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Valuation | Research

2021 INDIA SIZE PREMIUM STUDY

Market data through December 2020 from 1995

This document includes the details of the approach adopted, and analysis performed for computation of SIZE PREMIUM STUDY

August 2021

Incwert Advisory Private Limited

Unit 1 - Framework for estimating the Size Premium

Unit 2 – Data Set and size groups

Unit 3 – measure of returns

Unit 4 – Estimate of returns (using CAPM)

Unit 5 –Size premium

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Large-cap size premia

Mid-cap size premia

Small-cap size premia

Micro-cap size premia

INTRODUCTION

Incwert Size Premium Study is a comprehensive study of past market data of the companies listed on the National Stock Exchange (NSE) of India from 1995 through to December 2020 to analyse the returns that mid-cap, small-cap and micro-cap stocks have generated over the return as predicted by capital asset pricing model (CAPM).

Valuation practitioners in India typically assign size premium in the assessment of the discount rate derived using the capital asset pricing model ("CAPM") by benchmarking with US-based studies. While the premium across various periods and sizes may be appropriate as a benchmark for a developed economy, the same may not hold for the Indian market which is in the developing category. Our effort in compiling this study is primarily for bridging the gap by gathering and analysing the data for companies in India, which is our premise for us commissioning this study.

Our study finds that the size premium in India is more than that prevalent in the US. Several market disruptions arising from intermittent large scale scams in the historical period, global meltdown and economic slowdown have marked the stock returns with high volatility. While these factors result in annual variation over the time series, it does not restrict us from drawing reasonable conclusions by smoothening the output over a longer duration.

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

DATA SOURCES

For producing the analysis, we have extensively relied on data available with the NSE and proprietary database providers.

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UNIT 1 - FRAMEWORK FOR ESTIMATING THE SIZE PREMIUM

Understanding size premium

Size premium in the field of valuation refers to the observation that suggests that the Small-Cap companies tend to have higher returns than the Large-Cap companies over long horizons. This phenomenon of size as a factor affecting valuation was first propounded by Banz (1981) while studying the returns of the stocks listed in the US exchanges. His initial research showed that smaller firms tend to have higher returns than larger firms after controlling for the market risks. In testing the seminal work of Sharpe (1964) and Linter (1965), Banz (1981) observed that smaller firms actual returns were higher compared to the return as suggested by the Capital Asset Pricing Model (CAPM). Since beta-adjusted market risk failed to explain such higher returns for smaller firms, the researchers who carried out empirical observations assigned the factors affecting the deviation to the size of the firm.

However, subsequent studies by Fama & French (2011), Dimson et al. (2011) find size premium in the US markets to be non-existent or to have reduced significantly over time with higher liquidity in the smaller stocks. This suggests that firm size may be a proxy for liquidity.

Despite the argument about diminished or non-existence size effect, Small-Cap entities produce higher returns and have higher volatility which explains the risk-return theory. This phenomenon is observable in the case of Indian markets too. As valuation practitioners, we are of the view that smaller firms carry higher systematic risk and investors need to be adequately compensated for carrying such higher risk. As such, size premium may need to be accounted for in the assessment of the discount rate.

Data set and methodology considered in the analysis

For the empirical study on size premium in India, the steps adopted are as follows:

→ **Step 1** - The study has been carried out on the stocks listed on the National Stock Exchange of India only. Prices going back in history up to the beginning of 1995 for all listed stocks (irrespective of survivorship) were considered

→ **Step 2** – Data sets were constructed by outlining the portfolio break-points. Four categories of capitalization and 10 (decile) portfolios were constructed using market capitalisation. The portfolios have been rebalanced annually

→ **Step 3** - Returns were computed using the stock's capital gain and dividend yield. Returns for holding periods across monthly and annual frequencies were analysed for individual stocks. The average return of various portfolios has been estimated after weighing the annual returns with the market capitalisation of the corresponding year.

→ **Step 4** – Returns of stocks for back histories were estimated using the CAPM. Sum beta was computed using 5Y monthly returns.

→ **Step 5** – Arithmetic mean of portfolio returns (actual and CAPM estimate) have been computed over the length and breadth of the time series

→ **Step 6** – Difference between a) actual return in excess of risk-free return and b) return over the risk-free return as predicted by the CAPM was computed to represent the size premium

→ **Step 7** – Size premium computed in the step above was smoothed using the linear regression technique

Our conclusion

Empirical evidence supports the existence of higher beta-adjusted returns in Small-Cap stocks compared to Large-Cap stock in India, though the quantum of premium is subject to selection of observable period, frequency of portfolio rebalancing, holding period considered for computing the annual return, the basis of assessment of beta using ordinary least square (OLS) methodology or sum betas and identification of portfolio break-points, among others.

UNIT 2 – DATA SET AND SIZE GROUPS

1. Selection of a reference stock exchange

In India, the National Stock Exchange (NSE) and the Bombay Stock Exchange (BSE) are the most active stock exchanges with comprehensive data on the listed companies since the early 1990s. However, considering that most transactions by volume take place on the NSE, the universe of companies used to perform the size premium analysis comprises those stocks that are listed on the NSE and whose price data back-histories are available.

For the period from 1995 onwards, there is abundant coverage of all the relevant equities. As of the end of December 2020, there are 1,913 companies listed on the NSE; however, pricing and market capitalisation details are available for 1,798 companies only. The balance companies which do not trade include companies that are either suspended due to capital reduction/ outstanding annual listing fee/ graded surveillance measures/ non-compliance etc.

The fully representative nature of the NSE data ensures that non-surviving, as well as recent companies, are included in the size portfolio back-histories. Besides, the availability of dividend information for the analysis allowed producing a fair estimate of total returns.

Figure 1: Count of companies listed on the National Stock Exchange of India
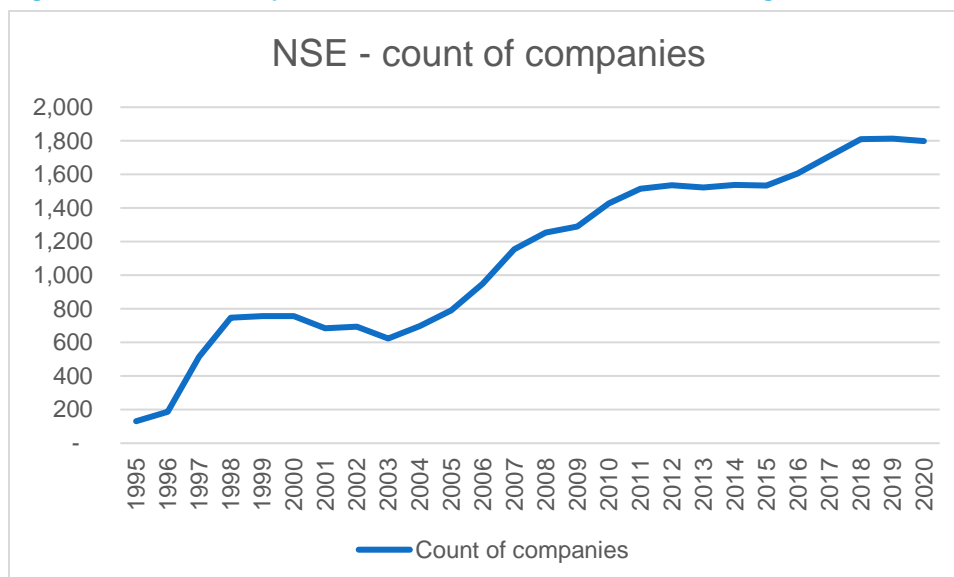
Source: NSE & proprietary database

2. Portfolio breakpoints

Companies returns by size analysed during any given year have been spread out based on groups such as large-cap, mid-cap, small-cap and micro-cap which is in addition to the 10 (decile) size groups. The portfolio breakpoints have been created using the design principle of consistent reference percentiles of the total market capitalisation. Companies listed on the NSE are segregated based on the full market capitalisation at the start of the year. The segregation has been performed by separating the companies into the following groups:

→ **Large-cap portfolio** (decile 1-2) representing top 10 percentile of companies listed in the NSE
→ **Mid-cap portfolio** (decile 3-5) representing companies ranking in the range 70 to up to 90 percentile
→ **Small-cap portfolio** (decile 6-8) representing companies ranking in the range 40 to up to 70 percentile
→ The balance companies have been categorised under **micro-cap portfolio** (decile 9-10)

Large-cap size premia

Mid-cap size premia

Small-cap size premia

Micro-cap size premia

Table 1: Aggregate market capitalisation and company count by portfolio size/deciles

