



Market Risk Premium

An assessment of equity risk premium
in India (April 2023 and onwards)

Issue month: May 2023

Foreword

We are pleased to issue the **fifth edition of the India Equity Risk Premium (2023) study**, which analyses the risk premium to be considered when determining the cost of equity using the capital asset pricing model.

The study focuses 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 and f) implied equity risk premium.

This issue includes coverage of historical ERP using 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 appropriate time frame as desired.

The inflation surge, policy tightening, and the continuing fallout of the Russia-Ukraine conflict have been hurting the markets. We expect the economy's outlook in the near term to remain fragile with volatile investor returns. Accordingly, **based on the current market conditions, we recommend India ERP of 7.50% (7.00% and 8.00% being the lower and upper limit of the range, respectively) beginning in April 2023.**

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

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Key findings of our study are:

- Recommended India ERP (for April 2023 and onwards) is estimated to be high by 25 bps to 7.50%
- Historical ERP (from 2000 to 2022) computed using arithmetic mean continues to be sub 8%
- Implied EPR using the dividend and earnings discount model is in the range of 7.5% to 8.0%
- 5Y CDS for BBB-rated sovereign bonds were in the range of 100 to 120 points in March 2023, indicating ERP in the range of 7.1% to 7.9%



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About Authors

Punit brings with him 20 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, was part of a UK-based CLO manager's research team, and then moved on to set up research practices for a couple of startups before becoming the Global Head of Research at one of the largest BPO/KPO globally and finally co-founded Incwert.

He won 40 under 40 Alternative Professionals Awards 2020 by AIWMI.

Sunit has an overall experience of over 18 years in valuation advisory, transaction advisory and M&A advisory.

As a valuation professional, Sunit has undertaken valuations of businesses for transactions, fundraising, strategic decision-making, and corporate restructuring. He has also undertaken valuations of intangible assets, financial instruments, 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 the National Institute of Finance Management (NIFM).

Professor Divya Aggarwal holds a Ph.D. in Finance from XLRI – Xavier School of Management. She has completed The Fellow Programme in Management from XLRI which is a full-time, residential doctoral programme. She is a Company Secretary (the Institute of Company Secretaries of India) and has done her Bachelors in Finance & Investment Analysis from the Delhi University. Her corporate work stints include working in corporate finance roles with McKinsey Knowledge Centre, KPMG, and investing banking roles with Avendus Capital. Before embarking on an academic career, she was working as an AVP in the financial planning team at SwissRe, a leading reinsurance firm.

In 2020 she got featured in the AIWMI list of "India's top 100 women in finance 2020" under the progressing category. She is a recipient of many awards and scholarships including "Peter Drucker essay competition 2014", "The Case Centre scholarship" and best paper awards at several national conferences.

Her research work has been published in international journals like the Journal of Behavioural and Experimental Finance, Research in Economics and Qualitative Research in Financial Markets. She has presented her research work in several national conferences like Pan-IIM, ISDSI, etc. along with international conferences such as biannual meetings of SPUDM.

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Our expertise includes valuation for financial reporting, tax & regulatory compliances and transaction support



Business valuation
Purchase price allocation
Impairment testing



Complex valuations which includes the following:

Contingent consideration



Convertible securities

Expected credit loss (ECL)



Cross-country interest rate swaps

Financial Guarantee Contracts



Embedded derivatives

Hybrid securities



Forward agreements

Non-controlling interests



Loan portfolios

Swaps



Right of Use (ROUs)

Commodities



Warrants

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ABOUT INCWERT

Incwert focuses on rendering services in the area of valuations and financial research. As a leading valuation advisory firm in India, it supports clients across life cycles (from early-stage to mature) on valuations concerning transaction, tax and financial reporting. Incwert is trusted by clients for its incisive research which forms the basis of credible advice. The company also offers offshore valuation support services which include setting up valuation models and report writing.

Incwert's client footprint is across cities & metros in India and globally in the US, UK, Singapore and the Middle East. Incwert has offices in Delhi (NCR) and Mumbai, along with Kolkata where it has affiliate/network partners.

In India, Incwert is registered with The Insolvency and Bankruptcy Board of India as a Registered Valuer Entity.

