

# THE WORLD'S FASTEST EXCHANGE WITH A SPEED OF 6 MICROSECONDS











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### **Evolution**







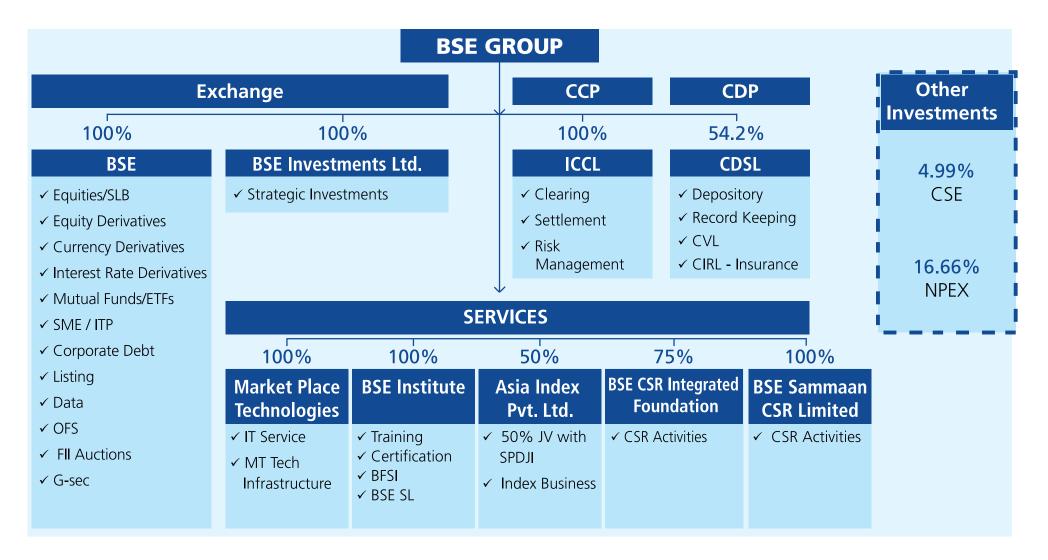


### **Key Milestones**

Date	Milestones
28th Apr 2016	BSE signs Memorandum of Understanding with Korea Exchange (KRX) to launch S&P BSE Sensex based derivatives contracts at KRX
05th Apr 2016	BSE & CMIE launch world's first high-frequency data on unemployment and consumer sentiments
09th July 2015	BSE celebrated its 140th Foundation Day
19th Feb 2013	BSE enters into Strategic Partnership with S&P Dow Jones Indices
15th Jan 2011	Co-location facility at BSE - tie up with Netmagic
14th Mar 1995	BSE On-Line Trading (BOLT) system introduced
2nd Jan 1986	S&P BSE SENSEX , country's first equity index launched (Base Year:1978-79 =100)
31st Aug 1957	BSE granted permanent recognition under Securities Contracts (Regulation) Act (SCRA)
9th Jul 1875	The Native Share & Stock Broker's Association formed



#### **BSE Group – A Complete Securities Eco-system**





#### **Partners in Progress**

#### Highlights



- ✓ Alliance with leading global exchanges
  - Deutsche Börse
  - Singapore Exchange
- ✓ Key local Indian investors provide credibility and support
- ✓ Cross listing of benchmark index S&P BSE SENSEX in BRICS countries



√ 4.75% investment in BSE as key user and supporter of platform



✓ Sensex Licensing to Korea Exchange



✓ SGX has invested 4.75% investment in BSE to build Asian gateway of securities and derivatives





- ✓ Board Presence
- ✓ Eurex T7 trading architecture
- √ 4.75% investment in BSE to expand Asia presence and increase footprint in multiple time zones



- ✓ Calculation & maintenance of all BSE Indices
- ✓ Index Product sales abroad
- ✓ Partnership on Index products



- √ 4.68% investment in BSE as key user and supporter of platform
- ✓ Board Presence



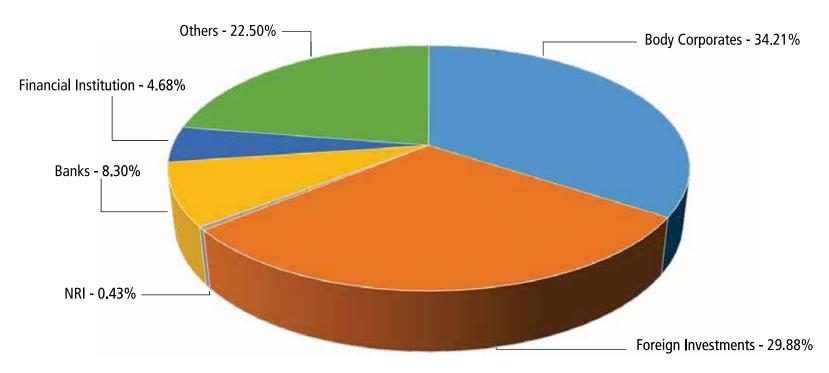
✓ Listing of Sensex



### **Shareholding Pattern**

### Paid up Capital Rs. 10.74 crs. | Face Value per share 1/- each

### **Categorywise Shareholding Pattern (%)**



All 19 nationalized banks are our shareholders



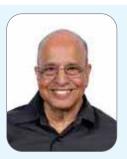
### **Board of Directors**



Mr. Sudhakar Rao Chairman & Public Interest Director Retd. IAS



Mr. Ashishkumar Chauhan Managing Director & CEO



**Dr. Krishnaswamy Kasturirangan**Public Interest Director
Retd. Chairman, ISRO



Mr. Dhirendra Swarup
Public Interest Director



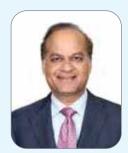
Mr. Sethurathnam Ravi Public Interest Director