31 DECEMBER 2020

Decile	Smallest company	Largest company	Percentile	Largest company name	No of companies	Total M.cap (in crore)	Percentage of total capitalisation	Cumulative percentage
1-Largest	36,101.8	1,342,473	1,342,473	Reliance Industries Ltd.	90	13,500,918	72.30%	72.30%
2	18,658.7	35,942	35,966	Procter & Gamble Hygiene & Health Care Ltd.	90	2,339,066	12.53%	84.83%
3	7,860.4	18,622	18,633	AIA Engineering Ltd.	108	1,262,669	6.76%	91.59%
4	4,180.2	7,818	7,838	Alkyl Amines Chemicals Ltd.	117	659,380	3.53%	95.13%
5	1,971.2	4,172	4,178	Lux Industries Ltd.	135	400,950	2.15%	97.27%
6	1,140.6	1,968	1,971	Greaves Cotton Ltd.	143	218,298	1.17%	98.44%
7	569.9	1,139	1,139	HBL Power Systems Ltd.	180	150,738	0.81%	99.25%
8	242.9	568	569	Pricol Ltd.	216	83,313	0.45%	99.70%
9	108.7	243	243	MBL Infrastructures Ltd.	224	37,433	0.20%	99.90%
10-smallest	0.8	108	108	Poddar Housing and Development Ltd.	495	19,433	0.10%	100.00%
Large-Cap 1-2					180	15,839,984	84.83%	84.83%
Mid-Cap 3-5					360	2,322,999	12.44%	97.27%
Small-Cap 6-8					539	452,349	2.42%	99.70%
Micro-Cap 9-10					719	56,866	0.30%	100.00%

Source: NSE & proprietary database

Table 2: Capitalisation by decile

Percentage of Capitalisation					
	Historic Average Percentage of Total Capitalisation		Recent Percentage of Total Capitalisation	Historic Min	Historic Max
Decile	1995-2020	2007-2020			
1-Largest	70.36%	69.92%	72.30%	63.33%	78.91%
2	12.30%	12.57%	12.53%	8.95%	13.78%
3	6.54%	6.79%	6.76%	4.40%	8.38%
4	3.79%	3.94%	3.53%	2.46%	4.84%
5	2.58%	2.64%	2.15%	1.70%	3.66%
6	1.68%	1.64%	1.17%	1.12%	2.67%
7	1.21%	1.15%	0.81%	0.53%	2.12%
8	0.79%	0.73%	0.45%	0.18%	1.49%
9	0.43%	0.38%	0.20%	0.12%	0.87%
10-smallest	0.31%	0.24%	0.10%	0.06%	0.64%
Large-Cap 1-2	**82.58%**	**82.31%**	**84.83%**	**76.21%**	**87.86%**
Mid-Cap 3-5	**12.94%**	**13.45%**	**12.44%**	**8.56%**	**16.54%**
Small-Cap 6-8	**3.73%**	**3.60%**	**2.42%**	**2.21%**	**6.29%**
Micro-Cap 9-10	**0.76%**	**0.64%**	**0.30%**	**0.18%**	**1.52%**

Source: NSE & proprietary database

Key points:

- C.85% of the total capitalisation of the NSE is represented by top 10 percentile companies
- Small-Cap and Micro-Cap companies which together constitute 70% of the population by count have a combined market capitalisation of less than 3 per cent.
- The percentage of capitalisation of portfolios in the recent period is close to the historical averages.

Figure 2: Percentage of capitalization by time-series

Percentage of Capitalisation
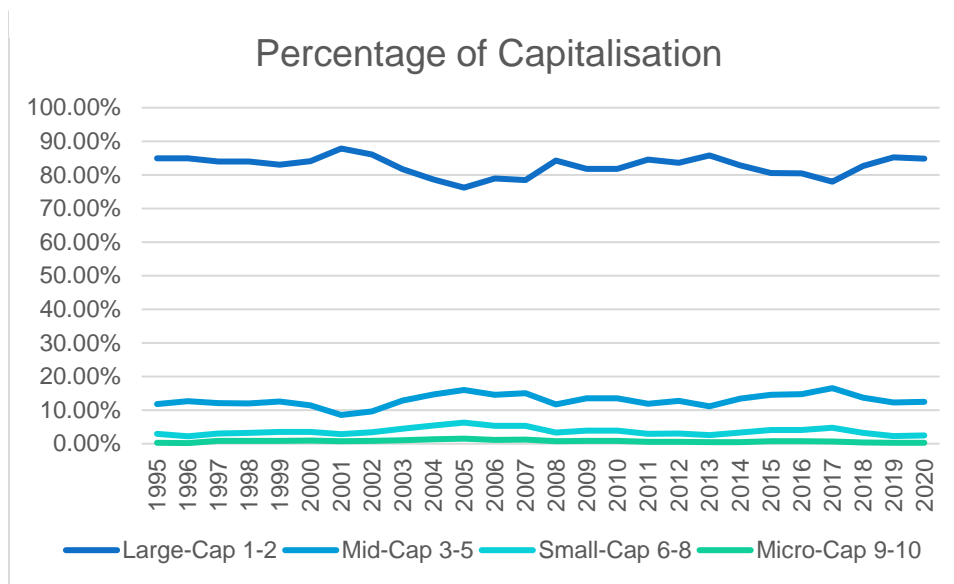
Source: NSE & proprietary database

The NSE started the cash market segment in 1994. During the early period of 1995 and 1996, companies listed on the NSE were less than 200 in number, resulting in a skewed percentage of capitalisation of the portfolios in those years. The portfolio break-points for those two years were readjusted to smoothen the distortion

3. Annual rebalancing

Portfolios have been rebalanced annually at the beginning of the year using the market capitalisation (based on the closing adjusted price) of the stocks as of 31 December of the previous year. The weighting of portfolio constituents according to the market capitalisation was considered to minimise any potential selection biases. Companies that get added during the year are assigned to the appropriate portfolio starting next year. Companies that get delisted during the year are not considered as part of the portfolio unless it gets delisted in the month of December.

UNIT 3 – MEASURE OF RETURNS

1. Annual return

The returns presented in the tables in this report are annual total returns. Return on equity for each stock has been analysed for varied holding periods – 1m, 3m, 12m and 5y; however, the 12m absolute return has been used for computing the portfolio returns.

Adjusted month-end closing prices were considered for analysis. The prices (sourced from the proprietary database) are adjusted for stock splits and other corporate actions but not for dividends declared. As such, for companies that declared dividends in the observable period, the dividend yield was added to the capital gain component to determine the annual total return. Following is the formula considered for computing the Total Return:

> Total Return = Capital Gain + Dividend Yield

Market capitalisation weighted return

Portfolio/decile returns are market capitalisation weighted returns of their constituents. Equal-weighted returns and the median returns were also computed for each portfolio/decile but not considered. Equal weighted portfolio returns run the risk of biases and therefore have been ignored.

Table 3: Annual total return %

Annual Total Return %						1995-2006	2007 onwards
Decile	Historic Average	Recent Period	St. dev	Coefficient of variation		Average	Average
1-Largest	15.5%	17.1%	31.4%	2.03		17.6%	13.6%
2	23.7%	27.9%	44.3%	1.87		23.4%	23.8%
3	22.9%	17.2%	47.6%	2.08		26.2%	20.0%
4	24.7%	28.0%	49.6%	2.01		31.0%	19.3%
5	27.8%	32.5%	54.6%	1.97		34.2%	22.3%
6	27.4%	31.3%	55.0%	2.01		32.2%	23.4%
7	30.3%	42.7%	58.7%	1.93		33.0%	28.1%
8	29.4%	37.4%	57.0%	1.94		32.4%	26.8%
9	26.8%	46.8%	57.7%	2.15		27.0%	26.7%
10-smallest	28.4%	63.1%	58.1%	2.05		31.5%	25.7%
Large-Cap 1-2	**16.6%**	**18.7%**	**32.7%**	**1.97**		**18.3%**	**15.1%**
Mid-Cap 3-5	**24.4%**	**22.8%**	**48.8%**	**2.00**		**29.2%**	**20.2%**
Small-Cap 6-8	**29.1%**	**36.1%**	**55.8%**	**1.92**		**33.1%**	**25.6%**
Micro-Cap 9-10	**27.7%**	**51.9%**	**57.1%**	**2.06**		**29.6%**	**26.1%**

The table above presents the historic average and the recent period average returns achieved by the largest to the smallest classified group sets. While an investment in the large-cap portfolio would have returned 16.6% on average annually, the small-cap portfolio would generate a return of 29.1% annually. The higher returns are coupled with higher volatility in returns (volatility of 55.8% in the small-cap portfolio, compared to 32.7% in the large-cap portfolio). Therefore, as the risk (as measured by the standard deviation of returns) increases, the realised return increases.

In the analysis of the historic returns, an important observable aspect is the shift in the market returns starting 2007 and onwards which is at lower levels of average returns for portfolio/deciles compared to the pre-2007 period.