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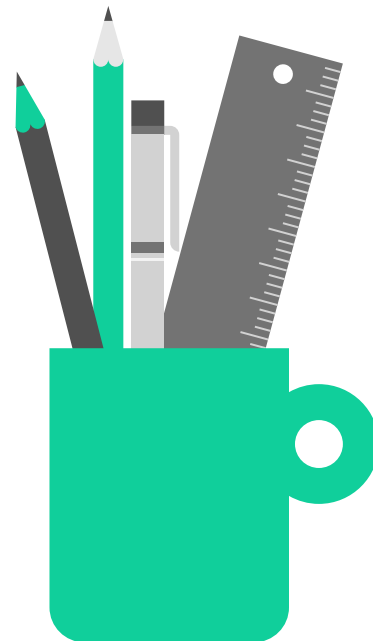
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Impact of macro-economic conditions on our assessment

Interest rates



Inflation



GDP



Yield on G-Sec



Market index



Consumer demand



VIX index



The impact of the Russian action in Ukraine that started in 2022 had some setbacks for India as well, though the impact wasn't felt as much as in other major economies. We saw the stock market rise and fall, the rupee decline against the USD, and oil prices surge to a record high, pushing up inflation in the country.

At that time, the Reserve Bank of India took proactive measures to rein in inflation and increased the repo rate by 2.5% between May 2022 and March 2023. While the investors continued to assess and estimate the rate hikes, the direct fallout of rising interest rates was seen in the valuation of stocks. Nifty50 fell to its 52-week low in June 2022 as investors expected higher interest rates to increase the borrowing costs for companies and reduce their profitability.

While inflationary pressures severely impacted consumer demand globally, the Indian economy showed resilience to such macro factors and we witnessed 13.5% and 6.3% expansion in GDP in Q1FY23 and Q2FY23 respectively. Considering that volumes have remained low across the urban and rural sectors, growth was primarily driven by higher prices.

The central bank's actions directly affected the short-term interest rates as well. For instance, the yield on the one-year government bond rose from 4.8 per cent in early April 2022 to 7.2 per cent in March 2023 end. In contrast, the longer-duration bond yield saw a relatively moderate rise from 7.1 per cent in early April 2022 to 7.3 per cent by March 2023 end.

Nifty50 achieved its lifetime new high in December 2022 but retracted to 17,360 by the end of March 2023 (representing a fall of 8 per cent from the high). The Indian markets continued to trade sideways in the last quarter of FY23, albeit the markets saw renewed interest from the Foreign Institutional Investors who were net buyers in March 2023.

Markets were relatively stable by the end of March 2023. VIX volatility as of the end of March 2023 was 12.94% compared to 18.43% at the start of the year indicating that markets expected less significant price movements.

While the tightened monetary policy and a capital outlay commitment under budget 2023-24 of INR 10 Lakh Crore (USD 122 billion) for infrastructure augurs well for the targeted USD 5 trillion economic growth by 2025, we at Incwert expect the prevailing uncertainty to continue in the coming periods. Overall, we expect the ERP to more generally depict a marginally higher risk than the last evaluation of ERP.

It's important to note that the equity risk premium can vary over time and across different market conditions. It is influenced by a complex interplay of factors and is subject to market participants' perceptions and expectations of risk and return.

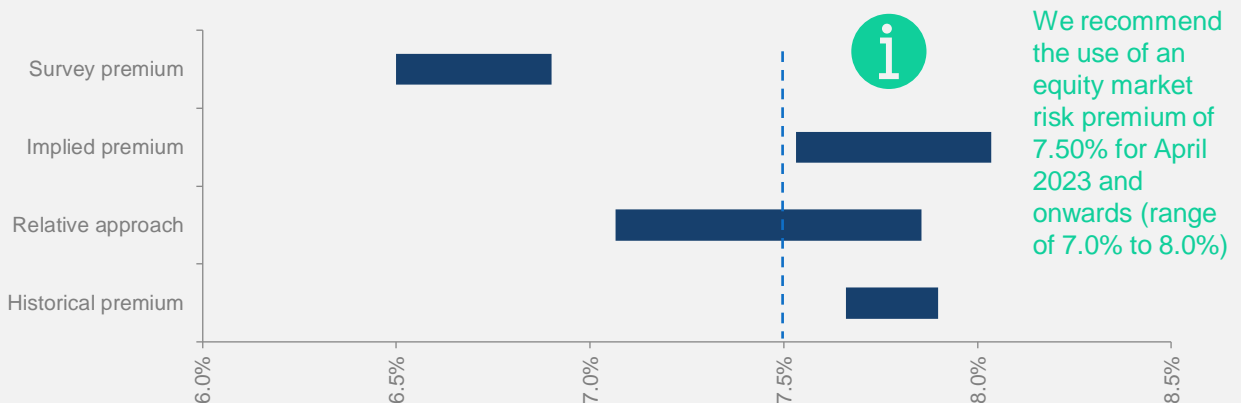


What should be the relevant risk premium in India?