Mr. Sumit Bose Public Interest Director Retd. IAS



Justice (Rtd) Mr. Vikramajit Sen Public Interest Director



Dr. Sriprakash Kothari Shareholder Director



Ms. Usha Sangwan
Shareholder Director



Mr. Thomas Bendixen
Shareholder Director



Ms. Rajeshree Sabnavis Shareholder Director



#### **Management Team**



**Ashishkumar Chauhan** Managing Director & Chief Executive Officer

- Ashishkumar Chauhan one of the founders of India's National Stock Exchange ("NSE") where he worked from 1992 to 2000. At NSE, he was instrumental in setting up the first screen based trading in India, equities market and first commercial satellite communications network for India. He is best known as the father of modern financial derivatives in India. He also created several path breaking frameworks including Nifty index, NSE certifications in financial markets etc. From 2000 to 2009, he worked as the President and Chief Information Officer of Reliance group.
- He is a part of several committees of World Federation of Exchanges ("WFE"), Government of India ("GOI"), Reserve Bank of India ("RBI"), Securities and Exchange Board of India ("SEBI"), Confederation of Indian Industry ("CII"), Federation of Indian Chambers of Commerce and Industry ("FICCI"), Indian Merchants Chamber ("IMC"), India UK council ("UKIBC") etc. He is also associated with several NGOs and education institutions. His quotes and writings have been published in various newspapers, magazines and journals in India and abroad.
- He holds a B Tech in Mechanical Engineering from IIT Bombay and a PGDM from IIM Kolkata.



V Balasubramaniam Chief Business Officer

- V Bala heads the business development encompassing Equities, Equity Derivatives, Debt, Interest Rate Futures, Currency Derivatives, Mutual Fund Distribution platform & SME platform at BSE and is also in-charge of all the new initiatives planned by BSE including the setting up of Commodities Market and the international exchanges in GIFT City.
- He is a board member for Futures Industry Association ASIA, CDSL (Central Depository Services (India) Ltd), BSE Institute Limited, BSE SAMMAN Limited and a Co-Chair of the Capital Markets Working Group of FICCI. He has over two decades of experience in the capital markets industry and has previously worked with Reliance Group and as co-founder of Marketplace Technologies.
- He was part of the core team involved in setting up the National Stock Exchange in 1993 and was involved in roll out of the Capital Market Segment, Creation of NSCCL, Nifty, NCFM and Futures & Options Segment.
- He has completed his Masters in Commerce from the University of Mumbai and is a Rank holder from the Institute of Cost Accountants of India.



**Nehal Vora** Chief Regulatory Officer

- Nehal Vora heads the regulatory functions of the exchange including membership compliance, surveillance, inspection, investigation, regulatory communication, investor services, listing compliance, regulatory legal and corporate secretarial. He is a Board member of Indian Clearing Corporation Limited (ICCL) and of Central Depository Services Limited (CDSL). His other Board Memberships include that of National Power Exchange Limited, BSE Investments Limited, BSE Sammaan CSR Exchange and Institutional Investor Advisory Services India Limited (IIAS).
- He has more than 19 years of experience in the area of legal and compliance. He has previously worked at the Securities and Exchange Board of India (SEBI) for 10 years and as Director, Law & Compliance at DSP Merrill Lynch Ltd heading Broking and Investment Banking Compliance
- Nehal has completed his Bachelors of Commerce from Mumbai University and Master of Management Studies from Narsee Monjee Institute of Management Studies, University of Mumbai



#### **Management Team (Contd...)**



Nayan Mehta Chief Financial Officer

- Nayan Mehta currently heads all finance, accounting, treasury and taxation functions of the Exchange. He represents BSE as the Senior Vice Chairman on the Executive Board of the South Asian Federation of Exchanges. He represents BSE on the Boards of group companies and joint ventures of BSE and as a member of the Qualified Audit Review Committee of SEBI.
- He has previously worked at Credit Analysis & Research Ltd. as Joint General Manager (Accounts), CFO at Multi Commodity Exchange of India Limited and has also worked at the National Stock Exchange.
- He holds a Bachelors in Commerce degree from University of Mumbai. He is a qualified Chartered Accountant as well as a qualified Cost and Management Accountant.



Kersi Tavadia
Chief Information Officer

- Kersi Tavadia has over 30 years of experience in the area of Application Systems/ IT Infrastructure development and management, managing all aspects of IT operations in Financial Services, Capital markets and manufacturing companies. He has played a leading role in transforming BSE into the fastest exchange in the country
- He is instrumental in promoting, adaption of Open Source technologies and has successfully deployed one of the largest Data Warehouse on Open source platform.
- He has provided technical leadership & architectural vision in implementation of Mission Critical Applications across the organization including IT Infrastructure, Web portals, web based and non-web based customized solutions.
- He is amongst the Pioneers to implement single-window Multi-Exchange online trading systems to facilitate trading across multiple asset classes.



