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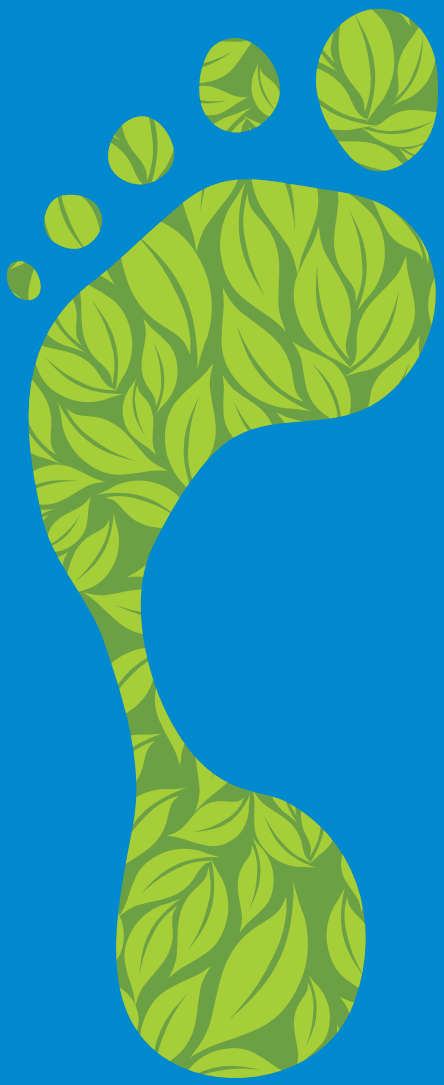

BSE CARBONEX FACTSHEET

Executive Summary

The awareness of climate change due to emission of green houses gases in the corporate world and their initiatives to offset its adverse effects are going to be considered as one of the greatest and widest ranging market parameter which will be factored progressively in stock pricing in the years to come by the modern day efficient markets. Investors, particularly the Institutional Investors, feel the need to address the long term investment consequences of climate change in order to avoid sudden major adjustments. BSE CARBONEX has been created as a response to their identified needs to develop sophisticated approaches to portfolio management that incorporate climate change risk and opportunity.

BSE CARBONEX incorporates forward looking criteria that assess the potential future consequences of climate change and economic responses to it. Companies that understand the risks and opportunities, and position themselves well in relation to them, will deliver higher long run returns than those which fail to adapt.

BSE CARBONEX uses tilted versions of BSE-100 index (well-established since January, 1989). Weights of the constituents are adjusted to reflect their climate risk relative to industry peers. Overall industry values remain the same as the underlying index, but individual constituents may be over or under-weighted relative to the BSE-100 index.

BSE Index Partners

- **FUNDED BY**

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British High Commission, New Delhi Office, in India has generously supported the index development programme.

- **KNOWLEDGE PARTNER**

ENDS carbon

ENDS Carbon, London, specialist in ESG (Environment, Social & Governance) ratings and benchmark services.

- **DATA PARTNER**

CARBON DISCLOSURE PROJECT

CDP (CARBON DISCLOSURE PROJECT, LONDON), the largest and most continuous set of climate change data provider.

Key Principles

1 Carbon Risks

Climate change is expected to have differential impacts on the profit potential of firms listed in India's equity indexes.

2 Future Orientated

Past history and current positioning may not be a reliable guide to future relative performance. The index criteria include and emphasise future risks, opportunities and commitments.

3 Public Information

High quality, comparable information and supporting verifiable data are the most critical commodities for well governed and smoothly functioning capital markets. The index relies on publicly available data as a fundamental requirement of market function.

4 Tracking Error and Performance

The index is designed to signal and track investment potential over extended timeframes, of a decade or more. The Index aims to track the underlying benchmark BSE-100 index closely, and includes all the relevant constituents of BSE-100 index.

5 Index Development

A development pathway has been agreed that will result in progressively more emphasis being placed on performance and stronger risk-based tilting in high-risk industries.

Investment Hypotheses

BSE CARBONEX is based on two hypotheses.