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 as by 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, Professor of Finance, IESE Business School

Equity risk premium for Indian market – April 2023 and onwards



Note: The size of the bars reflects the lower and higher limit of the select ERP, except for the survey premium which is presented as a range of mean and median values
Source: NSE & BSE website and other publicly available information; Incwert analysis.

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).

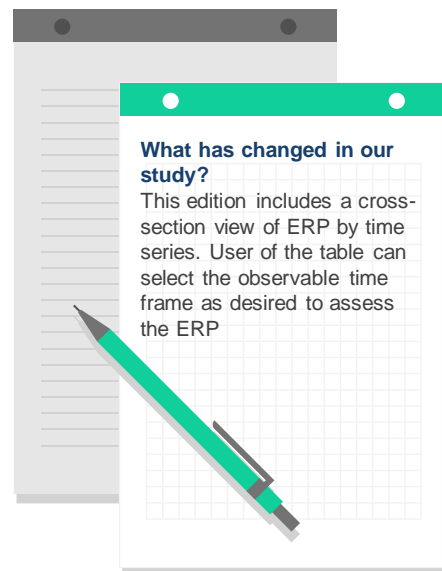
Basis for selection of variable in the risk premium function

ERP is computed as the 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:

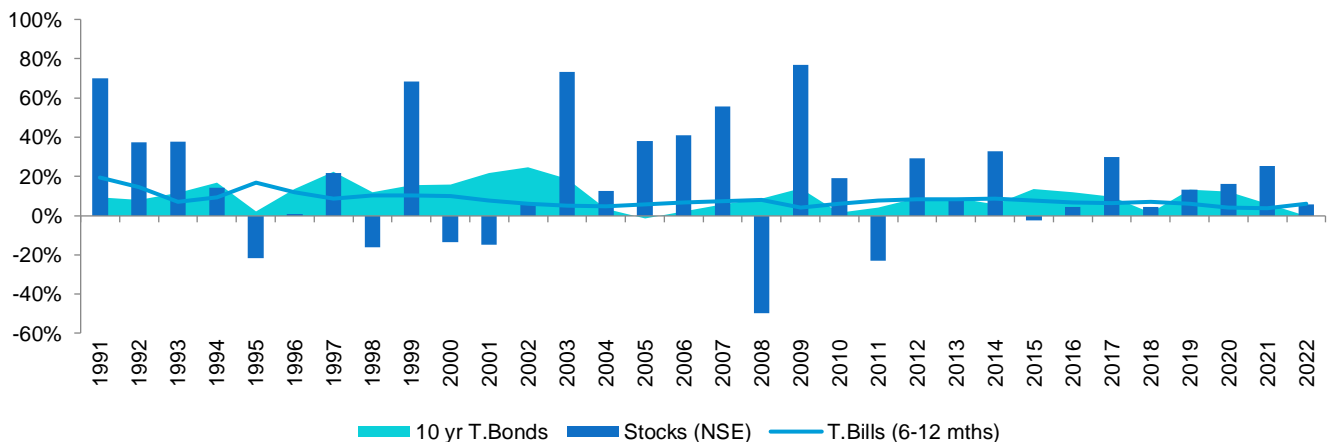
- Selection of market index (BSE Sensex & NIFTY50)
- Selection of risk-free security (G-sec bond, G-sec bills, etc.)
- Selection of bond/bill maturity period
- Selection of observable period (1-year, 5-years, 10-years, etc.)
- Selection of statistical approach – mean (arithmetic/geometric), average,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

Historical returns for India (1991-2022)				
December ending	Total returns (Sensex)	Total returns (NIFTY50)	T.Bills (6-12 mths)	10 yr T.Bonds
1991-2022	19.1%	18.7%	8.1%	10.1%
2001-2022	18.7%	18.2%	6.4%	8.9%
2011-2022	11.9%	11.9%	6.7%	8.0%

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;



Annual return during the period 1991 to 2022



Source: NSE other publicly available information; Incwert analysis.

