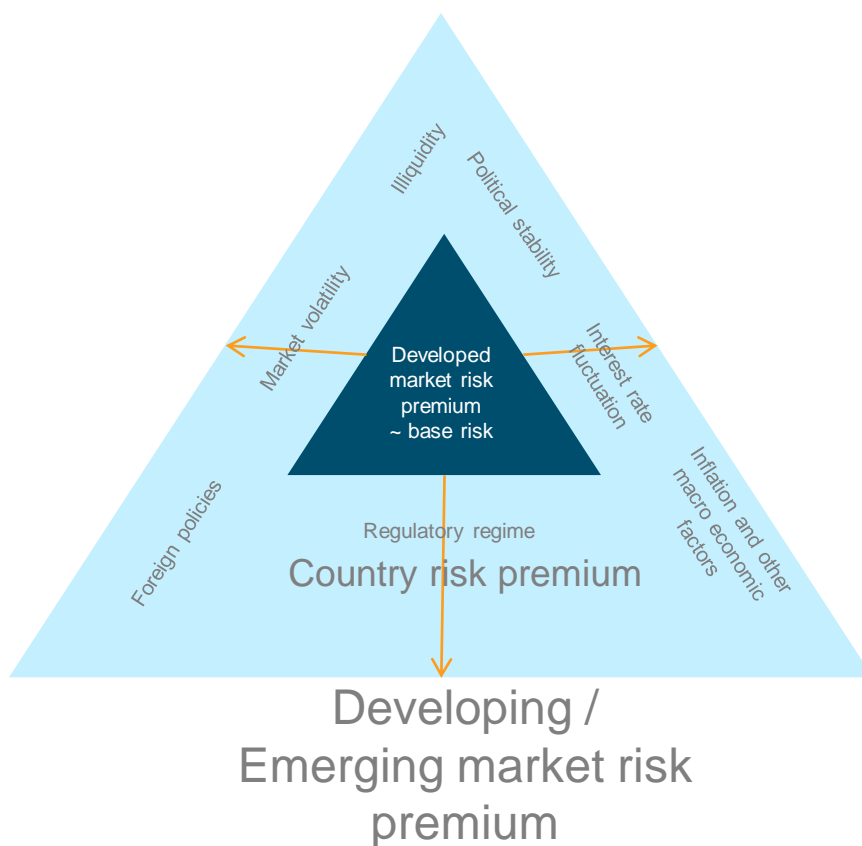
$$\text{Risk premium}_{\text{target market}} = \text{Risk premium}_{\text{mature market}} + \text{country risk premium}_{\text{target market}}$$

This approach is based on the premise that data available for emerging markets is often biased and suffer from potential noise due to market illiquidity and intermittent unexpected market movements. Accordingly, building up additional risk premium over risk in a mature market sets aside any possible anomalies.

In our calculation, we consider the base premium of US equity market to be a good surrogate for mature market risk premium since the US has perhaps the most extended history of the developed equity market. Following variations have been considered while calculation the ERP for India:

- *Sovereign bond default spread method: this is a simplistic approach where the credit default spread of India treasury bond over US treasury bond is considered to be an indicator of the country risk premium over the developed market.*
- *Sovereign bond default spread adjusted for equity market volatility method: this is an advancement of the above method if the sovereign default spread has been adjusted for India equity market volatility and 10-year G-sec price volatility factor.*
- *Domestic market volatility relative to a developed market: Equity risk of US market is adjusted for the volatility in the US market returns comparable to that of India.*

Application of each of these approaches is quite insightful but ridden with their own set of problems. Consider the adjustment factor for equity market volatility to the sovereign default spread– this adjustment assumes that country equity and bond market share a linear relationship, albeit it is not quite so in reality.



3. Relative approach – measure of credit default spread

	INDIA	US
Sovereign debt ratings	✓	✓
Country risk scores	×	✓
Market prices		
1) USD or Euro denominated bond yield spread	×	✓
2) Credit default swap spread	✓	✓
3) Market volatilities	✓	✓

Measures of credit default spread

Out of the several ways of measuring the sovereign or country credit default spread - a) sovereign credit/currency ratings, b) country risk scores and c) observable market data such as yield, credit default swap (CDS) rates, market volatilities, currency volatilities etc., we have considered sovereign ratings.