Figure 3: Annual total return

Total Return %
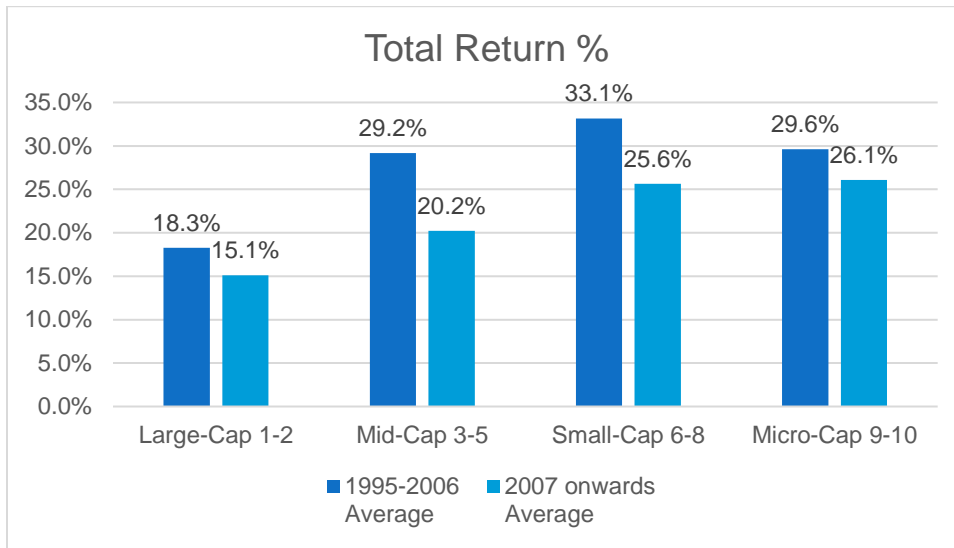
Source: NSE; proprietary database and Incwert analysis

Persistency in outperformance of small-cap portfolio

The market-cap-weighted average return of the small-cap portfolio and the large-cap portfolio is presented in the graph below. Out of 26 observation points, the small-cap portfolio has outperformed the large-cap portfolio in 14 instances during the observable period to 2020.

Figure 4: Period of wins

Period of wins for the Small-Cap over the Large-Cap
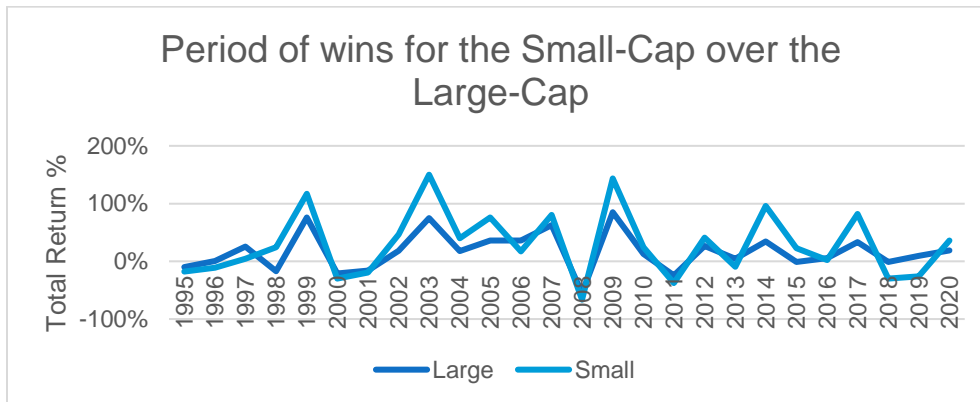
Source: NSE & proprietary database

Tme period 1995 to 2020	
Total annual observations	26
Small Cap > Large Cap	14
% of win of Small-Cap over Large-Cap	**54%**

Historical variability in the returns

The graph below presents the portfolio wise returns during the period 1995 to 2020. During the observable period, Indian markets witnessed shocks due to scams, change in governments, global meltdown & recession, a reflection of which appears as volatility in the returns.

Figure 5: Weighted returns over the time-series

M.Cap weighted average return
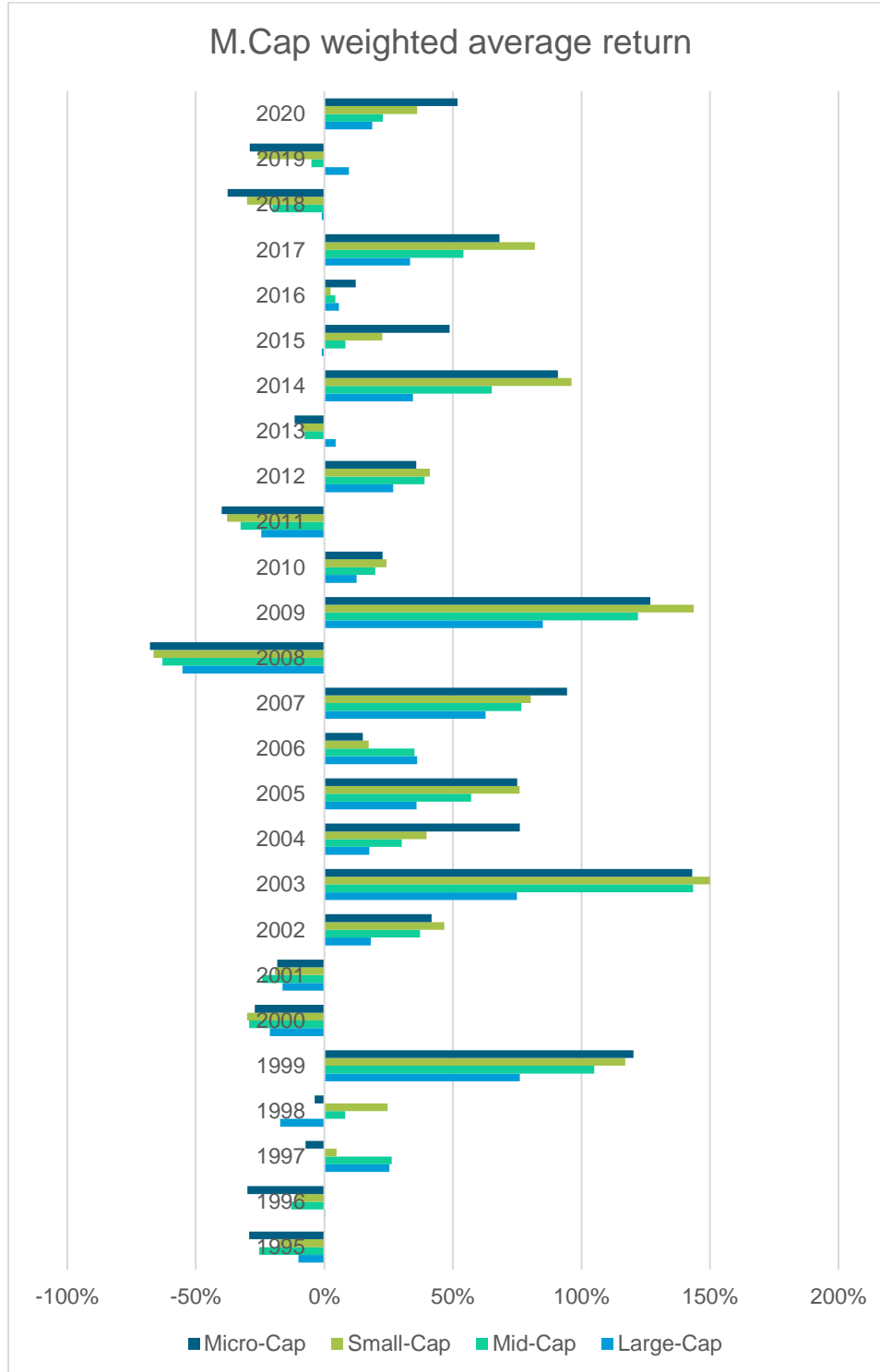
Source: NSE & proprietary database

UNIT 4 – ESTIMATE OF RETURNS (USING CAPM)

We have measured the size premium as a difference between a) actual return over the risk-free return and b) CAPM return over the risk-free return.

One of the most popular methods of computing the cost of equity i.e. the Capital Asset Pricing Model has been used in this report to construct the return in excess of the risk-free rate returns. CAPM returns show the systematic risk of the company. However, what it does not include are the company-specific risks – which could arise due to the small size of the business, operating leverages, product risks, customer concentration risks, and a wide other variety of factors.

For computing the CAPM return over the risk-free return, 'sum beta' as a measure of the systematic risk has been estimated using 5Y monthly returns for the back-histories.

The methodology used is explained in the paragraphs below.

1. Computation of Beta

Sum beta has been considered for computing the measure of how an individual asset moves when compared to the increase/decrease in the market returns.

Key points:

- Sum Beta has been computed based on 5Y monthly returns of the stock and the market
- The reference index considered for market return is NIFTY50
- In determining the beta for the portfolio/decile, the market-cap of the constituents has been applied as weights to the sum beta of individual stocks

2. Equity risk premia

Equity risk premia ("ERP") have been estimated as a difference between the average returns on the NIFTY 50 Total Return index and the average return on 10Y G-Sec bonds. To maintain consistency between the data sets, equity premium basis the historical performance has been considered for computing the size premium which is also based on the historical performance.

Key points:

- NIFTY 50 Total Return index details are available from June 1999 onwards. Therefore, for the period before the year 2000, total index return has been computed using the capital gain and dividend yield on the SENSEX
- The return on 10Y G-Sec bonds includes the coupon at the start of the year and the price change due to the interest rate changes.

3. Comparative portfolio returns

The CAPM return over risk-free returns for each portfolio/decile is computed as a product of the average sum beta and the ERP.

UNIT 5 –SIZE PREMIUM

1. Computation of return over risk-free return

For estimating the size premium, actual return above risk-free return is compared to return over risk-free return as predicted by the CAPM. The difference in excess return, if any above the beta adjusted risk is attributed to the size difference.

1.1. Actual return in excess of risk-free return
For computing the actual return over the risk-free rate, the estimated return on risk-free bonds (10-year zero-coupon bonds issued by the Govt. of India) was reduced from the portfolio return.

