

**NOVEMBER  
2016 UPDATE**



**LIQUIDITY • LOWER COSTS • TIGHT SPREADS • LARGE PARTICIPANT BASE**



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

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# About BSE



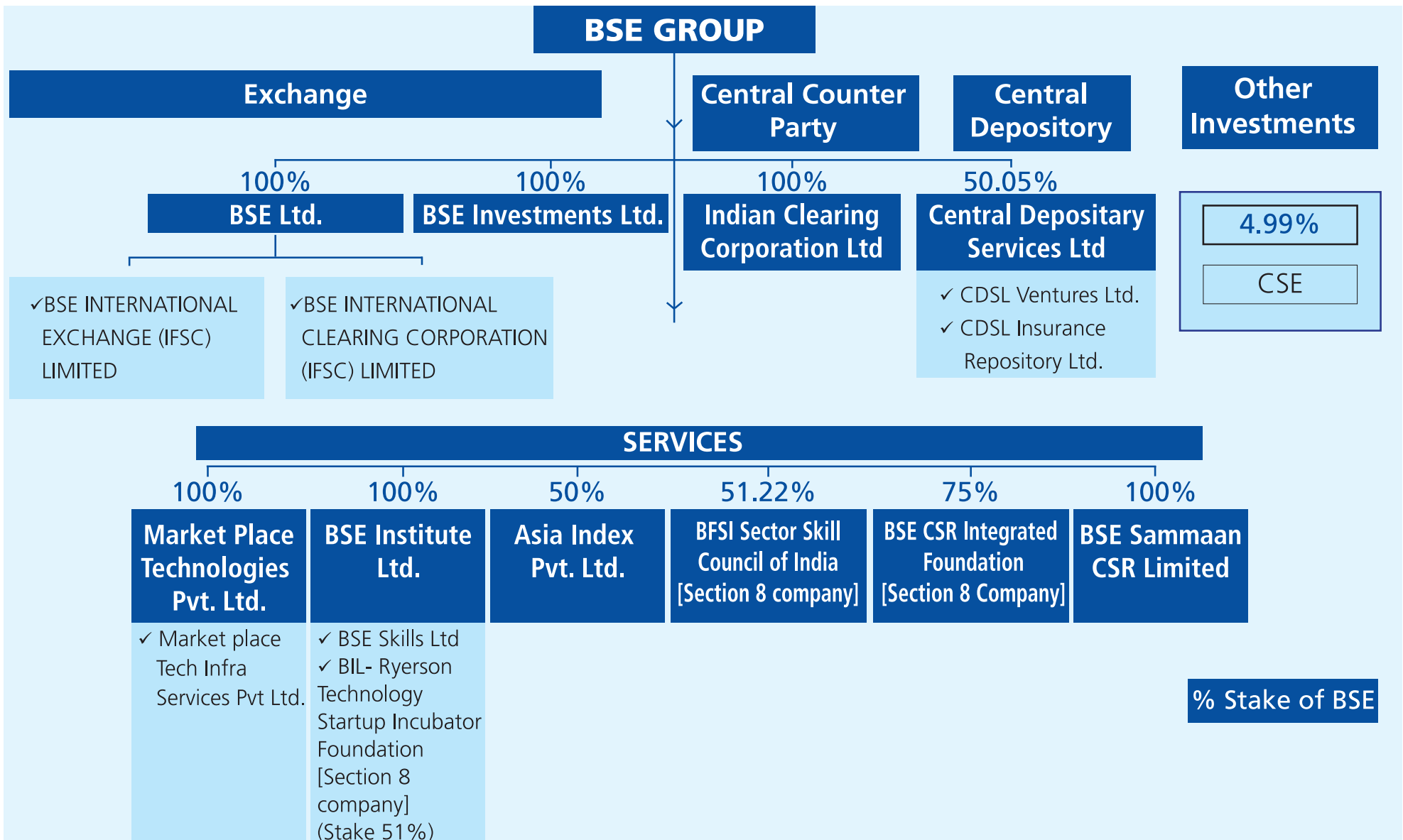
## Evolution Of The Exchange



### Key Milestones

Date	BSE Milestones
3 <sup>rd</sup> August 2016	BSE signs Memorandum of Understanding with IIT Kanpur for Cooperation for cyber security research in financial markets
25 <sup>th</sup> July 2016	BSE signs Memorandum of Understanding with Mauritius Stock Exchange for promotion of bilateral relations between India and Mauritius
9 <sup>th</sup> July 2016	Shri Arun Jaitley, Hon'ble Minister of Finance Unveiled the Commemorative Postage Stamp Celebrating 140 glorious years of BSE
21 <sup>st</sup> Jun, 2016	BSE gets SEBI approval to launch "BSE-BOND"- Electronic Book Mechanism for issuance of debt securities on private placement
9 <sup>th</sup> Jun, 2016	BSE announces commencement of trading of Sovereign Gold Bonds
28 <sup>th</sup> Apr 2016	BSE signs Memorandum of Understanding with Korea Exchange (KRX) to launch S&P BSE Sensex based derivatives contracts at KRX
05 <sup>th</sup> Apr 2016	BSE & CMIE launch world's first high-frequency data on unemployment and consumer sentiments
2 <sup>nd</sup> Jan 1986	S&P BSE SENSEX , country's first equity index launched (Base Year:1978-79 =100)
31 <sup>st</sup> Aug 1957	BSE granted permanent recognition under Securities Contracts (Regulation) Act (SCRA)
9 <sup>th</sup> Jul 1875	The Native Share & Stock Broker's Association formed

# BSE Group



# BSE & Its Partners

## Highlights



- Alliance with leading global exchanges
  - Deutsche Börse
  - DGCX
  - KRX
- Key local Indian institutions are investors in BSE
- Cross listing of benchmark index S&P BSE SENSEX in BRICS countries