Carbon Efficiency Hypothesis

Managing a business for carbon efficiency can lead to substantial benefits for an organisation including:

- Reduced operating costs
- Product and process innovation
- Enhanced relationships with customers, suppliers, employees and other stakeholders

Despite these advantages many business find managing for carbon efficiency difficult and therefore it may act as a useful proxy for management quality; managements achieving relatively better outcomes for carbon efficiency may find it easier to deliver outperformance on other issues as well.

The carbon efficiency hypothesis applies to all companies and justifies a modest tilt for all constituents of the index. Currently companies will only be tilted on the basis of the Carbon Efficiency Hypothesis.

Material Risk Hypothesis

As carbon regulation becomes more widespread and consistent, and as the impacts of climate change become more visible, it is likely that some industries and companies will be more affected than others. Management is expected to identify and manage current and future material risk. Companies which can demonstrate effective management of material climate risks including those from regulatory, physical and other sources are likely to be a more attractive long term investment proposition than those which cannot.

When used, the material risk hypothesis will tilt companies in affected industries strongly based on specific modelling of company level positioning.

About BSE CARBONEX

Index Construction

BSE CARBONEX is a 'tilted' version of a benchmark BSE-100 index. Companies are 'tilted' against their Industry level peers, so that broadly comparable companies are being compared with each other. Constituents are over or underweighted compared to the benchmark based on their performance in the assessment process. Companies in an industry that achieve the strongest assessment scores are favoured at the expense of those producing poor results.

BSE CARBONEX is also 'industry neutral'. An investor who shifted their entire investment from the BSE-100 index to the corresponding BSE CARBONEX would maintain the same overall level of investment in each Industry. Investors therefore retain a substantial exposure to the full range of companies in the index.

Companies in high risk (usually energy intensive) Industries have a stronger potential tilt than those in lower risk Industries. However since all tilts are currently based on the weak Carbon Efficiency Hypothesis, overall tilt levels are low: 2.5% for low risk, and 10% for high risk, industries (expressed as a percentage of the free-float market capitalisation as used in the BSE-100 index).

Research & Adjustment Cycles

All constituents of BSE-100 index are included in the BSE CARBONEX. A principal research exercise is carried out annually timed to coincide with the CDP reporting cycle. Other public domain resources (websites, annual and voluntary reports) are researched at the same time, and relevant data incorporated if it contributes to the assessment.

Index factors are recomputed twice each year in line with the cycle for BSE-100 index constituent reviews. Major events may lead, exceptionally, to additional reviews.

Assessment Process and Framework

Constituents are assessed based on the following sources of information:

- CDP Responses
- Corporate Responsibility Reports
- Corporate Annual Reports
- Corporate Websites

All companies' management practices are assessed. The assessment focuses on climate change and has four 'Themes': Reporting & Disclosure; Strategy & Governance; Performance & Achievement; and Ecosystem Action.

Each theme is comprised of three Key Performance Indicators (KPI); each KPI has at least one indicator that contributes to the KPI outcome. Indicators and KPIs are valued differently, depending on their perceived contribution to effective climate change management practices.

Levels of disclosure are currently weak in many emerging markets. Currently, the index emphasises the importance of publishing high quality information, especially about management's approach, in preference to performance assessment.

Final company scores are converted to a standard rating in the range +2.5 to -2.5, based on how well they compare to the best and worst scores in the universe of companies being assessed. These ratings are then used to calculate the final tilt adjustment.

Theme	Value	Key Performance Indicators
Reporting & Disclosure	30%	Report Framework Report Quality Decision Support
Strategy & Governance	40%	Organisational Policy Organisational Accountability Risk Assessment
Performance & Achievement	20%	Strategic Responses Trend Performance Current Relative Positioning
Ecosystem Action	10%	Policy Engagement Supply Chain Engagement Stakeholder Engagement

Overall Performance

Scores range from 0 to 72.2. 87% of BSE constituents achieve a score greater than 0. The average score for the index as a whole is 24.3. Constituents in the Software and Services Industry Group achieve the highest scores overall; the minimum score achieved in this Industry Group is higher than the highest scores achieved in nearly all other industry Groups.