**Neeraj Kulshrestha** Chief Business Operation

- Neeraj Kulshrestha is in charge of Trading, Listing and Membership Operations.
- He has about 27 year experience in Capital markets, which includes Securities Markets and General Insurance.
- Prior to BSE he was an Executive Director in Morgan Stanley India for 10 years. He was earlier with National Stock Exchange and has managed various
  functions like Trading Operations, Inspection and Investigation, Futures and Options Clearing and Trading. He was also the CEO of India Index Services
  Ltd. and Dotex International Ltd.
- He has completed his Bachelors in Computer Science from Delhi University and a MBA (Finance) from Indore University.



### **Lines of Business**

### **Revenue Segments**

Membership	Primary Ma	rket Secondary	Market Index Prod	Data Produ	Post Trade Segment
Over 1,300 member brokers	<ul> <li>Equity</li> <li>SME</li> <li>Debt Market</li> <li>IPO</li> <li>BSE Hi-tech</li> <li>Offer to Buy (OTB)</li> <li>Offer to Sale (OFS)</li> </ul>	<ul> <li>Equity Cash</li> <li>Equity Derivative</li> <li>ETF's</li> <li>Fixed Income Derivative</li> <li>Currency Derivatives</li> <li>Mutual Funds Distribution</li> <li>Securities Lending and Borrowing</li> </ul>	<ul> <li>SENSEX</li> <li>Sectoral Indices</li> <li>Green Indices</li> </ul>	<ul> <li>Market Data</li> <li>Historical Data</li> <li>SWIFT</li> <li>Real Time Products</li> <li>Snapshot Products</li> <li>End of Day Products</li> </ul>	<ul> <li>Clearing         Subsidiary-ICCL</li> </ul>

### **Supporting Business**

Technology	Training	Investme	Corporate Social Responsibility
<ul> <li>Market Place Technologies</li> </ul>	BSE Institute	BSE Investments     Limited	<ul><li>BSE Sammaan CSR Limited</li></ul>



# **BSE Global Ranking**

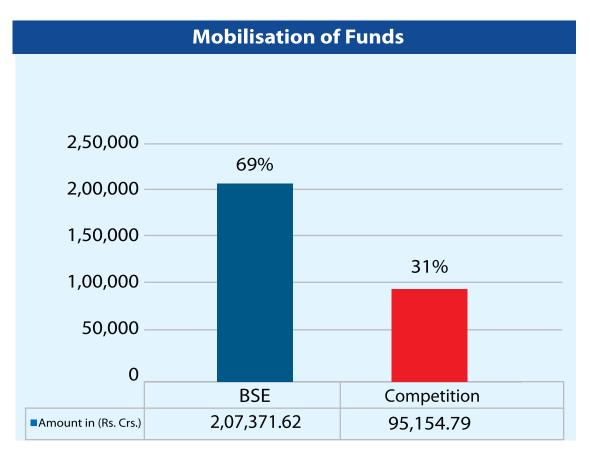
PRODUCT	PARTICULARS	MEASURE	RANK
CURRENCY OPTION	No. of Contracts	12.92 million	2 <sup>nd</sup>
CURRENCY FUTURES	No. of Contracts	28.02 million	3 <sup>rd</sup>
EQUITY CASH SEGMENT	No. of Equity Trades	28.98 million	12 <sup>th</sup>
	Market Capitalisation	1.43(Amount in USD Trillion)	11 <sup>th</sup>

<sup>\*</sup>Source: World Federation of Exchanges





### **Equity and Debt Mobilization of funds**

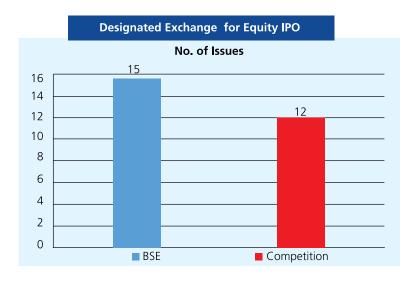




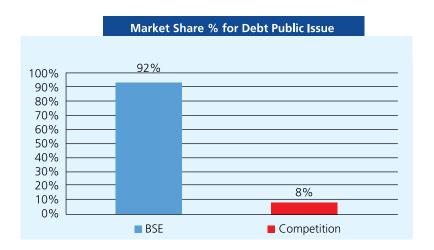
• BSE has enabled collection of Rs. 2,07,371.62crs (69%) of the total amount raised across the Exchanges in FY 15-16



### **Equity and Debt Market**



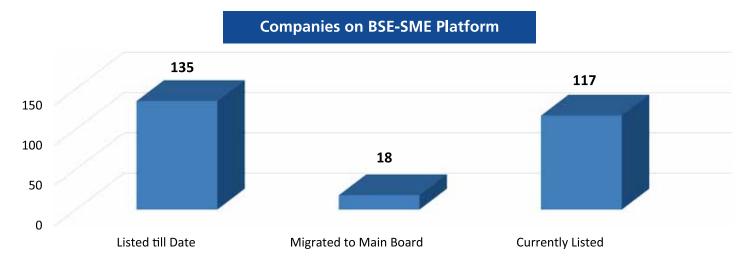


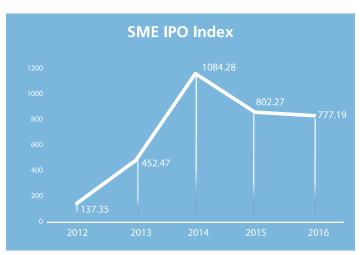


• BSE is the preferred choice for listing Privately Placed Debt Instruments (PPDI). In FY 15-16, BSE has listed 1760 instruments vis-a-vis 1339 on other Exchange. During April 2016, BSE listed 202 instruments with a market cap of Rs.25,476.96 crores vis a vis 125 instruments on the other Exchange.