- Sensex Licensing to Korea Exchange



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



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



- Listing of Sensex



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

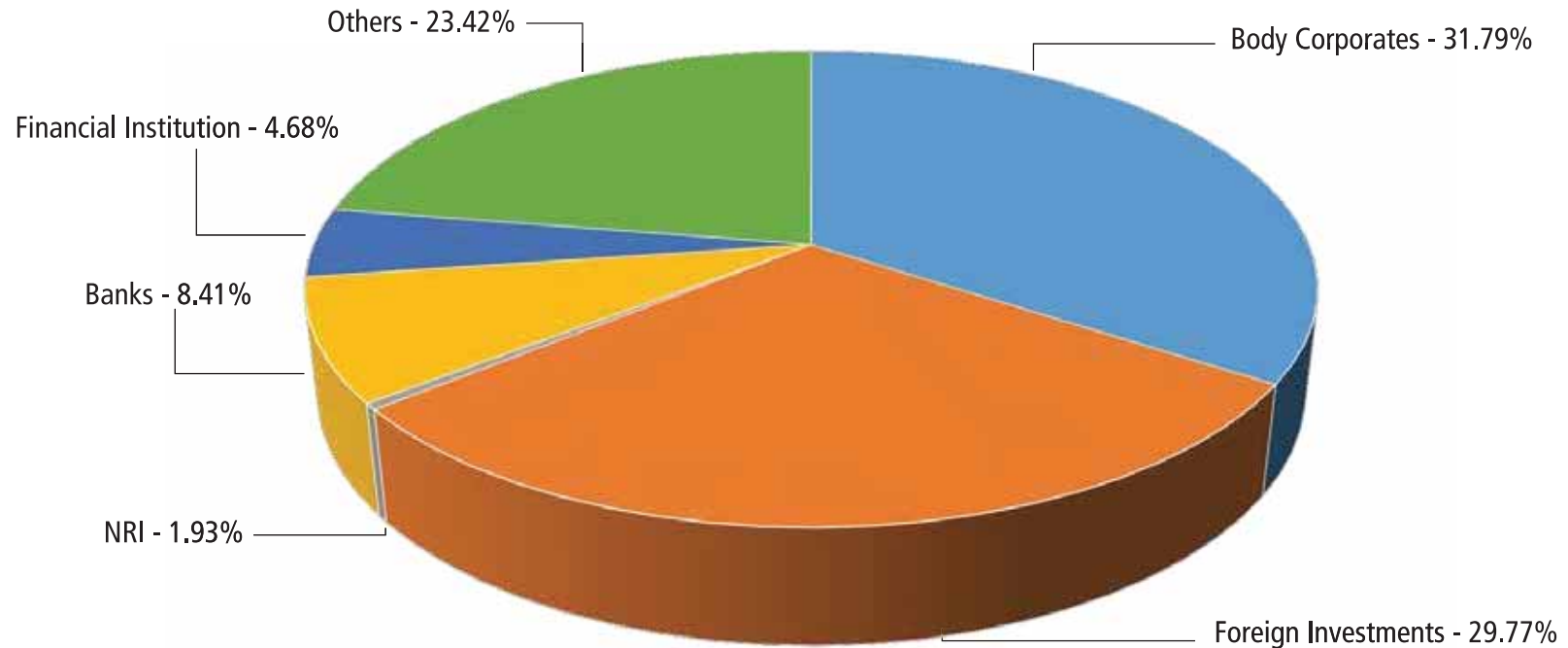


- 4.68% investment in BSE as key user and supporter of platform
- Board Presence

## 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




Data as of 28th October 2016





## Board of Directors

	NAME / TITLE	DESCRIPTION
	<p><b>Mr. Sudhakar Rao</b> IAS (Retd.) Chairman, Public Interest Director</p>	<ul style="list-style-type: none"> <li>Mr. Sudhakar Rao is a Director on the boards of several companies including BSE Institute Limited, L&amp;T Infrastructure Development Projects Limited, Healthcare Global Enterprises Limited, IFFCO-TOKIO General Insurance Company Limited and Tata Elxsi Limited .He is currently also Chairman of BSE Training Institute and BFSI Sector Skill Council of India.</li> </ul>
	<p><b>Mr. Ashishkumar Chauhan</b> Managing Director &amp; CEO</p>	<ul style="list-style-type: none"> <li>Mr. Ashish is the MD &amp; CEO of BSE (Bombay Stock Exchange), the first stock exchange of Asia. He is one of the founders of India's National Stock Exchange ("NSE") where he worked from 1992 to 2000. He is best known as the father of modern financial derivatives in India due to his work at NSE. He was instrumental in setting up India's first fully automated screen based trading system and first commercial satellite communications network. 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 and was also the CEO of the cricket team Mumbai Indians in its formative years.</li> <li>He currently serves as the Chairperson on the Board of Governors (BoGs) of the National Institute of Technology (NIT) Manipur. He is an Advisor to the Technical Evaluation Committee set up by the Department of Posts for Postal Bank and also a part of several other 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.</li> <li>He holds a B Tech in Mechanical Engineering from IIT Bombay and a PGDM from IIM Kolkata. He is a Distinguished Visiting professor at Ryerson University, Toronto, Canada. In recognition of his contribution to industry he has received many awards at National and International levels.</li> </ul>