1.2. Return over risk-free return as predicted by the CAPM
For estimating the return over risk-free return as predicted by the CAPM, equity risk premium ("ERP") estimated based on historical returns was multiplied with the sum beta to estimate the beta adjusted risk premium. NIFTY Total return index is the base for estimating the historical ERP.

2. Key aspects to note

Key aspects of size premium:
- Size premium varies over the time frame
- Average returns vary:
  o Smaller firms outperformed 54 per cent of the times the large firms in average return over the 26-year horizon.
- Size premium is not linear
- Size premium is more pronounced in the extended period of 1995 to 2020 compared to 2007 to 2020
- Size effect has diminished during the period 2007 to 2020

3. Smoothening using regression

The size premium has been smoothed using cross-sectional regression. The average market capitalisation of the portfolio as of the latest period has been used as the independent variable with the size premium as the dependent variable. Estimation of size premium using portfolio sales and operating profit has also been performed.

Depending on the length of the observable period, the size premium varies in India. We considered it appropriate to analyse the outcome using the following time frame: a) 26 year period: 1995 to 2020 and b) 14 year period: 2007 to 2020.

Table 4: Size premium (1995-2020) smoothed using M.cap

1995-2020							
Decile	SUM Beta	Annual return (Arithmetic mean)	Return in Excess of Risk-free Rate (actual)	Return in Excess of Risk-free Rate (as predicted by CAPM)	Size Premium	Average M.Cap (INR crore)	Smoothed Size Premium
1-Largest	1.00	15.5%	5.1%	5.3%	**-0.2%**	150,010	**2.8%**
2	1.26	23.7%	13.3%	6.7%	**6.6%**	25,990	**4.8%**
3	1.33	22.9%	12.5%	7.1%	**5.4%**	11,691	**5.7%**
4	1.58	24.7%	14.3%	8.5%	**5.8%**	5,636	**6.5%**
5	1.43	27.8%	17.4%	7.7%	**9.7%**	2,970	**7.2%**
6	1.71	27.4%	17.1%	9.1%	**7.9%**	1,527	**8.0%**
7	1.62	30.3%	20.0%	8.7%	**11.3%**	837	**8.7%**
8	1.60	29.4%	19.0%	8.5%	**10.5%**	386	**9.5%**
9	1.48	26.8%	16.4%	7.9%	**8.5%**	167	**10.5%**
10-smallest	1.45	28.4%	18.0%	7.8%	**10.2%**	39	**12.1%**
Large-Cap 1-2	1.03	16.6%	6.2%	5.5%	**0.6%**	88,000	**3.4%**
Mid-Cap 3-5	1.42	24.4%	14.0%	7.6%	**6.4%**	6,453	**6.3%**
Small-Cap 6-8	1.66	29.1%	18.7%	8.9%	**9.8%**	839	**8.7%**
Micro-Cap 9-10	1.47	27.7%	17.3%	7.9%	**9.5%**	79	**11.3%**

Figure 6: Size premium (1995-2020) regressed against Avg.Market Cap

$y = -0.0242x + 0.1277$
$R^2 = 0.5231$

Large-cap size premia

Mid-cap size premia

Small-cap size premia

Micro-cap size premia
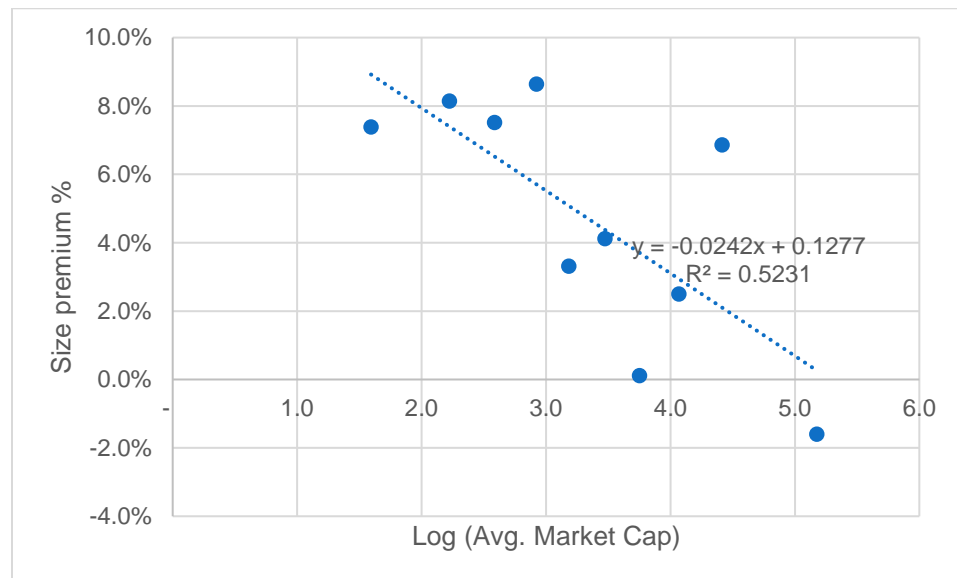
Table 5: Size premium (2007-2020) smoothed using M.cap

2007-2020							
Decile	**SUM Beta**	**Annual return (Arithmetic mean)**	**Return in Excess of Risk-free Rate (actual)**	**Return in Excess of Risk-free Rate (as predicted by CAPM)**	**Size Premium**	**Average M.Cap (INR crore)**	**Smoothed Size Premium**
1-Largest	1.00	13.6%	5.1%	6.7%	**-1.6%**	150,010	**0.3%**
2	1.26	23.8%	15.3%	8.5%	**6.9%**	25,990	**2.1%**
3	1.33	20.0%	11.5%	9.0%	**2.5%**	11,691	**2.9%**
4	1.58	19.3%	10.8%	10.7%	**0.1%**	5,636	**3.7%**
5	1.43	22.3%	13.8%	9.7%	**4.1%**	2,970	**4.4%**
6	1.71	23.4%	14.8%	11.5%	**3.3%**	1,527	**5.1%**
7	1.62	28.1%	19.6%	10.9%	**8.6%**	837	**5.7%**
8	1.60	26.8%	18.3%	10.8%	**7.5%**	386	**6.5%**
9	1.48	26.7%	18.2%	10.0%	**8.1%**	167	**7.4%**
10-smallest	1.45	25.7%	17.2%	9.8%	**7.4%**	39	**8.9%**
Large-Cap 1-2	1.03	15.1%	6.6%	7.0%	**-0.4%**	88,000	**0.8%**
Mid-Cap 3-5	1.42	20.2%	11.7%	9.6%	**2.1%**	6,453	**3.6%**
Small-Cap 6-8	1.66	25.6%	17.1%	11.2%	**5.9%**	839	**5.7%**
Micro-Cap 9-10	1.47	26.1%	17.6%	9.9%	**7.6%**	79	**8.2%**

Figure 7: Size premium (2007-2020) regressed against Avg.Market Cap

$y = -0.0262x + 0.163$
$R^2 = 0.6708$
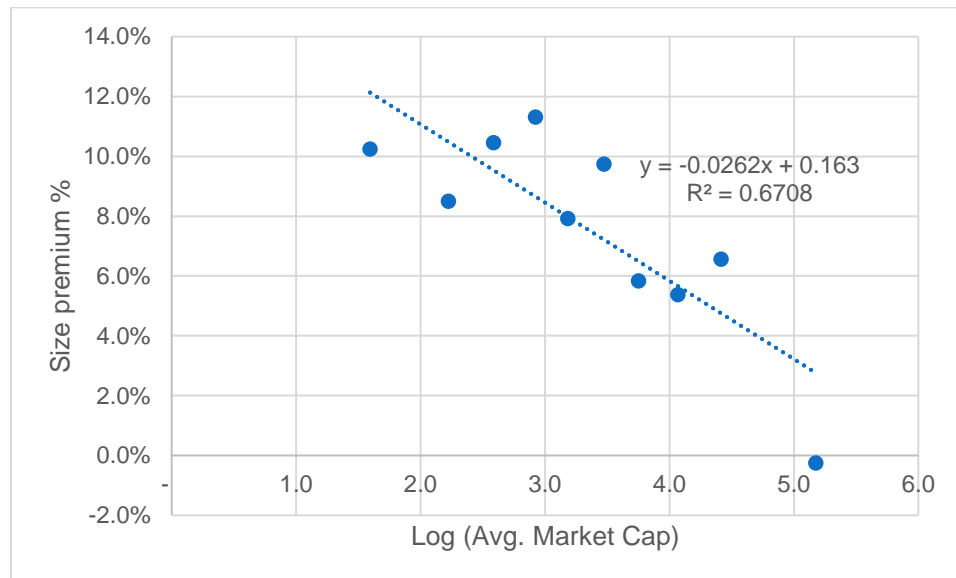
Key points:

- We observe that risk that underlie the size changes over time. This implies that firm size may not be a completely adequate proxy for defining the company-specific risks.