#### **SME Platform**





- BSE is the first stock exchange in India to receive approval from SEBI on 26<sup>th</sup> September 2011 to launch SME Platform. SME IPO Index was launched on 14<sup>th</sup> December, 2012 aimed at tracking the companies listed on SME platform with a Base value of 100. As on 16<sup>th</sup> May 2016 its value was 828.94.
- The Platform facilitates capital raising by small and medium enterprises including start-up companies which are in their early stages of growth. It also provides easier entry and exit options for informed investors like angel investors, VCFs and PEs etc.and equity financing which lowers the debt burden
- Total Market Capitalization of 117 companies –Rs 6,870.43 Crs
- 18 companies Migrated to main Board Rs 2,870.9 Crs



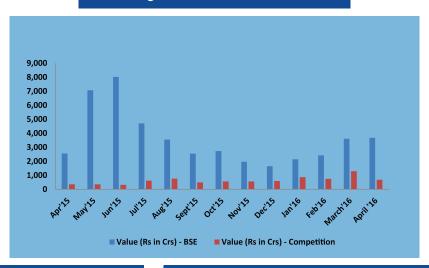
Data as of 3<sup>rd</sup> May 2016

#### **Mutual Fund Distribution Platform - STAR MF**

#### Avg Market Share in No. of Orders



#### **Avg Market Share in Value**



#### **MODE OF SETTLEMENT**

- Settlement of Funds and units through member POOL Account and MFDs / IFAs via Direct Settlement
- Majority of National Distributors (NDs) and Broker members prefer pool mode
- Pool Mode is available only with BSE.
   Neither NSE NMF II nor AMFI -MFU have this model for non-demat transactions

#### **CONNECTIVITY & DIGITIZATION**

- Multi mode of Platform access
- Web browser
- APIs over leased Lines IML
- WEB Services over Internet
- 100 % digital transaction mode , eliminating paper work from MF segment

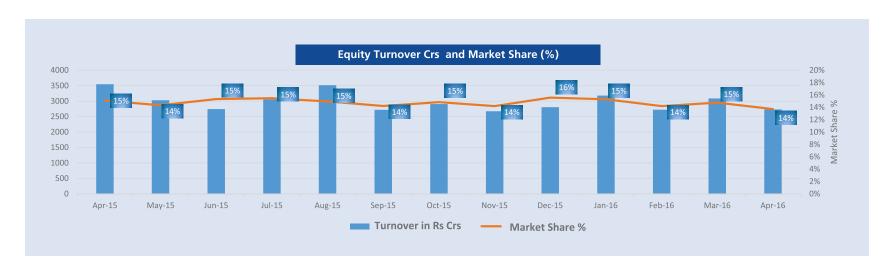
#### **UNIQUE PRODUCT OFFERINGS**

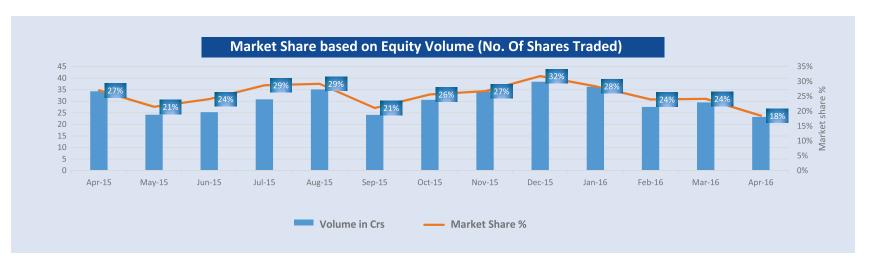
- X-SIP Facility with First order today flexibility , enabling BSE StAR MF members to start systematic investment plans (SIP) within couple of minutes instead of waiting for a month!
- Overnight Investments framework: an alternative investment avenue for idle monies by investing in MF Liquid Schemes for better returns





### **Equity Cash Market**







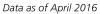
### **Equity Traded Funds**



#### **Exchange Transaction Fee for ETF**

Turnover Slab	BSE	Competition	Cost Saving @ BSE
Up to 1250 Crs	275	325	15.38%
>1250 Crs < 2500			
Crs	275	320	14.06%
>2500 Crs < 5000			
Crs	275	315	12.70%
>5000 Crs <			
10000 Crs	275	310	11.29%
>10000 Crs <			
15000 Crs	275	305	9.84%
>15000 Crs	275	300	8.33%