Therefore, as the sovereign ratings for both, the US and India, are publicly available the credit default spread is computed synthetically by assigning similar default spreads to same class of rating. Also, equity, debt and currency market volatilities have been analysed for determining the adjustment factor.



3a. Relative approach - Sovereign bond default spread method

Currency default risk rating

	Foreign Currency
Rating - India	Baa3
Default spread (basis points)	81
US market risk premium (mature market)	4.7%
Total equity risk premium <small>India in USD terms</small>	5.5%
Inflation <small>US</small>	2.3%
Inflation <small>India</small>	4.1%
Total equity risk premium <small>India in INR terms</small>	7.4%

Note: 1) US market risk premium is as on 01 January 2021;

2) Inflation considered is long range forecast

Source: Tradingeconomics.com; worldgovernmentbonds.com ; Equity Risk Premiums (ERP): Determinants, Estimation and Implications –Aswath Damodaran; Publicly available information; Incwert analysis

Sovereign CDS spread by credit rating

	Average 5Y CDS	CDS spread adj for US
AAA	15	0
AA+	17	3
AA	16	2
AA-	16	1
A+	29	14
A	37	22
A-	47	32
BB	80	65
BBB	72	58
BBB-	96	81
BB-	177	163
B+	405	391

Assumption: Countries with similar default risk have similar sovereign ratings.

Applicability: Typical default spreads of other countries can be applied to a country which has same rating.

Analysis: Russia, Italy and Indonesia US dollar denominated bonds are trading at a default spread of 80-100 basis points, compared to an average 15 basis points for AAA rated economy. The delta basis points that the market participants demand are for the additional exposure (i.e. country risk) in bonds issued by BBB-rated countries/companies. Thus, the synthetic default spread of 81 points has been applied to India while determining its equity risk premium.

Source: worldgovernmentbonds.com; Publicly available information; Incwert analysis;

Credit default spread approach

The sovereign credit default spread in case of India has been synthetically derived by comparing it to similarly rated economies and their typical default spreads.

Ratings by Moody's has been considered for determining sovereign currency rating.

These ratings reflect the potential risk of default and not the equity risk. Yet, these have been considered as a yardstick of equity risk since they are affected by several of the factors that drive the equity risk. The 'hard' macroeconomic factors such as the fiscal deficit, currency stability, interest rates and inflation, and the 'soft' issues like the political stability, economic and regulatory environment, etc. affect both credit risk and equity risk.

Equity risk premium - India

ERP for India is derived by adding CDS of 81 basis points to the base ERP of 4.7% of the US market. The resultant equity risk premium for India is 5.5% in US dollar terms. After adjusting for the forward inflation factor, the ERP for India in INR terms is determined to be 7.4%.

3b. Relative approach - Sovereign bond default spread (adjusted for equity market volatility) method

Currency default risk rating adjusted for equity market risk

	Foreign Currency
Rating – India	Baa3
Default spread (basis points)	(a) 81
Multiplier on default spread (see below for details)	(b) 4.8
Adjusted country risk premium India in USD terms	(a)*(b) 3.9%
US market risk premium ~mature market	4.7%
Total equity risk premium India in USD terms	8.6%
Inflation US	2.3%
Inflation India	4.1%
Total equity risk premium India in INR terms	10.6%

Note: 1) US market risk premium is as on 01 January 2021;
2) Inflation considered is long range forecast

Source: Tradingeconomics.com; worldgovernmentbonds.com ; Equity Risk Premiums (ERP): Determinants, Estimation and Implications –Aswath Damodaran; Publicly available information; Incwert analysis

Standard deviation (volatility) weekly between April 2019 to March 2021

Standard deviation in equity returns	Standard deviation in bond prices	Relative standard deviation
3.3% (weekly std dev)	0.7% (weekly std dev)	4.8
23.7% (annualised std dev)	5.0% (annualised std dev)	4.8