Table 6: Size premium (1995-2020) smoothed using sales

1995-2020							
Decile	SUM Beta	Annual return (Arithmetic mean)	Return in Excess of Risk-free Rate (actual)	Return in Excess of Risk-free Rate (as predicted by CAPM)	Size Premium	Median Sales (INR million)	Smoothed Size Premium
1-Largest	1.00	15.5%	5.1%	5.3%	**-0.2%**	3,34,742	**2.6%**
2	1.26	23.7%	13.3%	6.7%	**6.6%**	88,435	**4.8%**
3	1.33	22.9%	12.5%	7.1%	**5.4%**	50,951	**5.7%**
4	1.58	24.7%	14.3%	8.5%	**5.8%**	28,901	**6.7%**
5	1.43	27.8%	17.4%	7.7%	**9.7%**	17,572	**7.5%**
6	1.71	27.4%	17.1%	9.1%	**7.9%**	15,093	**7.7%**
7	1.62	30.3%	20.0%	8.7%	**11.3%**	9,521	**8.5%**
8	1.60	29.4%	19.0%	8.5%	**10.5%**	5,285	**9.5%**
9	1.48	26.8%	16.4%	7.9%	**8.5%**	3,025	**10.4%**
10-smallest	1.45	28.4%	18.0%	7.8%	**10.2%**	934	**12.3%**
Large-Cap 1-2	1.03	16.6%	6.2%	5.5%	**0.6%**	142,895	**4.0%**
Mid-Cap 3-5	1.42	24.4%	14.0%	7.6%	**6.4%**	28,131	**6.7%**
Small-Cap 6-8	1.66	29.1%	18.7%	8.9%	**9.8%**	9,173	**8.5%**
Micro-Cap 9-10	1.47	27.7%	17.3%	7.9%	**9.5%**	1,478	**11.6%**

Figure 8: Size premium (1995-2020) regressed against sales

$y = -0.0379x + 0.2358$
$R^2 = 0.6764$

Size premium %

Log (sales~median)

Large-cap size premia

Mid-cap size premia

Small-cap size premia

Micro-cap size premia
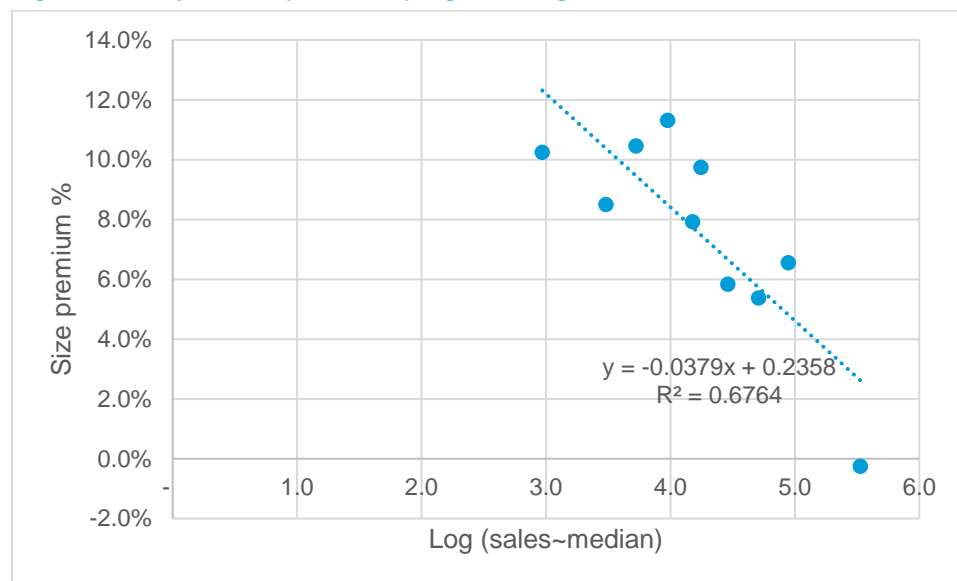
Table 7: Size premium (2007-2020) smoothed using sales

2007-2020							
Decile	SUM Beta	Annual return (Arithmetic mean)	Return in Excess of Risk-free Rate (actual)	Return in Excess of Risk-free Rate (as predicted by CAPM)	Size Premium	Median Sales (INR million)	Smoothed Size Premium
1-Largest	1.00	13.6%	5.1%	6.7%	**-1.6%**	3,34,742	**0.2%**
2	1.26	23.8%	15.3%	8.5%	**6.9%**	88,435	**2.2%**
3	1.33	20.0%	11.5%	9.0%	**2.5%**	50,951	**3.0%**
4	1.58	19.3%	10.8%	10.7%	**0.1%**	28,901	**3.9%**
5	1.43	22.3%	13.8%	9.7%	**4.1%**	17,572	**4.6%**
6	1.71	23.4%	14.8%	11.5%	**3.3%**	15,093	**4.9%**
7	1.62	28.1%	19.6%	10.9%	**8.6%**	9,521	**5.5%**
8	1.60	26.8%	18.3%	10.8%	**7.5%**	5,285	**6.4%**
9	1.48	26.7%	18.2%	10.0%	**8.1%**	3,025	**7.3%**
10-smallest	1.45	25.7%	17.2%	9.8%	**7.4%**	934	**9.0%**
Large-Cap 1-2	1.03	15.1%	6.6%	7.0%	**-0.4%**	1,42,895	**1.5%**
Mid-Cap 3-5	1.42	20.2%	11.7%	9.6%	**2.1%**	28,131	**3.9%**
Small-Cap 6-8	1.66	25.6%	17.1%	11.2%	**5.9%**	9,173	**5.6%**
Micro-Cap 9-10	1.47	26.1%	17.6%	9.9%	**7.6%**	1,478	**8.3%**

Figure 9: Size premium (2007-2020) regressed against sales

$y = -0.0345x + 0.1926$
$R^2 = 0.5109$
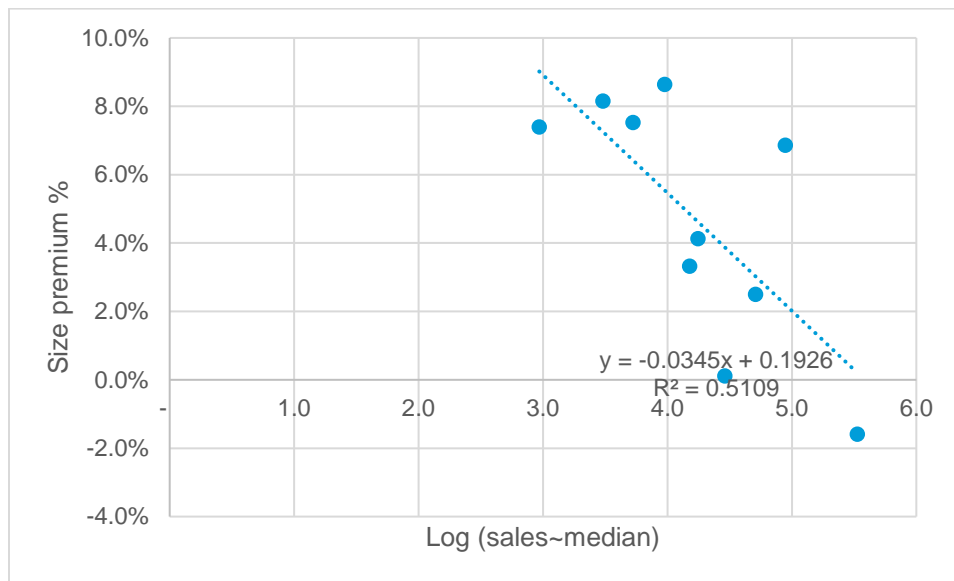
Table 8: Size premium (1995-2020) smoothed using operating profit

1995-2020							
Decile	SUM Beta	Annual return (Arithmetic mean)	Return in Excess of Risk-free Rate (actual)	Return in Excess of Risk-free Rate (as predicted by CAPM)	Size Premium	Median Operating Profits (INR million)	Smoothed Size Premium
1-Largest	1.00	15.5%	5.1%	5.3%	**-0.2%**	61,767	**3.3%**
2	1.26	23.7%	13.3%	6.7%	**6.6%**	15,564	**5.0%**
3	1.33	22.9%	12.5%	7.1%	**5.4%**	8,052	**5.8%**
4	1.58	24.7%	14.3%	8.5%	**5.8%**	4,902	**6.4%**
5	1.43	27.8%	17.4%	7.7%	**9.7%**	2,621	**7.2%**
6	1.71	27.4%	17.1%	9.1%	**7.9%**	1,981	**7.6%**
7	1.62	30.3%	20.0%	8.7%	**11.3%**	1,058	**8.3%**
8	1.60	29.4%	19.0%	8.5%	**10.5%**	566	**9.1%**
9	1.48	26.8%	16.4%	7.9%	**8.5%**	209	**10.3%**
10-smallest	1.45	28.4%	18.0%	7.8%	**10.2%**	34	**12.5%**
Large-Cap 1-2	1.03	16.6%	6.2%	5.5%	**0.6%**	23,823	**4.5%**
Mid-Cap 3-5	1.42	24.4%	14.0%	7.6%	**6.4%**	4,366	**6.6%**
Small-Cap 6-8	1.66	29.1%	18.7%	8.9%	**9.8%**	1,012	**8.4%**
Micro-Cap 9-10	1.47	27.7%	17.3%	7.9%	**9.5%**	89	**11.3%**