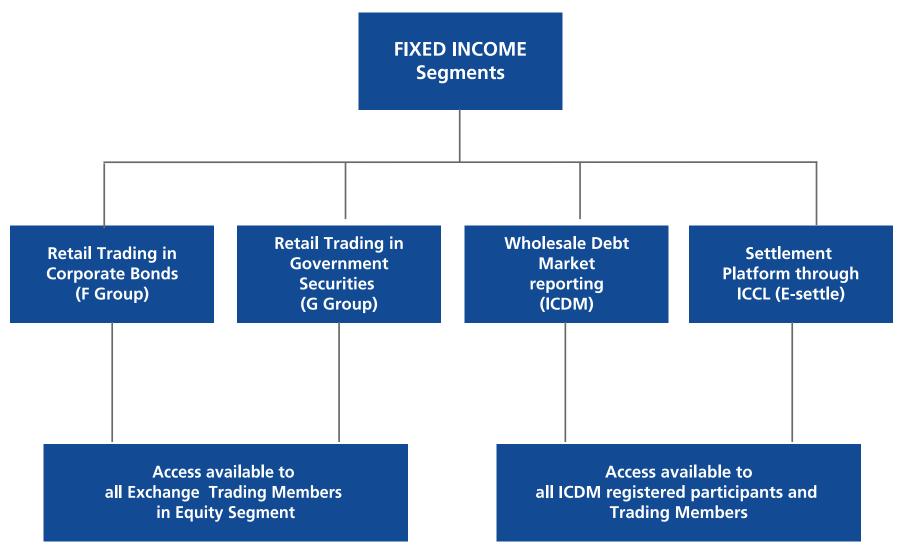
- Exchange traded fund is a security that tracks an index, a commodity or a sector like an index fund or a sectoral fund but trades like a stock on an exchange
- It is similar to a close ended mutual fund listed on stock exchanges
- BSE in its effort to bring greater participation for retail investors in the Indian landscape has tied up with market makers for ETF's
- India Ranks 8th in Asia-Pacific region along with Shenzhen Stock Exchange for ETF listing
- 46 ETF listings on BSE as on March 2016\*





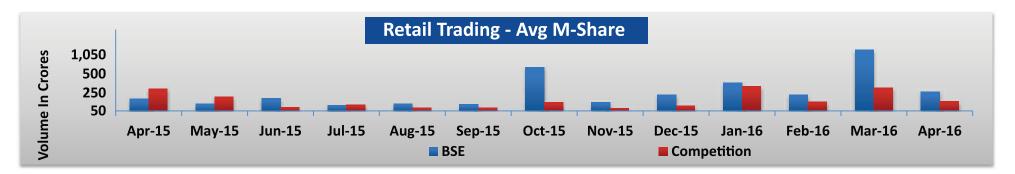
<sup>\*</sup>Source: World Federation of Exchanges

### **Fixed Income Segments Overview**





#### **Fixed Income Segments**

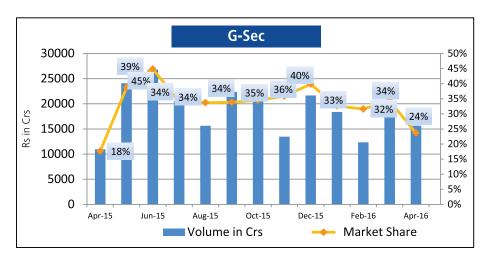


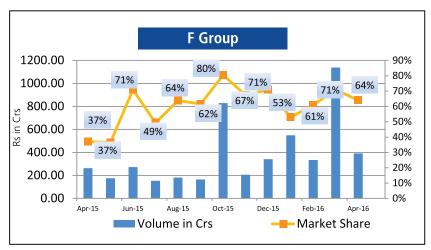
Retail Trading In Corporate Bonds (F Group)	FY-15-16	April '16				
Turnover (Rs Crs)	4,608	392				
Number of Member /Participants	1361	1362				
Wholesale Segment Reporting Of Corporate Bonds	(ICDM)					
Turnover (Rs Crs)	2,07,652	14,841				
Number of Member /Participants	130	130				
Wholesale Segment Reporting Of Government B	Wholesale Segment Reporting Of Government Bonds					
Turnover (Rs Crs)	2,27,125	15,649				
Number of Member /Participants	1338	1358				
Settlement Of Corporate Bonds and CP/CD (E- S	ettle)					
Settlement Of Corporate Bonds (Rs Crs)	57,874	5,109				
Settlement of CPs/CDs (Rs Crs)	4,63,134	34,677				
Number of Member /Participants	1338	1358				

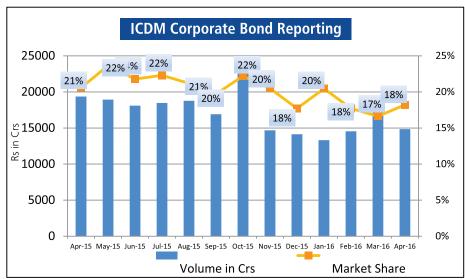
- BSE has maintained dominant market share in Retail trading of Corporate Bonds. BSE Market share was 63.7% in FY 14-15 and 62% in FY15-16. Market share for April 2016 was 64%
- Market Share in reporting volumes in Wholesale Debt Market of Government Bonds in April 2016 was 24%. In FY 15-16 volume in this segment was Rs 2,27,125 Crs with a market share of 35%
- Settlement volumes of Corporate Bonds for FY 15-16 is Rs. 57,874 Crs , for April '16 Rs 5,109 Crs

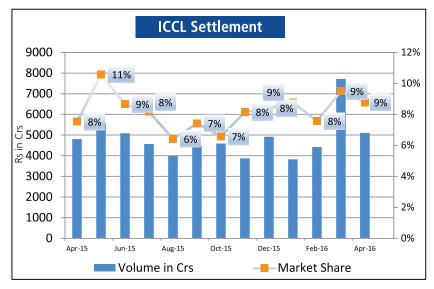


### **Fixed Income Segments (cont..)**











### **Interest Rate Derivatives**



## **Competitive Advantage**

Interest Rate Derivatives					
BSE NSE M					
Exchange Transaction Fees (Rs. / Per Cr)	4	10	10		
Cost Saving @ BSE up to		80%			