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 19.1% (based on Sensex) and 18.7% (based on NIFTY50) over the period 1991 to 2022, which is significantly higher when compared to the average return on treasury bond (10.1%) or bill (8.1%) over the same period. High equity return, however, comes with a burden of higher volatility of 31% 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 Nifty50) and the average returns on treasury bills for the period 1991 to 2022 is 10.6%. The difference between the average returns on stock and average returns on treasury bonds over the period 1991 to 2022 is 8.7%.

Similarly, the equity risk premium based on Sensex is 11.0% and 9.1% over the treasury bill return and the treasury bond return respectively.

The bar considered in our summary assessment uses ERP based on Sensex and NIFT50 returns over the period 2000-2022

These estimates are not free from noise. Given our market's history of scams (1992-Harshad Mehta, 2001-Ketan Parekh scam) alongside global crises (the sub-prime crisis of 2007, the euro-zone crisis in 2011 and the latest being the Covid-19 and Russia-Ukraine war), the uneasiness and fear have resulted in periods of very high volatility. Our analysis suggests high levels of standard error in the estimates. Equity risk premium over 10-year G-sec has an approximate standard deviation of 5.6% and 5.4% for Sensex and NIFTY50 returns respectively.

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 2022 (in per cent)

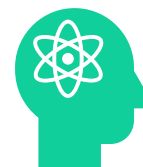
To the end of	From the beginning of																			
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
1991	73.9																			
1992	51.9	29.9																		
1993	40.3	23.6	17.2																	
1994	30.6	16.2	9.3	1.4																
1995	20.2	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
2021	9.2	7.0	6.3	5.9	6.0	7.1	7.9	8.3	9.8	8.0	10.0	12.4	14.1	11.8	11.8	9.7	7.3	4.8	9.7	4.8
2022	9.1	7.0	6.2	5.9	6.0	7.0	7.8	8.2	9.6	7.9	9.8	12.1	13.7	11.4	11.4	9.5	7.2	4.9	9.4	4.9

From 1991 to 2022 (in per cent)

To the end of	From the beginning of											
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
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		
2021	3.7	6.8	5.5	6.0	3.3	6.7	9.7	7.3	7.9	10.6	16.8	
2022	3.9	6.7	5.6	6.0	3.6	6.6	9.1	7.0	7.3	9.0	11.2	5.7

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.
2) Calculations are performed using December-end closing index values.
3) Average returns are computed using the arithmetic mean.

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

From 1991 to 2022 (in per cent)

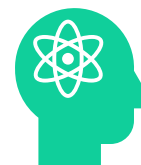
To the end of	From the beginning of																				
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
1991	60.6																				
1992	44.9	29.2																			
1993	38.7	27.7	26.2																		
1994	28.4	17.6	11.8	-2.5																	
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	
2021	8.8	7.0	6.3	5.6	5.9	7.0	7.8	8.1	9.7	7.8	9.5	11.8	13.4	11.1	11.3	9.5	7.6	4.6	9.4	4.9	
2022	8.7	7.0	6.2	5.6	5.9	7.0	7.7	8.0	9.6	7.7	9.3	11.5	13.0	10.9	11.0	9.3	7.5	4.6	9.1	5.0	

From 1991 to 2022 (in per cent)

To the end of	From the beginning of											
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
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		
2021	3.8	6.9	5.4	6.2	3.2	6.5	9.2	6.5	7.7	11.5	19.2	
2022	4.0	6.8	5.4	6.1	3.5	6.3	8.6	6.3	7.2	9.6	12.4	5.6

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
 2) Calculations are performed using December-end closing index values.
 3) Average returns are computed using the arithmetic mean.

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 NIFTY50 data to derive the implied equity risk premium. As at 31 March 2023, the NIFTY50 Index closed at 17,360 with an average long-range historical (last 10 years) dividend yield on the index of approximately 1.27%.

The sustainable growth in dividends for companies in the index is assessed to be 13.8% based on the average annual growth in dividends during the last 10 years. The yield on the 10-year G-sec bond was 7.2% as of 31 March 2023, the equity risk premium is accordingly estimated to be 8.0%.