Note: 1) For the purpose of computing bond prices the yield to maturity of 10 year rupee denominated government bond has been considered

Source: RBI; Secondary Market Outright Transactions in Government Securities (Face Value); S&P CNX Nifty

Overview

This approach is a step-up on the default spread approach. Since the overall all country equity risk premium is expected to be larger than the country default spread, a certain additional risk is added to the default spread to make it equal to the country risk premium. To compute the estimated spread multiplier, the analysis considers the volatility in equity returns relative to volatility in bond prices. The default spread is multiplied by the relative volatility to derive the adjusted country risk premium

Default spread adjusted for equity risk

The annualised standard deviation in the Indian equity index (Sensex/NIFTY50) during the 24 months ending 31 March 2021 was 23.7%, while the annualised standard deviation in the 10-year government bond prices was 5.0%. The resultant additional country equity risk premium for India (in USD terms) is 3.9%.

Adding the country premium of 3.9% to the base ERP of 4.7% of the US market results in an ERP of 8.6% for India in USD terms. After adjusting for the forward inflation factor, the ERP for India is derived to be 10.6% in INR terms.

Potential measurement problems

The standard deviation of equity returns is a volatile number across time and given that India is still an emerging market, the volatility could move significantly across different periods.

Further, this approach presupposes a linear relationship between equity market volatility and bond price volatility, whereas the situation is quite different in reality.



3c. Relative approach – Mature market ERP adjusted for relative equity market volatility method

Overview

This approach is based on the premise that imputed risk of different markets can be observed by comparing the volatilities in equity return for each of those markets. Economies with higher risk will usually have a higher standard deviation in equity prices or returns.

The relative standard deviation for country X against the other country Y would be computed as follows:

$$\text{Relative Std dev}_x = \frac{\text{Std dev}_x}{\text{Std dev}_y}$$

Further, assuming that equity risk premium and relative standard deviation have a linear relationship, the equity risk premium of country X can be computed as follows:

$$\text{ERP}_x = \text{ERP}_y * \text{Relative Std Dev}_x$$

Relative equity market volatility in the US and India

The annualised standard deviation of weekly returns in S&P 500 in two-years, five-years and ten-years preceding 31 March 2021 have been computed in the table below. Correspondingly the annual standard deviation of weekly returns NSE Nifty for the same period has also been computed. The relative standard deviation has been computed for each such period. Daily standard deviations may tend to have much more noise, and hence computations have been done on weekly returns.

Using the relative standard deviation so derived and the US base equity risk premium of 4.7%, the estimated equity risk for India based on two-year, five-year and ten-year volatility is 4.6%, 4.6% and 4.9% respectively. After adjusting for the forward inflation factor, the ERP for India is determined to be 6.4% to 6.8% in INR terms.

Market structure and liquidity differ widely among markets. Under a perfect market scenario, emerging markets would ideally be more volatile than the developed markets; However, illiquidity in emerging markets would more often than not result in lower volatility. This market condition will understate the risk premium for the illiquid market and overstate the risk for the liquid market.

Relative volatility in the US and India equity markets preceding 31 March 2021

	2-yr volatility		5-yr volatility		10-yr volatility	
	US	India	US	India	US	India
Weekly volatility in return	3.28%	3.22%	2.48%	2.40%	2.26%	2.36%
Annualised standard deviation	24%	23%	18%	17%	16%	17%
Relative standard deviation _{India}		0.98		0.97		1.04
US/ Mature market risk premium	(a)	4.7%	4.7%	4.7%	4.7%	4.7%
Equity risk premium _{India in USD terms}	(b)	4.6%	4.6%	4.6%	4.9%	4.9%
Country risk premium _{India}	(a-b)	-0.1%	-0.2%	-0.2%	0.2%	0.2%
Inflation US	2.3%					
Inflation India	4.1%					
Total equity risk premium _{India in INR terms}		6.5%	6.4%	6.4%	6.8%	6.8%