Figure 10: Size premium (1995-2020) regressed against operating profit

$y = -0.0282x + 0.1685$
$R^2 = 0.6045$

Size premium % (y-axis) vs Log(Operating profits ~ median) (x-axis)
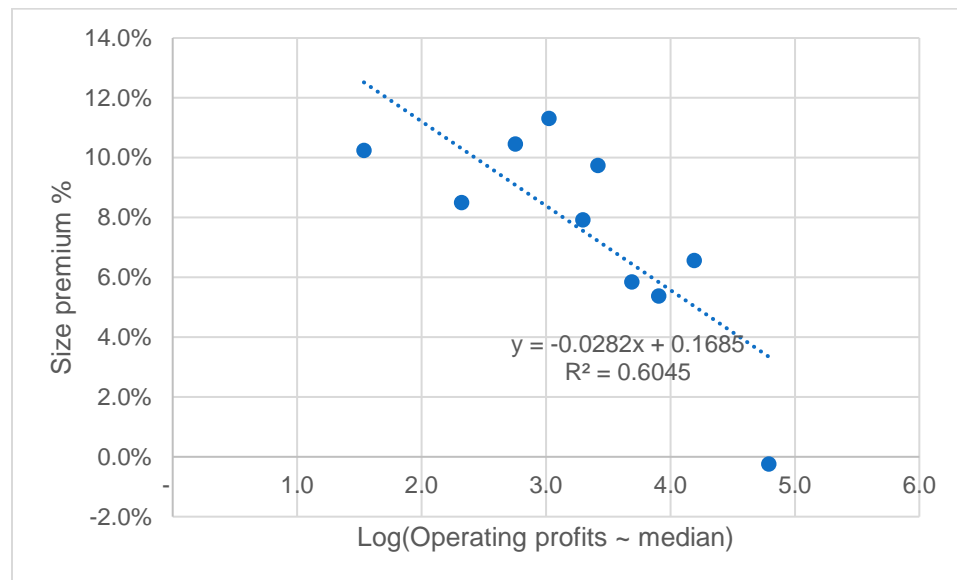
Table 9: Size premium (2007-2020) smoothed using operating profit

2007-2020							
Decile	SUM Beta	Annual return (Arithmetic mean)	Return in Excess of Risk-free Rate (actual)	Return in Excess of Risk-free Rate (as predicted by CAPM)	Size Premium	Median Operating Profits (INR million)	Smoothed Size Premium
1-Largest	1.00	13.6%	5.1%	6.7%	**-1.6%**	61,767	**0.7%**
2	1.26	23.8%	15.3%	8.5%	**6.9%**	15,564	**2.3%**
3	1.33	20.0%	11.5%	9.0%	**2.5%**	8,052	**3.1%**
4	1.58	19.3%	10.8%	10.7%	**0.1%**	4,902	**3.6%**
5	1.43	22.3%	13.8%	9.7%	**4.1%**	2,621	**4.4%**
6	1.71	23.4%	14.8%	11.5%	**3.3%**	1,981	**4.7%**
7	1.62	28.1%	19.6%	10.9%	**8.6%**	1,058	**5.4%**
8	1.60	26.8%	18.3%	10.8%	**7.5%**	566	**6.1%**
9	1.48	26.7%	18.2%	10.0%	**8.1%**	209	**7.3%**
10-smallest	1.45	25.7%	17.2%	9.8%	**7.4%**	34	**9.4%**
Large-Cap 1-2	1.03	15.1%	6.6%	7.0%	**-0.4%**	23,823	**1.8%**
Mid-Cap 3-5	1.42	20.2%	11.7%	9.6%	**2.1%**	4,366	**3.8%**
Small-Cap 6-8	1.66	25.6%	17.1%	11.2%	**5.9%**	1,012	**5.5%**
Micro-Cap 9-10	1.47	26.1%	17.6%	9.9%	**7.6%**	89	**8.3%**

Figure 11: Size premium (2007-2020) regressed against operating profit

$$y = -0.0268x + 0.1352$$
$$R^2 = 0.4977$$

Unit 1 - Framework for estimating the Size Premium

Unit 2 – Data Set and size groups

Unit 3 – measure of returns

Unit 4 – Estimate of returns (using CAPM)

Unit 5 –Size premium
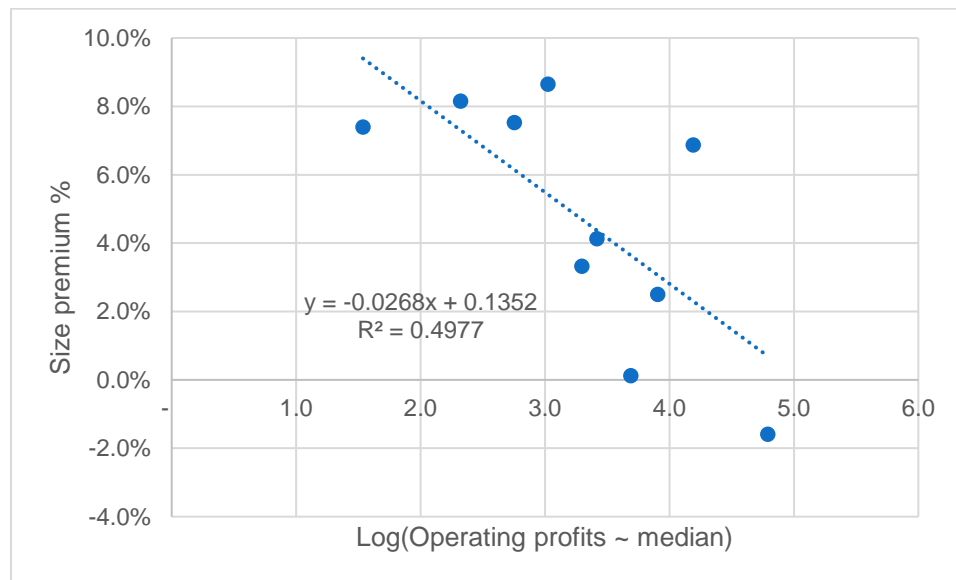
APPENDICES – SUMMARY OF SIZE PREMIA BY PORTFOLIO/DECILES

From 1995 to 2020

Table 10: Large-cap size premia[1]

To the end of	From the beginning of											
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1995	11.0%											
1996	6.2%	0.0%										
1997	5.5%	1.9%	3.6%									
1998	4.8%	1.9%	2.5%	1.3%								
1999	4.2%	2.4%	3.4%	3.3%	7.8%							
2000	5.1%	1.8%	1.1%	0.1%	-5.1%	4.3%						
2001	7.4%	4.7%	4.4%	4.5%	1.5%	12.2%	17.2%					
2002	1.6%	0.6%	1.0%	0.5%	1.7%	-2.4%	2.1%	10.1%				
2003	1.9%	1.3%	1.9%	1.7%	3.4%	-0.5%	4.0%	10.7%	12.9%			
2004	2.6%	2.0%	2.5%	2.4%	3.6%	1.2%	4.6%	8.6%	8.1%	6.4%		
2005	2.7%	2.0%	2.4%	2.2%	3.1%	1.5%	3.9%	6.1%	4.6%	3.7%	1.5%	
2006	2.3%	1.7%	2.0%	1.8%	2.5%	1.1%	3.0%	4.6%	3.0%	1.9%	0.0%	-1.5%
2007	2.7%	2.1%	2.4%	2.3%	2.8%	1.9%	3.5%	4.6%	3.2%	3.0%	2.2%	3.3%
2008	0.8%	-0.7%	-1.2%	-1.6%	-2.8%	-1.6%	-2.3%	-4.4%	-8.4%	-6.1%	-8.1%	-5.0%
2009	0.8%	-0.3%	-0.5%	-0.9%	-1.4%	-1.1%	-1.1%	-2.0%	-4.7%	-3.7%	-5.1%	-3.7%
2010	0.4%	-0.7%	-0.9%	-1.2%	-1.7%	-1.6%	-1.5%	-2.3%	-4.5%	-4.0%	-5.2%	-4.4%
2011	1.3%	0.6%	0.6%	0.4%	0.4%	0.0%	0.6%	0.6%	-0.8%	-0.8%	-1.5%	-1.1%
2012	1.6%	1.1%	1.2%	1.0%	1.3%	0.6%	1.4%	1.8%	0.9%	0.5%	-0.1%	-0.1%
2013	0.8%	0.1%	0.1%	-0.1%	-0.1%	-0.5%	0.0%	0.0%	-1.2%	-1.2%	-1.9%	-1.7%
2014	1.5%	1.1%	1.2%	1.0%	1.3%	0.6%	1.4%	1.8%	1.0%	0.6%	0.2%	0.1%
2015	1.0%	0.5%	0.5%	0.4%	0.4%	0.0%	0.5%	0.6%	-0.3%	-0.4%	-0.9%	-0.7%
2016	1.0%	0.5%	0.6%	0.4%	0.5%	0.1%	0.6%	0.7%	-0.2%	-0.3%	-0.7%	-0.5%
2017	1.1%	0.6%	0.6%	0.5%	0.5%	0.2%	0.6%	0.7%	-0.1%	-0.1%	-0.5%	-0.3%
2018	0.5%	0.0%	0.0%	-0.2%	-0.3%	-0.5%	-0.2%	-0.2%	-1.1%	-1.0%	-1.4%	-1.2%
2019	0.6%	0.1%	0.2%	0.0%	0.0%	-0.3%	0.1%	0.1%	-0.6%	-0.7%	-1.1%	-0.9%
2020	0.6%	0.2%	0.2%	0.0%	0.0%	-0.2%	0.1%	0.1%	-0.6%	-0.6%	-0.9%	-0.8%