	<p><b>Dr. Krishnaswamy Kasturirangan</b> Former Chairman, ISRO Public Interest Director</p>	<ul style="list-style-type: none"> <li>Dr. Krishnaswamy Kasturirangan is currently the Chancellor of Jawaharlal Nehru University, an Honorary Distinguished Advisor, Indian Space Research Organisation (ISRO), an Emeritus Professor at the National Institute of Advanced Studies and holds the Satish Dhawan Chair for Engineering Eminence instituted by Indian National Academy of Engineering. Earlier, as Chairman of ISRO, he oversaw the space programme in India between the years 1994 and 2003. He was also a Member, Upper House of the Indian Parliament, and subsequently, Member of the erstwhile Planning Commission. His interests include astrophysics, space science and technology as well as science related policies.</li> </ul>



## Board of Directors

	NAME / TITLE	DESCRIPTION
	<p><b>Mr. Dharendra Swarup</b> Secretary (Retd.), Finance Ministry Public Interest Director</p>	<ul style="list-style-type: none"> <li>■ <b>Mr. Dharendra Swarup</b> has over four decades of experience across Finance, Budgeting, Public Debt Management, Public Policy and Pension Reforms. A former Chairman of Pension Funds Regulatory and Development Authority, he has been a career civil servant retiring as Secretary to the Government of India, Ministry of Finance.</li> <li>■ He is an IMF expert on fiscal affairs and has worked in UK, Turkey and Georgia.</li> <li>■ He is a Director on the Board of Eros International Media Limited, PTC India Limited, Berger Paints India Limited and PTC Energy Limited.</li> </ul>
	<p><b>Mr. Vikramajit Sen</b> Former Supreme Court Judge and Chief Justice, High Court of Karnataka Public Interest Director</p>	<ul style="list-style-type: none"> <li>■ <b>Mr. Vikramajit Sen</b> retired from the Supreme Court of India on 31st December 2015. Prior thereto practised mainly commercial law in the Courts in Delhi. Presently on the Board of several Corporations. In addition, conducting Arbitrations and giving legal opinion on complicated questions of law.</li> <li>■ Studied in St. Xavier's School in Delhi, followed by a BA (Honours) degree after attending St. Stephen's College, Delhi University. Received Law Degree from the Faculty of Law, Delhi University in 1974.</li> <li>■ He is a Director on the Board of DCM Shriram Limited</li> </ul>
	<p><b>Mr. Sumit Bose</b> IAS (Retd.) Former Union Finance Secretary Public Interest Director</p>	<ul style="list-style-type: none"> <li>■ <b>Mr. Sumit Bose</b> is Director on the Board of Coromandal International Limited, Tata AIG General Insurance Company Ltd., UTI Asset Management Company Ltd. and HDFC Standard Life Insurance Co. Limited. Vice Chairman, National Institute of Public Finance and Policy, New Delhi, Chairman, Board of Directors of Vidhi Centre for Legal Policy, New Delhi, an independent legal think tank, a Member, Board of Governors of The Doon School, Dehradun, a Member, Governing Body, Parivaar Education Society, Kolkata.</li> </ul>