Implied equity risk premium on as at 31 March 2023 using DDM

			Comments
Current year index (NIFTY50)	(a)	17,360	31 March 2023 closing index
Dividend yield	(b)	1.27%	Avg dividend yield on index during the last one decade
Expected growth in earnings & dividend	(c)	13.8%	Historical dividend growth
Dividend ₁	a*b	251	
Return on equity		K _e	
K _e		15.3%	Applying Gordon growth model
Risk free rate		7.2%	Yield on 10Y G-Sec as at 31 Mar 2023
Implied Equity premium		8.0%	

Source: NSE; Incwert analysis.



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

Implied equity risk premium as at 31 March 2023 using FCFE

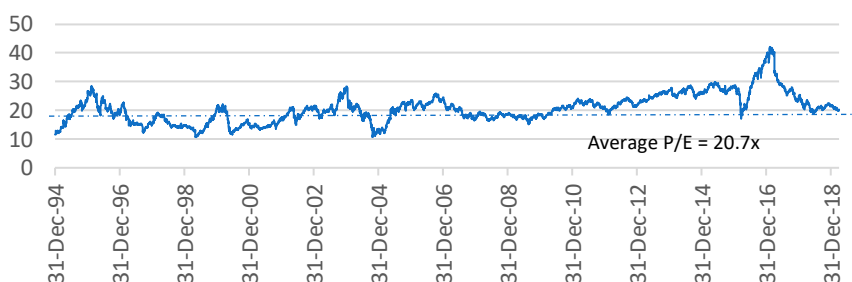
			Comments
NIFTY50 index	(a)	17,360	31 March 2023 closing index
PE ratio	(b)	20.4	31 March 2023
Earnings growth expected			Variable
FCFE to NI		85%	Long horizon expectations
K_e		14.8%	Three-stage growth model
Risk free rate		7.2%	Yield on 10Y G-Sec as at 31 March 2023
Implied Equity premium		7.5%	

Note:

1) BFSI companies have been excluded from the calculation presented above.

Source: NSE, Proprietary databases, Incwert analysis.

P/E ratio - NIFTY50



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

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 to the NIFTY50 is estimated to be 14.8%. Based on a risk-free rate of 7.2% and index beta of 1, ERP is estimated to be approximately 7.5%.

Overview

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

The average free cash flow to equity (FCFE) to net income (NI) ratio for NIFTY50 stocks during the 5 years ended March 2023 is approximately 0.75, compared to 0.85 to 0.90 observed in the US market. The expected long-term average FCFE to NI is therefore concluded to be around 0.85. In computing the ratio, the entities operating in the Banking sector have been ignored. Expansionary capital exceeding maintenance has been added back to the cash flows.

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

- FY2024 – consensus net income growth estimate of 16.8% of NIFTY50 stocks
- FY2025 to FY2028 – consensus net income growth estimate of 14.5% of NIFTY50 stocks
- FY2029 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 7.2%

What has changed in the study?

The growth % is estimated using consensus estimates of NIFTY50 constituents. In the earlier studies, growth was estimated using real growth in GDP and inflation

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.

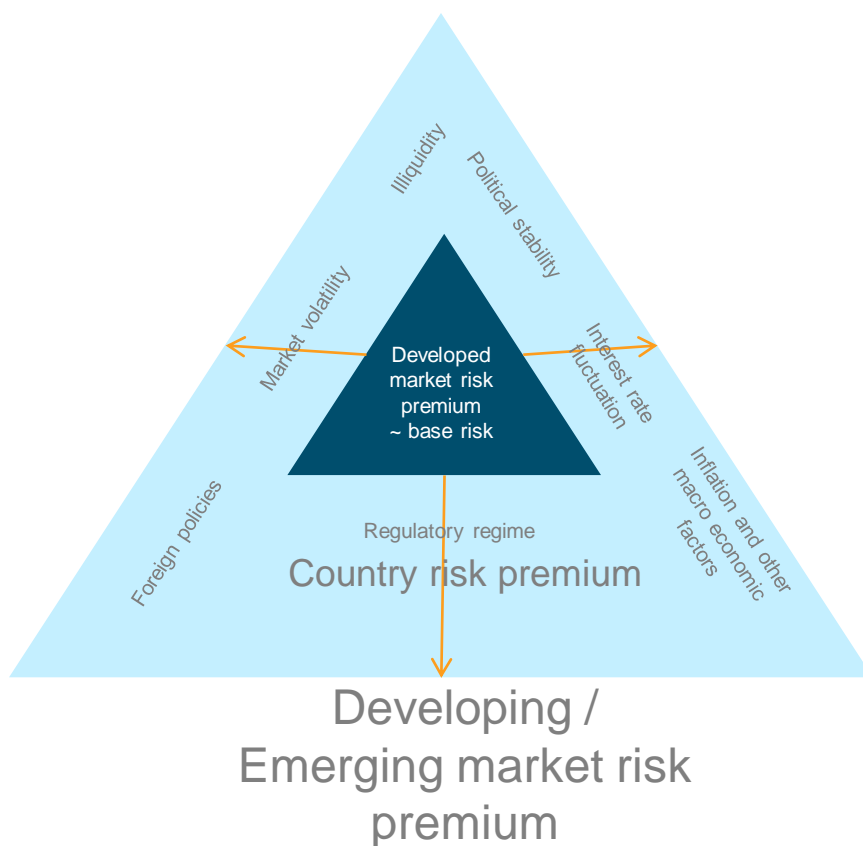
$$\text{Risk premium}_{\text{target market}} = \text{Risk premium}_{\text{mature market}} + \text{country risk premium}_{\text{target market}}$$