From 1995 to 2020

To the end of	From the beginning of													
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
2006														
2007	9.6%													
2008	2.6%	17.3%												
2009	-0.5%	1.0%	-5.2%											
2010	-2.4%	-2.5%	-6.5%	-9.6%										
2011	0.0%	-1.2%	-0.7%	-3.7%	-0.3%									
2012	0.4%	-1.3%	0.3%	-3.3%	-2.1%	-1.5%								
2013	-1.0%	-2.0%	-1.8%	-3.6%	-2.5%	-3.5%	-3.8%							
2014	0.4%	-1.0%	0.4%	-2.0%	-1.2%	-0.5%	-0.2%	3.6%						
2015	-0.2%	-1.0%	-0.5%	-1.8%	-0.9%	-0.8%	-0.2%	1.6%	1.7%					
2016	0.0%	-0.8%	-0.3%	-1.4%	-0.5%	-0.4%	0.2%	1.6%	1.6%	1.4%				
2017	0.2%	-0.4%	0.0%	-0.8%	0.0%	0.2%	0.8%	1.9%	2.2%	2.3%	3.2%			
2018	-0.6%	-1.0%	-1.0%	-1.5%	-0.8%	-0.9%	-0.4%	0.2%	0.3%	-0.5%	-1.7%	-5.6%		
2019	-0.5%	-1.1%	-0.8%	-1.6%	-1.0%	-1.0%	-0.7%	-0.2%	-0.5%	-1.1%	-2.0%	-4.6%	-3.7%	
2020	-0.4%	-0.8%	-0.6%	-1.2%	-0.7%	-0.7%	-0.4%	0.1%	0.0%	-0.4%	-0.9%	-2.2%	-0.6%	2.5%

[1] Market benchmark used for beta and equity risk premia estimation: NIFTY50. Arithmetic mean is used for computing the annual returns.

Large-cap size premia

Mid-cap size premia

Small-cap size premia

Micro-cap size premia

From 1995 to 2020

Table 11: Mid-cap size premia[2]

To the end of	From the beginning of 1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1995	-14.4%											
1996	-7.0%	-12.5%										
1997	0.3%	-2.2%	4.7%									
1998	11.1%	12.0%	21.6%	38.4%								
1999	10.1%	12.3%	20.2%	27.9%	26.0%							
2000	7.0%	8.0%	12.7%	15.3%	7.5%	-8.7%						
2001	7.0%	7.4%	10.8%	12.3%	5.2%	-1.6%	2.7%					
2002	10.1%	11.2%	14.7%	16.7%	12.9%	9.9%	18.7%	36.8%				
2003	13.9%	16.0%	20.2%	22.9%	22.5%	19.2%	30.7%	50.5%	69.0%			
2004	14.2%	16.2%	19.9%	22.1%	21.6%	18.9%	27.4%	39.4%	43.1%	17.4%		
2005	14.7%	16.6%	20.1%	22.1%	22.0%	19.0%	26.4%	35.9%	37.7%	19.9%	21.6%	
2006	13.2%	15.0%	18.0%	19.5%	19.2%	16.0%	21.8%	28.7%	28.5%	12.9%	10.2%	-2.5%
2007	13.4%	14.8%	17.4%	18.7%	18.0%	15.8%	20.3%	25.2%	23.8%	12.5%	10.8%	6.9%
2008	10.1%	10.0%	11.3%	11.9%	9.0%	9.5%	10.4%	10.1%	4.6%	-1.8%	-5.3%	-5.5%
2009	10.1%	10.1%	11.4%	11.9%	9.3%	9.6%	10.6%	10.5%	6.0%	0.5%	-1.9%	-1.6%
2010	9.4%	9.4%	10.6%	11.1%	8.8%	8.7%	9.7%	9.7%	5.8%	0.6%	-1.5%	-1.6%
2011	10.2%	10.6%	12.0%	12.5%	11.0%	10.1%	11.7%	12.7%	10.0%	4.5%	3.1%	2.3%
2012	9.6%	9.9%	11.1%	11.6%	10.0%	9.3%	10.6%	11.3%	8.7%	3.9%	2.5%	2.0%
2013	7.7%	7.8%	8.7%	8.9%	7.1%	6.6%	7.4%	7.5%	4.6%	0.4%	-1.1%	-1.5%
2014	8.5%	8.7%	9.6%	9.9%	8.3%	7.9%	8.7%	9.0%	6.5%	2.7%	1.6%	1.4%
2015	8.7%	8.7%	9.6%	9.9%	8.3%	8.0%	8.7%	8.8%	6.4%	3.2%	2.3%	2.4%
2016	8.0%	8.0%	8.8%	9.0%	7.3%	7.2%	7.7%	7.6%	5.1%	2.4%	1.5%	1.8%
2017	8.7%	8.8%	9.6%	9.8%	8.4%	8.2%	8.8%	8.9%	6.8%	4.1%	3.4%	3.5%
2018	7.9%	8.1%	8.9%	9.1%	7.9%	7.3%	8.0%	8.4%	6.5%	3.5%	2.7%	2.5%
2019	7.9%	8.2%	9.1%	9.3%	8.3%	7.3%	8.3%	9.0%	7.5%	4.1%	3.3%	2.6%
2020	6.4%	6.4%	7.0%	7.1%	5.8%	5.4%	5.8%	5.8%	4.0%	1.4%	0.6%	0.5%

From 1995 to 2020

To the end of	From the beginning of 2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
2006														
2007	20.3%													
2008	6.5%	22.4%												
2009	7.3%	14.8%	9.3%											
2010	4.4%	7.3%	2.7%	-8.1%										
2011	6.2%	6.2%	7.0%	-3.0%	-1.6%									
2012	5.5%	5.7%	5.5%	-0.8%	1.3%	3.2%								
2013	1.5%	1.9%	-0.2%	-4.8%	-4.1%	-7.2%	-15.6%							
2014	4.2%	4.7%	3.8%	0.6%	2.3%	2.6%	3.0%	21.6%						
2015	5.3%	6.1%	5.1%	3.2%	5.2%	5.8%	7.6%	19.2%	18.1%					
2016	4.6%	5.7%	4.2%	3.1%	5.0%	5.0%	6.5%	13.8%	11.5%	3.8%				
2017	6.0%	6.8%	6.0%	4.7%	6.4%	7.0%	8.3%	14.2%	12.2%	9.3%	15.3%			
2018	4.2%	4.2%	4.0%	1.8%	2.6%	3.1%	3.1%	6.8%	2.7%	-1.8%	-3.9%	-25.6%		
2019	3.7%	3.0%	3.6%	0.4%	0.7%	1.4%	0.7%	3.4%	-1.5%	-5.3%	-7.4%	-21.7%	-18.3%	
2020	2.1%	2.3%	1.5%	0.0%	0.6%	0.5%	0.4%	2.7%	-0.4%	-4.0%	-5.8%	-13.0%	-6.6%	5.1%

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[2] Market benchmark used for beta and equity risk premia estimation: NIFTY50. Arithmetic mean is used for computing the annual returns.

From 1995 to 2020

Table 12: Small-cap size premia[3]

To the end of	From the beginning of											
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1995	10.4%											
1996	-6.6%	-13.7%										
1997	-1.7%	-10.8%	-16.6%									
1998	12.3%	11.1%	19.2%	55.1%								
1999	13.8%	14.1%	21.3%	40.3%	29.8%							
2000	9.6%	9.6%	14.2%	24.6%	13.1%	-9.5%						
2001	8.8%	8.7%	12.2%	19.4%	10.1%	-3.0%	3.9%					
2002	12.2%	12.9%	16.7%	23.5%	18.2%	10.5%	22.0%	43.5%				
2003	17.7%	19.5%	24.1%	30.9%	29.2%	23.9%	37.7%	59.4%	78.4%			
2004	18.9%	20.5%	24.5%	30.4%	28.6%	24.9%	35.0%	47.9%	51.1%	27.0%		
2005	20.6%	22.5%	26.4%	31.9%	31.0%	27.2%	36.5%	47.6%	50.4%	34.8%	41.5%	
2006	17.0%	18.2%	21.2%	25.5%	23.7%	19.9%	26.1%	32.4%	30.4%	14.6%	8.1%	-22.8%
2007	17.9%	19.2%	22.1%	26.0%	24.5%	21.1%	26.7%	32.3%	30.8%	18.5%	15.4%	3.0%
2008	13.7%	13.4%	15.0%	17.8%	14.0%	13.4%	15.2%	15.2%	9.2%	1.5%	-3.7%	-10.6%
2009	13.2%	12.4%	13.5%	16.0%	11.7%	12.3%	12.9%	11.3%	4.9%	0.3%	-3.6%	-6.0%
2010	13.6%	13.4%	14.7%	17.1%	13.9%	13.4%	14.7%	14.6%	10.1%	4.9%	1.9%	-0.9%
2011	13.2%	13.1%	14.3%	16.6%	13.7%	12.9%	14.3%	14.4%	10.4%	5.4%	2.9%	0.2%
2012	13.2%	13.2%	14.4%	16.5%	14.0%	12.9%	14.4%	14.9%	11.5%	6.7%	4.5%	1.9%
2013	10.7%	10.4%	11.3%	13.0%	10.2%	9.5%	10.3%	9.9%	6.1%	2.0%	-0.3%	-2.4%
2014	12.5%	12.2%	13.1%	14.9%	12.3%	11.8%	12.7%	12.4%	9.2%	5.8%	4.2%	2.9%
2015	14.0%	14.0%	15.0%	16.8%	14.6%	14.0%	15.1%	15.3%	12.7%	9.5%	8.2%	7.1%
2016	12.8%	12.6%	13.4%	15.0%	12.6%	12.4%	13.1%	12.8%	10.0%	7.4%	6.1%	5.4%
2017	14.4%	14.3%	15.3%	16.9%	14.8%	14.5%	15.4%	15.5%	13.1%	10.6%	9.7%	9.1%
2018	12.6%	12.5%	13.3%	14.8%	12.8%	12.2%	13.1%	13.1%	10.8%	8.1%	7.1%	6.1%
2019	11.3%	11.3%	12.1%	13.4%	11.6%	10.7%	11.6%	11.8%	9.7%	6.7%	5.5%	4.1%
2020	9.8%	9.5%	10.0%	11.1%	9.0%	8.7%	9.0%	8.5%	6.0%	3.9%	2.9%	2.2%