Note: 1) US market risk premium is as on 01 January 2021

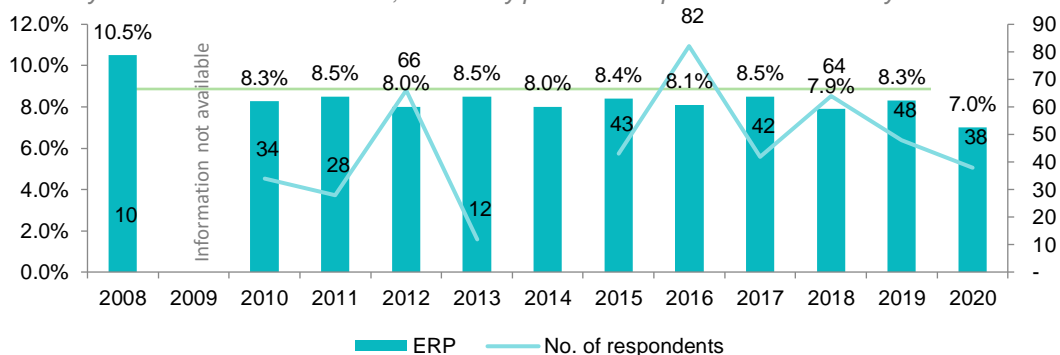
Source: S&P 500 index; NSE Nifty; Tradingeconomics.com; Incwert analysis.

4. Estimation of ERP based on the survey

Overview

Globally, several research firms survey finance and economics professors, corporate managers, financial analysts, etc. about their expectation of market returns. Whilst this data is widely available in developed markets such as the US; it is somewhat a challenge to get such data in emerging markets such as India.

In this section, we present the summary of market risk premium in India based on the survey carried out by Pablo Fernandez, Javier Aguirreamalloa and Pablo Linares ('Survey of market risk premium and risk-free rate') for various countries over the various period. *As of the date of publication of this report, Pablo Fernandez and the team have not yet published the survey results for 2021 and hence, the survey premium is updated until 2020 only.*



Note: Survey premium data for India is not available for the year 2009

Source: 'Market Risk Premium and Risk Free Rate' in 2008 to 2020 by Pablo Fernandez, Javier Aguirreamalloa and Pablo Linares

Summary of historical survey ERP - India

Year	Number of respondents	Mean	Median	St. Dev	max	min	Avg-Median	Max-min (range)
2008	10	10.5%	8.0%	4.4%	20.0%	7.0%	2.5%	13.0%
2009	-	-	n/a	n/a	n/a	n/a	n/a	n/a
2010	34	8.3%	n/a	n/a	30.0%	4.4%	n/a	25.6%
2011	28	8.5%	7.8%	2.8%	16.0%	5.0%	0.7%	11.0%
2012	66	8.0%	8.0%	2.4%	16.0%	2.3%	0.0%	13.7%
2013	12	8.5%	8.8%	2.9%	13.4%	3.0%	-0.3%	10.4%
2014	-	8.0%	8.0%	2.4%	16.0%	2.3%	0.0%	13.7%
2015	43	8.4%	8.3%	2.5%	14.0%	5.0%	0.1%	9.0%
2016	82	8.1%	8.0%	2.4%	16.0%	2.3%	0.1%	13.7%
2017	42	8.5%	9.0%	2.3%	13.0%	2.2%	-0.5%	10.8%
2018	64	7.9%	8.3%	2.1%	13.7%	2.3%	-0.4%	11.4%
2019	48	8.3%	8.3%	2.0%	15.0%	5.0%	0.0%	10.0%
2020	38	7.0%	7.0%	1.5%	10.6%	3.8%	0.0%	6.8%

Source: 'Market Risk Premium and Risk-free Rate' by Pablo Fernandez, Javier Aguirreamalloa and Pablo Linares. Study period analysed is 2008 to 2020

Survey results' reliability in general

Despite several studies or surveys being carried out by research firms and given the fact that a level-headed range for equity premium does emerge from these surveys; still, the acceptance level of such an approach by finance practitioners is low. Though there is nothing incorrect with the approach that is usually adopted to carry out such a survey, rather it is the individual's reasoning that could be potentially inhibited while interpreting the market dynamics. To estimate the risk, most respondents rely on the recent market environment. Their assessment may thus tend to be weighted towards a short-term view.