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	BBB-
Default spread (basis points)	112
US market risk premium (mature market)	4.7%
Total equity risk premium <small>India in USD terms</small>	5.8%
Inflation <small>US</small>	2.0%
Inflation <small>India</small>	4.0%
Total equity risk premium <small>India in INR terms</small>	7.9%

Note: 1) US market risk premium is as on 31 March 2023;
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	16	0
AA+	24	8
AA	25	9
AA-	28	12
A+	51	35
A	50	35
BBB+	49	33
BBB	110	94
BB+	93	77
BB-	229	213
B	980	965

Note: 1) CDS as of March 2023 for BBB-rated countries is used as a reference for India.

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

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: Italy, Indonesia and Mexico's US dollar denominated bonds are trading at a default spread of 100-120 basis points, compared to 10-20 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. Considering that India is rated BBB-, the synthetic default spread of 112 points has been applied to India while determining its equity risk premium.

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 S&P 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 (adjusted for US CDS) of 112 basis points to the base ERP of 4.7% of the US market. The resultant equity risk premium for India is 5.8% in US dollar terms. After adjusting for the forward inflation factor, the ERP for India in INR terms is determined to be 7.9%.

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	BBB-
Default spread (basis points)	(a) 112
Multiplier on default spread (see below for details)	(b) 1.8
Adjusted country risk premium India in USD terms	(a)*(b) 2.0%
US market risk premium ~mature market	4.7%
Total equity risk premium India in USD terms	6.7%
Inflation US	2.0%
Inflation India	4.0%
Total equity risk premium India in INR terms	8.8%

Note: 1) US market risk premium is as on 31 March 2023;
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) between April 2021 to March 2023

Standard deviation in equity returns	Standard deviation in bond prices	Relative standard deviation
14.6% (annualised std dev using weekly returns)	8.0% (annualised std dev)	1.8

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); NSE

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 2023 was 14.6%, while the annualised standard deviation in the total returns on 10-year government bond prices was 8.0%. The resultant additional country equity risk premium for India (in USD terms) is 2.0%.

Adding the country premium of 2.0% to the base ERP of 4.7% of the US market results in an ERP of 6.7% for India in USD terms. After adjusting for the forward inflation factor, the ERP for India is derived to be 8.8% 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 in reality is quite different.



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 the S&P 500 in two-years, five-years and ten-years preceding 31 March 2023 have been computed in the table below. Correspondingly the annual standard deviation of weekly returns NSE Nifty50 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 (in USD terms) based on two-year, five-year and ten-year volatility is 4.0%, 4.6% and 5.0% respectively. After adjusting for the forward inflation factor, the ERP for India is determined to be 6.1% to 7.1% in INR terms.

Market structure and liquidity differ widely among markets. Under a perfect market scenario, emerging markets would ideally be more volatile than 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 2023

	2-yr volatility		5-yr volatility		10-yr volatility	
	US	India	US	India	US	India
Weekly volatility in return	2.54%	2.20%	2.80%	2.77%	2.30%	2.47%
Annualised standard deviation	18%	16%	20%	20%	17%	18%
Relative standard deviation _{India}		0.86		0.99		1.07
US/ Mature market risk premium	(a)	4.7%	4.7%	4.7%	4.7%	4.7%
Equity risk premium _{India in USD terms}	(b)	4.0%	4.6%	5.0%	5.0%	5.0%
Country risk premium _{India}	(a-b)	-0.6%	0.0%	0.0%	0.3%	0.3%
Inflation US	2.0%					
Inflation India	4.0%					
Total equity risk premium _{India in INR terms}		6.1%	6.7%	7.1%	7.1%	7.1%