Four Industry Groups are responsible for more than 50% of BSE 100 total market capitalisation. Three of these groups score on average well above the average for constituents of the index as a whole (see Table 1).

TABLE 1: Performance of the 4 largest Industry Groups

Industry Group	Min	Mean	Max
Banks	0	8.1	35.6
Oil & Gas	28.8	44.5	61.5
Software & Services	57.2	64.5	72.2
Capital Goods	4.8	35.4	69.6
BSE Carbonex	0	24.3	72.2

Three of the energy intensive industries (Construction Materials, Oil & Gas, Metals & Mining, & Utilities) perform very well relative to the index average; Utilities stand out as having more to do to demonstrate their stance (Table 2).

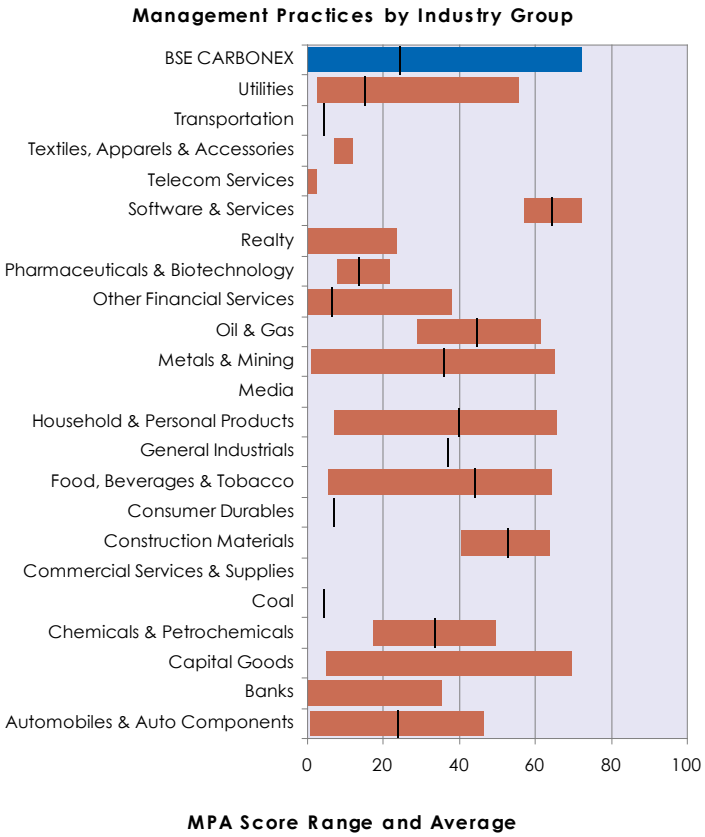
TABLE 2: Performance in the energy-intensive Industries

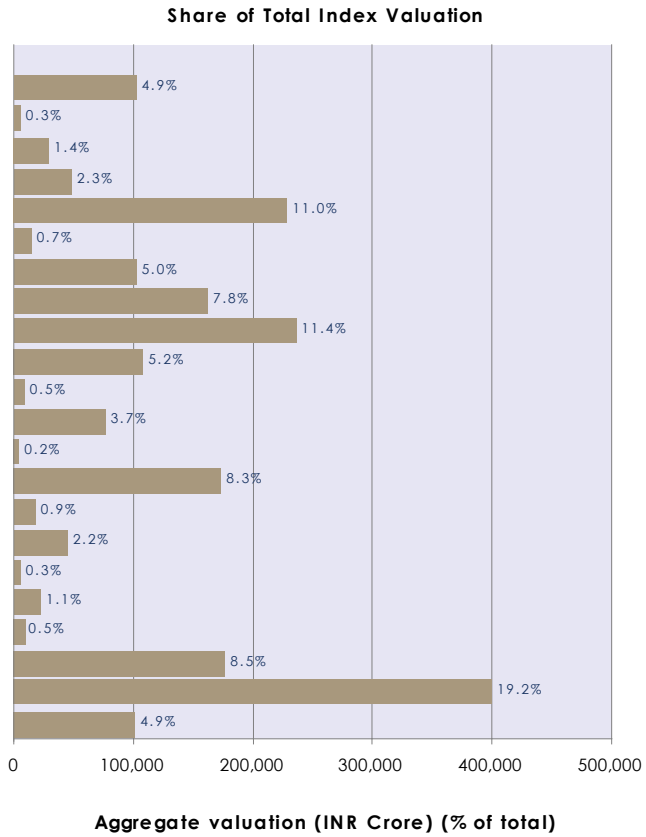
Industry Group	Min	Mean	Max
Utilities	2.4	15.0	55.7
Metals & Mining	1	36.0	65.1
Oil & Gas	28.8	44.5	61.5
Construction Materials	40.6	52.6	63.7
BSE Carbonex	0	24.3	72.2