From 1995 to 2020

To the end of	From the beginning of													
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
2006														
2007	27.6%													
2008	6.4%	14.8%												
2009	10.3%	23.4%	15.9%											
2010	10.1%	14.5%	13.8%	-4.5%										
2011	8.8%	10.8%	10.5%	-2.5%	-1.8%									
2012	8.7%	9.4%	10.2%	-0.6%	-0.1%	4.1%								
2013	3.6%	4.6%	2.5%	-5.1%	-5.4%	-8.0%	-17.1%							
2014	9.0%	10.8%	9.8%	5.5%	8.0%	10.6%	15.6%	48.3%						
2015	12.6%	14.0%	14.4%	10.6%	13.4%	17.2%	22.1%	41.8%	32.8%					
2016	10.6%	12.4%	11.6%	9.1%	11.5%	13.5%	16.9%	28.2%	18.7%	2.5%				
2017	13.9%	15.4%	15.6%	13.3%	15.7%	18.5%	21.9%	31.6%	25.7%	21.8%	41.6%			
2018	10.1%	10.9%	10.9%	8.0%	9.4%	11.0%	12.5%	18.4%	10.3%	2.8%	3.4%	-35.8%		
2019	7.3%	7.2%	7.6%	3.8%	4.3%	5.5%	5.6%	9.4%	0.4%	-7.2%	-9.7%	-37.3%	-39.1%	
2020	5.9%	7.0%	5.8%	4.0%	5.0%	5.2%	6.0%	9.3%	3.3%	-3.2%	-4.8%	-19.3%	-10.8%	17.5%

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[3] Market benchmark used for beta and equity risk premia estimation: NIFTY50. Arithmetic mean is used for computing the annual returns.

From 1995 to 2020

Table 13: Micro-cap size premia[4]

To the end of	From the beginning of											
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1995	-7.6%											
1996	-22.7%	-33.2%										
1997	-16.2%	-26.5%	-28.7%									
1998	-6.0%	-9.2%	-1.5%	25.7%								
1999	0.3%	0.0%	8.7%	27.4%	31.6%							
2000	-1.5%	-1.2%	5.6%	17.1%	16.9%	-8.5%						
2001	-2.2%	-1.5%	4.1%	12.4%	11.8%	-6.5%	-1.2%					
2002	4.1%	5.1%	10.7%	18.7%	19.0%	11.2%	21.1%	39.4%				
2003	9.8%	11.8%	17.7%	25.5%	27.7%	22.7%	34.1%	51.6%	65.8%			
2004	15.6%	17.6%	23.3%	30.8%	32.8%	31.3%	41.0%	53.2%	59.8%	61.6%		
2005	16.9%	19.5%	25.1%	31.9%	34.9%	31.6%	41.0%	52.5%	58.3%	51.4%	38.9%	
2006	13.3%	15.1%	19.7%	25.1%	26.6%	23.2%	29.2%	35.7%	35.5%	24.4%	5.0%	-26.6%
2007	16.0%	18.2%	22.7%	27.9%	30.0%	26.6%	32.7%	39.4%	40.5%	31.8%	20.9%	10.8%
2008	11.6%	12.2%	15.2%	19.2%	18.5%	17.7%	19.8%	20.5%	16.3%	11.2%	-0.8%	-6.8%
2009	9.5%	9.2%	11.4%	14.7%	12.7%	13.5%	13.6%	11.7%	5.8%	3.3%	-7.2%	-9.5%
2010	10.8%	11.1%	13.6%	16.9%	16.0%	15.3%	16.7%	16.7%	13.0%	9.1%	0.9%	-2.2%
2011	11.4%	12.2%	14.8%	18.0%	17.8%	16.2%	18.2%	19.4%	17.0%	12.2%	5.2%	1.6%
2012	10.3%	10.9%	13.2%	16.0%	15.6%	14.2%	15.7%	16.3%	13.6%	9.5%	3.2%	0.3%
2013	8.5%	8.8%	10.8%	13.3%	12.6%	11.3%	12.4%	12.5%	9.6%	5.8%	-0.2%	-2.9%
2014	8.6%	8.6%	10.3%	12.6%	11.5%	11.1%	11.5%	10.8%	7.6%	5.3%	0.1%	-1.1%
2015	12.8%	13.4%	15.4%	17.9%	17.6%	16.7%	18.0%	18.6%	16.7%	14.0%	9.8%	8.5%
2016	12.1%	12.4%	14.3%	16.5%	16.0%	15.4%	16.4%	16.5%	14.4%	12.2%	8.3%	7.5%
2017	13.2%	13.7%	15.6%	17.8%	17.5%	16.8%	17.9%	18.2%	16.5%	14.4%	10.9%	10.1%
2018	11.6%	12.1%	13.9%	15.9%	15.6%	14.6%	15.7%	16.1%	14.5%	12.0%	8.5%	7.2%
2019	10.0%	10.5%	12.2%	14.1%	13.9%	12.5%	13.6%	14.2%	12.7%	9.8%	6.3%	4.6%
2020	9.5%	9.7%	11.1%	12.8%	12.3%	11.6%	12.1%	12.1%	10.2%	8.3%	5.1%	4.2%

From 1995 to 2020

To the end of	From the beginning of													
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
2006														
2007	43.8%													
2008	12.6%	11.4%												
2009	7.5%	14.0%	-5.9%											
2010	9.0%	8.0%	5.3%	-5.6%										
2011	9.2%	5.0%	7.6%	-5.3%	-9.8%									
2012	6.9%	4.0%	4.5%	-3.4%	-4.0%	-0.4%								
2013	2.7%	0.0%	-1.1%	-7.6%	-9.0%	-10.5%	-19.5%							
2014	5.2%	5.2%	2.6%	1.5%	3.8%	4.7%	10.5%	40.3%						
2015	14.0%	13.2%	14.5%	12.6%	15.6%	21.2%	28.6%	52.7%	57.4%					
2016	12.8%	12.7%	12.9%	12.1%	14.9%	18.6%	24.1%	38.6%	35.5%	11.6%				
2017	14.8%	14.5%	15.4%	14.4%	17.0%	20.7%	25.3%	36.5%	33.0%	20.4%	29.9%			
2018	10.9%	9.7%	10.8%	8.5%	9.7%	12.4%	14.4%	21.1%	13.9%	-0.2%	-5.3%	-43.0%		
2019	7.6%	5.8%	6.9%	3.8%	4.2%	6.2%	6.7%	11.0%	2.6%	-10.3%	-16.8%	-42.5%	-42.3%	
2020	7.6%	7.0%	6.8%	5.6%	6.6%	7.8%	9.2%	13.3%	7.9%	-2.3%	-5.8%	-17.3%	-4.2%	34.0%

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[4] Market benchmark used for beta and equity risk premia estimation: NIFTY50. Arithmetic mean is used for computing the annual returns.

Unit 1 - Framework for estimating the Size Premium

Unit 2 – Data Set and size groups

Unit 3 – measure of returns

Unit 4 – Estimate of returns (using CAPM)

Unit 5 –Size premium

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About Authors

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 a couple of startups before moving onto become Global Head of Research at one of the largest BPO/KPO globally and then finally co-founded Incwert.

He won 40 under 40 Alternative Professionals Awards 2020 by AIWMI

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, fundraising, 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 the National Institute of Finance Management (NIFM).

Professor Divya Aggarwal holds a PhD 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.

Large-cap size premia

Mid-cap size premia

Small-cap size premia

Micro-cap size premia

ABOUT INCWERT

Incwert Advisory Private Limited 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 the transaction, tax and financial reporting. Incwert is trusted by the 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.

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