Note: 1) US market risk premium is as on 31 March 2023

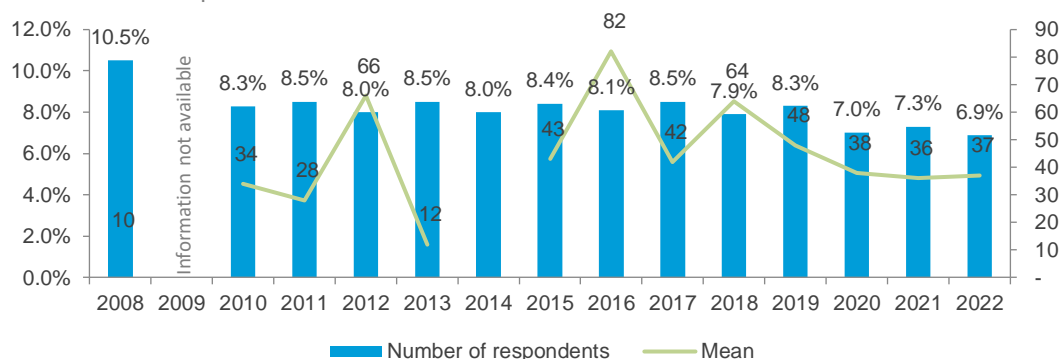
Source: S&P 500 index; NSE Nifty50; Tradingeconomics.com; Incwert analysis.

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.



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

Source: 'Market Risk Premium and Risk Free Rate' in 2008 to 2022 by Pablo Fernandez, Professor of Finance, IESE Business School

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	Information not available	Information not available	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	Information not available	Information not available	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%
2021	36	7.3%	7.1%	n/a	11.5%	3.5%	0.2%	8.0%
2022	37	6.9%	6.5%	n/a	14.0%	2.0%	0.4%	12.0%

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

Source: 'Market Risk Premium and Risk Free Rate' in 2008 to 2022 by Pablo Fernandez, Professor of Finance, IESE Business School

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.



Glossary of terms and References

Glossary of terms

ERP	Equity risk premium
CAPM	Capital Asset Pricing Model
NSE	National Stock Exchange
BSE	Bombay Stock Exchange
NSE Nifty	Index on NSE
BSE Sensex	Index on BSE
INR	Indian Rupee
GDP	Gross Domestic Product
USD	US Dollar
RBI	Reserve Bank of India
RoI	Return on Investment
CDS	Credit Default Swap
Std Dev	Standard Deviation
Yr	Year
K_e	Cost of Equity
RoE	Return on Equity