Client footprint across India and outside



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Reference Material:

- Company filings and other publicly available information
- SEBI; NSE & BSE
- Incwert analysis

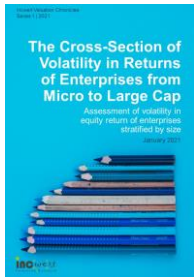
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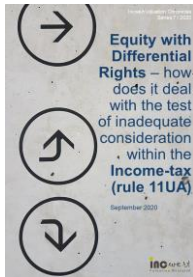
Incwert Valuation Chronicles (click the image to download the file)



Volatility in returns
- January 2021



DVR and Rule 11UA
- September 2020



India Control Premium, 2020
- August 2020



Purchase price allocation study (BFSI)
- July 2020



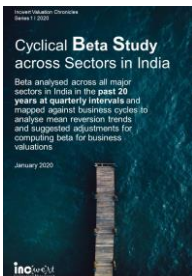
Equity Risk Premium
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Holdco Discount
- Mar 2020



Risk free rate in a negative yield economy/India Beta Study
- Feb 2020
- Jan 2020



India Control Premium, 2019
- Oct 2019



AMC listing & valuation
- Sep 2019



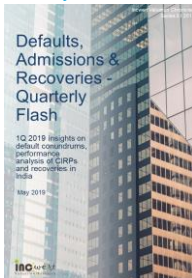
IBC Quarterly Flash
- Aug 2019



Rule 11UA valuation
- Jun 2019



IBC Quarterly Flash
- May 2019



Junk bond valuation
- Apr 2019



Perspective on valuation of DVRs
- Mar 2019



Valuation challenges in AIF (Pg. 69-80)
- Feb 2019



Equity risk premium in India
- Jan 2019



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Punit Khandelwal
Director

Punit has worked across leveraged loans, distressed debt, insolvency/ bankruptcy situations and high-yield asset classes.

Qualifications:

Chartered Accountant (ICAI)
Chartered Financial Analyst (ICFAI)
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MS in Finance (ICFAI)
B.Com (Hons.) – St Xavier’s College
Registered Valuer with IBBI

Punit brings with him 17 years of experience in sell-side and buy-side advisory across equity and fixed income. He has worked on several bespoke valuations and lent research support to dozens of asset managers/investment bankers/brokers/consulting firms across the globe.

In the fixed income segment, he worked as a fundamental analyst across the capital structure: leveraged loans, distressed debt, insolvency/bankruptcy situations and high-yield asset classes. He has also helped sell-side & consulting firms increase their market presence by coming up with thematic and white label papers.

He started his career as an analyst with Zacks Investment Research & then was a part of a UK based CLO manager’s research team. Then he moved on to set up research practices for couple of startups before moving onto become Global Head of Research at one of the largest BPO/KPO in the world and then finally co-founded Incwert.

He won 40 under 40 Alternative Professionals Awards 2020 by AIWMI



Sunit Khandelwal
Director

Sunit has worked across a range of sectors such as Infrastructure, real estate, FMCG, retail, engineering, clean energy, healthcare, IT/ ITeS, and other manufacturing industries.

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Sunit has an overall experience of over 15 years in valuation advisory, transaction advisory and M&A advisory.

As a valuation professional, Sunit has undertaken valuation of businesses for transactions, fund raising, strategic decision making, and corporate restructuring. He has also undertaken valuation of intangible assets, option valuation, litigation support, private equity portfolio valuation and valuation for reporting purposes such as purchase price allocation and impairment test under IFRS and Indian GAAP.

In past he has worked with KPMG India (as Associate Director), BDO, Grant Thornton, KPMG UK, and DBDBS a boutique M&A advisory firm.

Sunit has also been an active speaker on valuation at National Institute of Finance Management (NIFM).

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