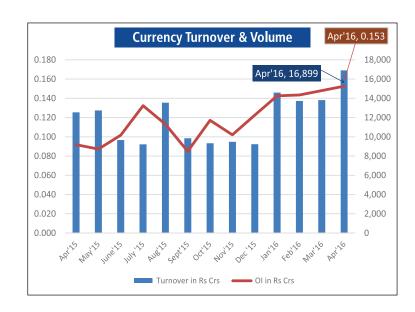


### **Currency Derivatives**



### **Competitive Advantage**

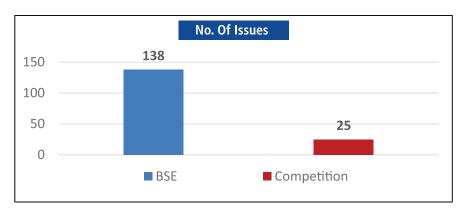
Currency Future	BSE	Competition	
Exchange Transaction Charges (Rs / Per Cr)	10	110	
Exchange Transaction Charges for Buy & Sell (Square Off)	10	220	
Exchange Transaction Charges for 1 Million Dollar (1000 Lots)	65	1430	
Cost saving @ BSE upt	95.45%		
Currency Option	BSE	Competition	
Exchange Transaction Charges on premium value (Rs./ Per Cr.)	10	4000	
Cost Saving @ BSE upto	99.75%		

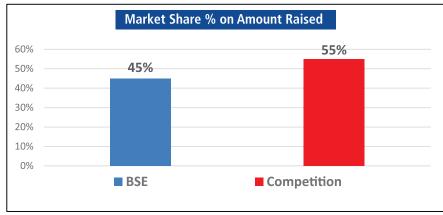


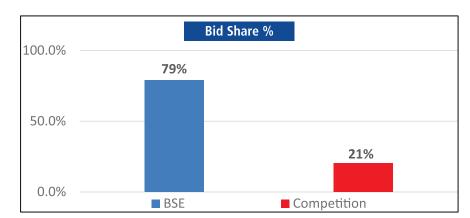


### **Offer For Sale (OFS)**

- BSE launched the Offer For Sale (OFS) module on iBBS (Internet based book building System) platform on 24th February, 2012.
- Since then,163 companies have completed OFS issues of which BSE was appointed the Designated Stock Exchange in 138 issues. Over 500 members have participated in OFS via BSE platform.
- The process has helped the Government raise over Rs. 84,084.13 Crs through divestment of holdings in PSUs.





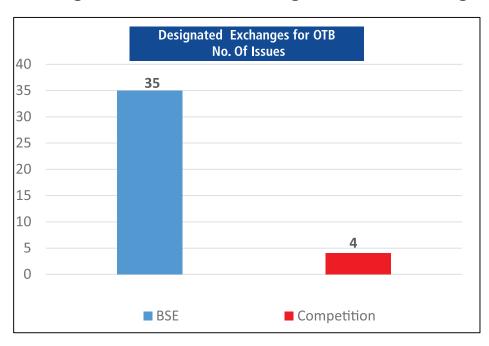


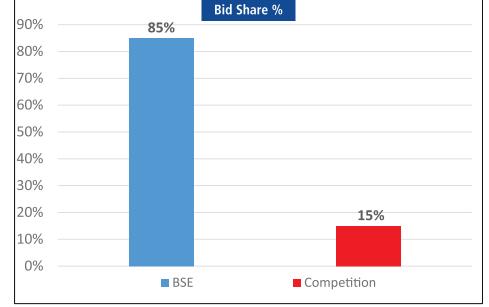




### Offer to Buy (OTB) - Acquisition Window

#### **OTB Avg Bid Share Details on Designated Stock Exchanges**





- An Offer to Buy is a new mechanism to facilitate tendering of shares by the shareholders and settlement of the same, through the stock exchange in the form of a separate window (the "Acquisition Window").
- BSE launched the Offer to Buy (OTB) module on iBBS (Internet based book building System) platform on 1<sup>st</sup> July, 2015.
- Till date, 39 companies have completed their OTB issues of which BSE was appointed the Designated Stock Exchange in 35 OTB issues.







BSE Hi-Tech is a platform that enables a young fast growing company to list on an exchange with much easier criteria and gain access to capital from a larger base of sophisticated investors.

Positioning



#### THE COMPANY ADVANTAGE

- •Increased visibility with brand creation, research coverage and media coverage
- •Access to funds through well-established platform and mechanism
- •High credibility amongst all stakeholders
- •Listing entails robust corporate governance and internal controls and systems
- •Sophisticated investors enabling better valuations
- •Companies can attract global investors as FPIs
- •Merger & acquisitions made easier and swifter with company's stock used as currency
- •Compensating employees without affecting cash flows through ESOPs becomes a powerful tool to attract and retain

# THE INVESTOR ADVANTAGE

- A credible exit route for early investors
- •VC/PE investors can churn their portfolio
- •The platform will offer a new asset class to investors
- •Listing leads to better and timely disclosures and thus also protects the interest of the investors