More than one quarter (27%) of BSE 100 Index value is represented by the Financial Services sector. The two Industry Groups that make up this sector (Banks and Other Financial Services) score well below the average for the index as a whole and are among the lowest scoring in the Index (Table 3). Given the importance of this sector to investors, the role that it plays in the wider economy, and the indirect exposure to the implications of climate change through their own investment activity, greater information about the approach taken to managing climate change risk in their activities is desirable.

TABLE 3: Performance of the Financial Sector

Industry Group	Min	Mean	Max
Other Financial Services	0	6.5	38
Banks	0	8.1	35.6
BSE Carbonex	0	24.3	72.2

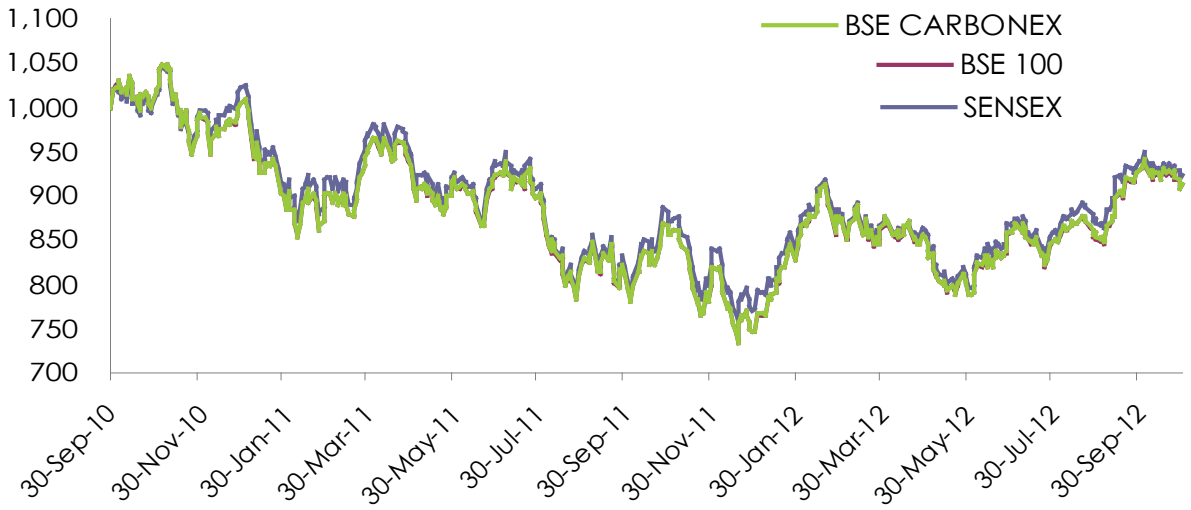




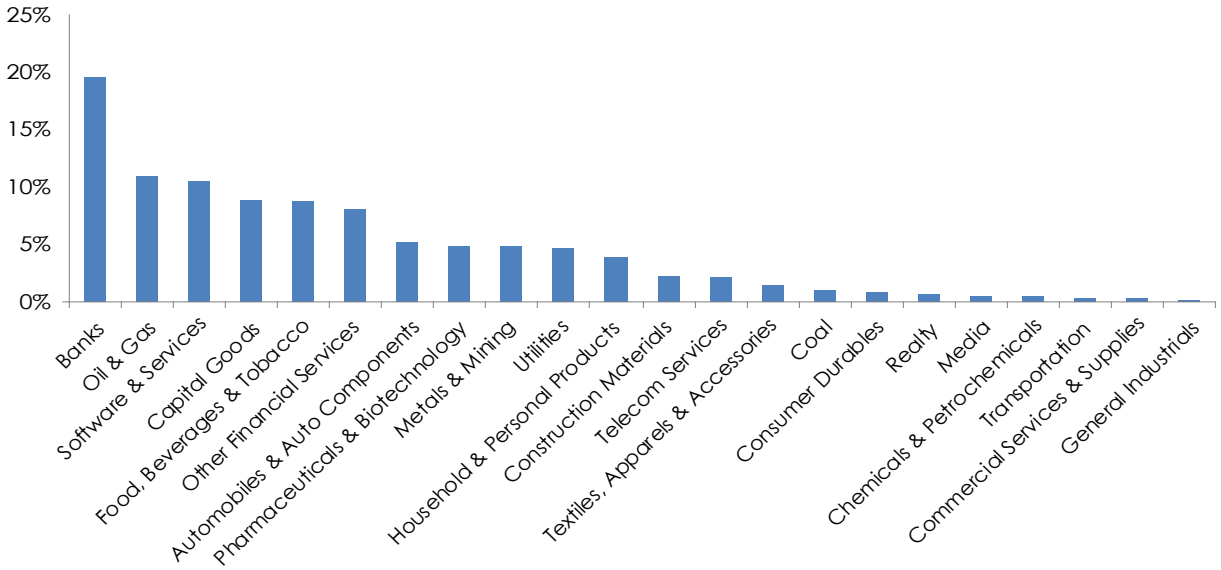
BSE CARBONEX Statistics till October 31, 2012

Returns	BSE CARBONEX	BSE 100	SENSEX
1 Year	5.43%	5.38%	4.52%
2 Year	-8.80%	-8.92%	-7.62%
Since Inception	-8.71%	-8.81%	-7.79%

Volatility	BSE CARBONEX	BSE 100	SENSEX
1 Year	1.0692%	1.0698%	1.0589%
2 Year	1.1468%	1.1476%	1.1678%
Since Inception	1.1411%	1.1419%	1.1632%



Index Performance since Inception