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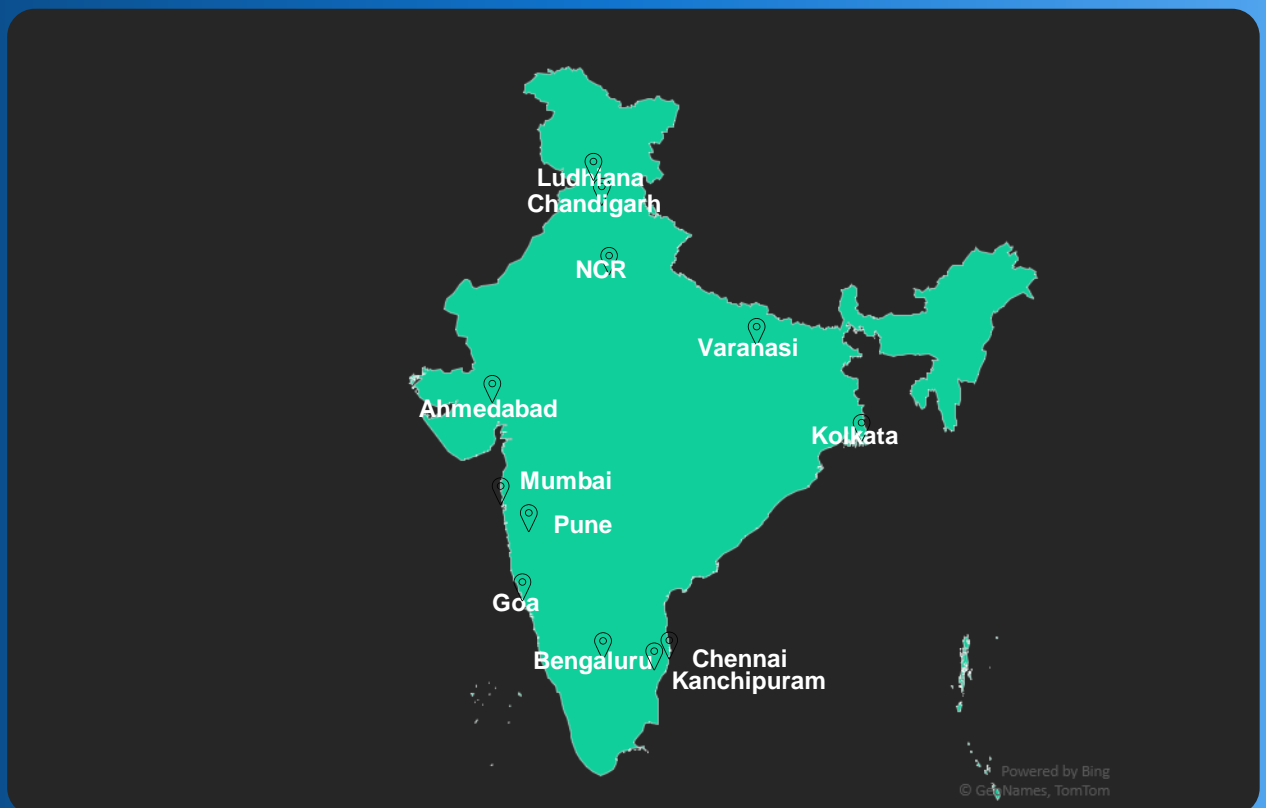
1. Unsplash - <https://unsplash.com/>



Client footprint across India and outside



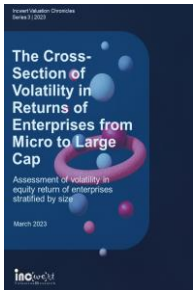
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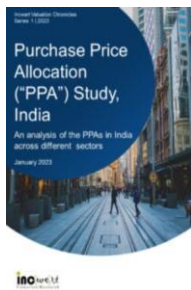
Volatility study
- March 2023



Holdco Discount
- February 2023



Purchase Price Allocation Study, India
- January 2023



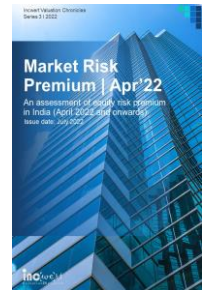
India Size Premium Study
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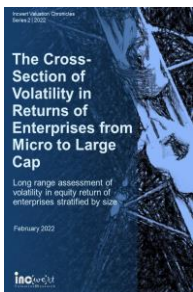
Control Premium Study-India
- Sept 2022



Equity Risk Premium
- July 2022



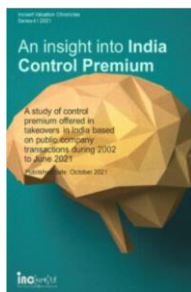
Volatility in returns
- February 2022



Holdco Discount
- January 2022



India control premium study
- October 2021



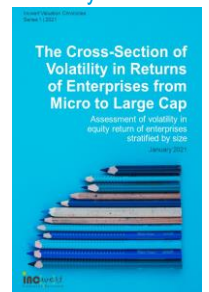
India size premium study
- August 2021



Equity Risk Premium
- May 2021



Volatility in returns
- January 2021



DVR and Rule 11UA
- September 2020



India Control Premium
- August 2020



PPA study (BFSI)
- July 2020



Equity Risk Premium
- June 2020



Holdco Discount
- Mar 2020



Risk free rate in a negative yield economy
- Feb 2020



India Beta Study
- Jan 2020



India Control Premium, AMC listing & valuation
- Oct 2019



AMC listing & valuation
- Sep 2019



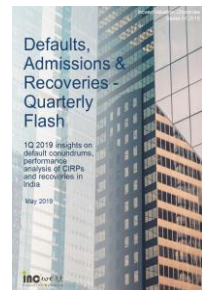
IBC Quarterly Flash
- Aug 2019



Rule 11UA valuation
- Jun 2019



IBC Quarterly Flash
- May 2019





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