#### **BOLT PLUS ON WEB (BoW)**



	One Window with Multiple Utilities						
Exch	anges		Products		Users		Connectivity
• BS	E -	$\rightarrow$	• Equity – F&O – Currency – IRF – OFS – Mutual		<ul><li>Dealers</li><li>Investors</li></ul>		<ul><li>Leased Line</li><li>Internet</li></ul>
			Fund – SLB – Debt – ITP		Admin for HO		
• NS	E -	$\rightarrow$	• Equity – F&O – Currency		<ul> <li>Multiple Mini Admin for Regions &amp; Branches</li> </ul>		
• M	CX -	$\rightarrow$	<ul> <li>Commodities</li> </ul>		• RMS		
• NC	DEX -	$\rightarrow$	• Commodities				

#### **User friendly features**

**Application for Desktop and Mobile** 

- Dual Market Depth Display
- AMO After Market Orders
- Time base Square up for Intraday transections and One click square up on M2M Alert.
- Corporate Information Analysis
- Top Gainers / Top Losers Top Gainers / Top Losers Most Active by VOLUME / VALUE
- User define short keys predefine Key Mapping Styles for ODIN-NOW
- NEWS Plus with RSS feeds and Twitter
- Web links for 100 + Visual Operational Help Video's
- Member Branding through EXE

- Web links for 100 + Visual Operational Help Video's
- Tip of the Day prompt on login notifying what all can be done
- Member Branding through EXE
- Trade commencement in one day
- No Extra hardware like TAP-IML server required.

•Bolt + on Web (BoW) – FREE OF COST FOR ALL MEMBERS





### **Information Products offered**

#### **Market Data**

- Equity Level 1 Real-time & 1 minute Snapshots
- Equity Level 2 Real-time
- Indices Real-time & 1 minute Snapshots
- Derivatives (Equity , Index , Currency & Interest Rate Derivatives) – Real-time

#### **Corporate Data**

- Corporate Announcement
- Financial Results
- Shareholding Pattern
- Corporate Action through SWIFT

#### **End of day / Historical**

- Quotation files
- Annual report
- Daily Bulletin
- Sector Classification
- Trade and Order book data





### **New Trading Architecture – BOLT PLUS**

#### **Bolt Plus Live**

- Products available for trading
  - Currency Derivatives 29th November, 2013
  - IInterest Rates Futures 28th January,2014
  - Equity Derivatives 10th February,2014
  - Equity 7th April,2014

#### **Member Access**

- > API based access
  - Through existing IML API
  - Advanced High performance APIs (ETI, MDI/EMDI,EOBI)

#### **Peripheral Systems connecting to BOLT Plus**

• Reference Data, Risk Management, Surveillance, Clearing & Settlement, Data Warehouse

#### **Performance Testing & Benchmarking**

- Latency: < 6 μs (Gateway in to Gateway out)
- Network latency for Colo users 10 μs
- Throughput Capacity: 5 lacs order per second
- Scalability: Horizontally scalable by adding partitions



#### **Technology Programme - Colocation Facilities**

#### **Fastest Co-location**

- BSE is the fastest Exchange in the world with a speed of 6 microseconds
- Co-location service to BSE members is provided and managed entirely by a third party data centre service provider NTT Netmagic IT Services Pvt Ltd, a subsidiary of NTT Communications.
- Netmagic provides the fastest Co-location service in India with round trip network latency of less than 10 microseconds.
- At Netmagic Co-location, BSE response for an order has round trip latency of about 16 microseconds (including 10 microseconds of Co-location network latency).
- Extension of Precision Time Protocol (PTP) from BSE's Grandmaster clock to the Co-location enables members to synchronize with the Exchange clock.
- Equitable distribution of market data to all members by usage of same length cables for all members.
- Full order book multicast (EOBI) is provided to Co-location members at no cost.
- State-of-the-art Data Centre services from NTT Netmagic
- Low latency 10 Gbps Solarflare NIC cards (Model No. : SFN7322F) is provided to members by BSE.

#### Co-location: NTT Netmagic Data Centre

Co-location is entirely managed by a third party service provider - NTT Netmagic. Key technical highlights are:

- 10 Gbps Fibre optic cable connection with BSE trading system with full redundancy
- 24 X 7 operations support
- 24 X 7 High security zone
- Uninterrupted Power Supply with DG back up
- ITIL and ISO 27001 compliant
- FM200 Fire suppression facility
- Market Data feed from Thomson Reuters Electron network
- 99.999% uptime



### **Technology Programme - Software and Hardware**

#### For services opted by member, BSE bears the cost on behalf of the member for; ALGO Trading

- The software license cost for ALGO trading and market access
- The infrastructure cost on Co-location rack space
- The ALGO trading servers at Co-location
- The internet connectivity between Co-location and member's office

Algo Trading software is available from following vendors for quoting and market making in Eq. Derivatives including auto hedging capabilities across Exchanges and Segments:

- Greeksoft Technologies Pvt. Ltd.
- uTrade Solutions Pvt. Ltd.
- Omnesys Technologies Pvt. Ltd.
- Symphony Fintech Solutions Pvt. Ltd.
- Resolute Softech