Sector Representation

Top 10 Constituents in BSE CARBONEX

Name	% Market Capitalization
ITC Ltd.	7.11%
Reliance Industries Ltd.	6.48%
ICICI Bank Ltd.	5.54%
HDFC Bank Ltd.	5.48%
Housing Development Finance Corporation Ltd.	5.30%
INFOSYS Ltd.	5.27%
Larsen & Toubro Ltd.	4.21%
TCS Ltd.	3.49%
Hindustan Unilever Ltd.	2.73%
Oil And Natural Gas Corporation Ltd.	2.68%

Easy Facts

Number of Constituents	100 (Fixed)
Weighing	Carbon Adj. Free Float MCap
Index Constituents Review	Bi-annual
Carbon Score Review	Annual
Base Value	1000
Base Date	30 September 2010
Calculation Frequency	Real time
Dividend Adjusted Index	Total Return Index available
Back-tested history	Since 30 September 2010
Date of Launch	30 November 2012

Broard

- SENSEX
- BSE MIDCAP
- BSE SMALLCAP
- BSE 100
- BSE 200
- BSE 500

Sectoral

- BSE CONSUMER DURABLE
- BSE AUTO
- BSE CAPITAL GOODS
- BSE Reality Index
- BSE METAL
- BSE BANKEX
- BSE FMCG
- BSE PSU Index
- BSE POWER
- BSE HEALTHCARE
- BSE OIL & GAS
- BSE IT
- BSE TECK

Thematic

- BSE TASIS SHARIAH 50
- BSE GREENEX
- BSE CARBONEX

Investment Stratery

- BSE IPO
- DOLLEX 30
- DOLLEX 100
- DOLLEX 200

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