#### **Cost Comparison**

Service	BSE	Other Exchange
Colocation Network Bandwidth (NTT Netmagic)	10 Gbps fiber optic network	10 Gbps fiber optic network
Roundtrip Latency (in μsec): Exchange Response Time	6	500 #
Roundtrip Latency (in µsec): Colo Network*	10	500 #
Roundtrip Latency (in μsec): Exchange Response Time + Colo Network Latency	16	1000 #
10G Switch at Member Rack	Not Mandatory	Mandatory
10G NIC Card from Exchange per member	2 Solarflare Cards (SFN7322F)	NIL
Additional cost to member for 10G migration	NIL	INR 10 – 20 Lakhs
Full Racks	Free	One Time Cost: Rs. 1 Lakh plus AMC: Rs.12 Lakhs
Half Racks	Free	One Time Cost: Rs. 50,000 plus AMC: Rs.6 Lakhs
Quarter Racks	Free	Not Available
Servers	Free	Not Available
Algo software	Free	Not Available
Interactive connectivity cost	Free	Annual Cost per connection Rs.10 Lakhs for 400 messages/sec
Market data connectivity cost	Free (including EOBI feed)	TBT feed Annual Cost per feed Full Rack : Rs.1.00 Lakh / Half Rack: Rs.0.50 Lakh



#### **Sponsored Market Access**

#### Implementation of 'Sponsored Market Access' (SMA) at Colocation

- SMA is a software distribution model in which applications are hosted by a service provider and made available to customers over a network.
- Free of cost rack space is allocated by BSE to the SMA Service providers to install their algo trading application server in Netmagic Co-location.
- The members can connect to this SMA algo server at Co-location via Internet.
- The algo strategy parameters can be triggered from the member front-end application and sent to the SMA algo server at Co-location.
- The corresponding algos will generate orders to be sent to BSE trading system through Colocation network.
- The algo orders will be sent to the BSE Trading system via the high speed Co-location gateway for minimum latency.
- Members can execute orders over high speed Co-location network without installation of any infrastructure at Co-location by the members.

#### **Advantages**

#### **For Members**

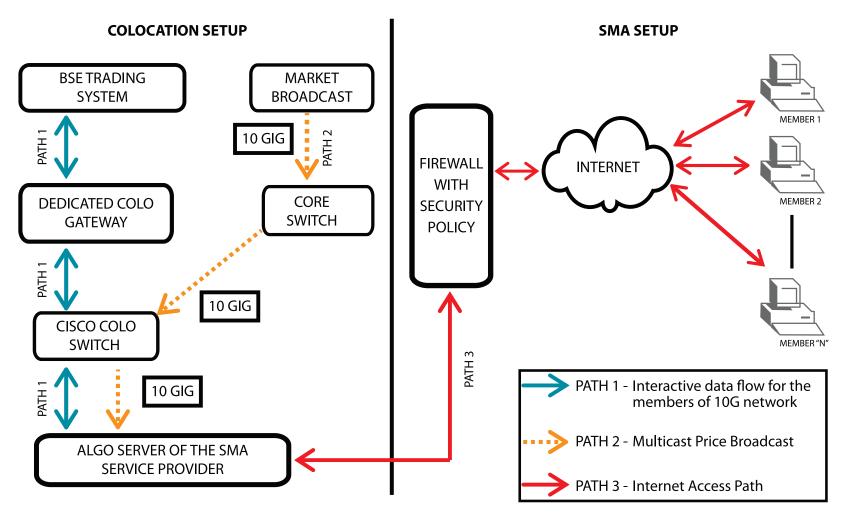
- Zero capital expenditure on infrastructure at Colocation.
- The algo orders will be generated at Colocation and sent to the BSE Trading system via the high speed 10G Colocation network for minimum latency.

#### **For Vendors**

- Free of cost rack space is allocated by BSE to SMA service providers to install their algo trading application server in Netmagic Colocation.
- Vendor can service multiple clients with a centralized algo server installed at Co-location. Hence, vendor's cost of maintenance is low.



### **Sponsored Market Access - New Facility at Colocation**





# **Contract Symbols**

Bloomberg Ticker	Category	Type
SENSEX Index CT	S&P BSE SENSEX Index futures	Futures contract
BSE100 Index CT	S&P BSE 100 index futures	Futures contract
SENSEX Index OMON	S&P BSE SENSEX Index options	Options contract
BSE100 Index OMON	S&P BSE 100 Index Options	Options contract
LUSA Currency OMON	S&P BSE Currency Options	Options Contract
LUSA Curncy	Currency USDINR Futures	Futures Contract
LERA Curncy	Currency EURINR Futures	Futures Contract
LGBA Curncy	Currency GBPINR Futures	Futures Contract
LJPA Curncy	Currency JPYINR Futures	Futures Contract
TBBA Comdty	T-Bill	Futures Contract
IISA Comdty	Gov Bond 8.4%	Futures Contract
IIPA Comdty	Gov Bond 7.72%	Futures Contract

Thompson Reuters Symbols	Category	Туре
O#BIF	S&P BSE SENSEX Equity Index	Futures contract
O#BHI	S&P BSE 100 Index futures	Futures contract
O#BIF*.BO	S&P BSE SENSEX Equity Index	Options contract
O#BHI*.BO	S&P BSE 100 Index Options	Options contract
O#BIR	Currency USD/INR	Futures contract
O#BEU	Currency EUR/INR	Futures contract
O#BGB	Currency GBP/INR	Futures contract
O#BJP	Currency JPY/INR	Futures contract
0#BSE91	Treasury Bill	Futures contract
0#B883	10 Yr G-Sec	Futures contract
O#B716	10 Yr G-Sec	Futures contract





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