## Board of Directors

	NAME / TITLE	DESCRIPTION
	<p><b>Mr. Sethurathnam Ravi</b> FCA, Practising Chartered Accountant Public Interest Director</p>	<ul style="list-style-type: none"> <li>■ <b>Mr. S. Ravi</b> is the Managing Partner of Ravi Rajan &amp; Co., Chartered Accountants. He is an Independent Director on the board of IDBI Bank Ltd and UTI Trustee Company Ltd, amongst other reputed companies.</li> <li>■ He is a member of the Takeover Panel and Mutual Funds Advisory Committee of SEBI.</li> </ul>
	<p><b>Dr. Sriprakash Kothari</b> Gordon Y Billard Professor of Accounting and Finance Massachusetts Institute of Technology, Sloan School of Management, Shareholder Director</p>	<ul style="list-style-type: none"> <li>■ <b>Dr. Sriprakash Kothari</b> is Gordon Y Billard Professor of Accounting and Finance at the Sloan School of Management, Massachusetts Institute of Technology. With close to two decades at this premier institute, Mr. Kothari recently completed a six-year stint as Deputy Dean at the Sloan School of Management. He is also faculty director of the MIT-India Program <a href="http://web.mit.edu/misti/mit-india/">http://web.mit.edu/misti/mit-india/</a> and an editor of the world-renowned academic publication Journal of Accounting &amp; Economics. Recently, in the year 2014 Mr. Kothari was a recipient of the American Accounting Association's (AAA) Notable Contributions to the Accounting Literature award. His other awards include honorary doctorates, Doctor Honoris Causa, from the University of Technology, Sydney in May 2013 and University of Cyprus in 2016 and a Distinguished Alumnus Award from Birla Institute of Technology and Science, Pilani, in 2013.</li> <li>■ <b>Dr. Sriprakash Kothari</b> holds a bachelor of engineering degree from the Birla Institute of Technology and Science, Pilani, and has also earned his MBA (PGDM) from one of India's finest institutes, the Indian Institute of Management, Ahmedabad. Mr. Kothari completed his PhD from University of Iowa, United States. His highly-cited research focuses on the US and international financial reporting practices, the pricing of financial information, investment analysis and valuation.</li> </ul>
	<p><b>Ms Usha Sangwan</b> MD, Life Insurance Corporation of India Shareholder Director</p>	<ul style="list-style-type: none"> <li>■ <b>Ms. Usha Sangwan</b>, is the first ever woman Managing Director of Life Insurance Corporation of India since its inception.</li> <li>■ She is the whole time Director of LIC of India, Board Member of General Insurance Corporation of India, LICHFL Asset Management Co. Ltd, LIC Housing Finance Ltd., Axis Bank and Ambuja Cements Ltd. Director on the board of LIC (Singapore) Pte. Ltd., LIC (Lanka) Ltd., LIC (Nepal) Ltd. and LIC Cards Services Ltd., Member of Governing Council of National Insurance Academy, a Trustee of LIC Golden Jubilee Foundation, Chairman of Trust - LIC of India (Regular Part-time employees) Pension Fund and a Member of Policyholder Protection Committee, Executive Committee, Risk Management Committee and Investment Committee of LIC of India</li> </ul>

## Board of Directors

	NAME / TITLE	DESCRIPTION
	<b>Mr. Thomas Bendixen</b> Representative, Deutsche Boerse AG Shareholder Director	<ul style="list-style-type: none"><li>■ <b>Mr. Thomas Bendixen</b> represents Deutsche Boerse AG as a Shareholder Director on the BSE Board and is responsible for managing and developing the BSE - DBAG partnership.</li></ul>
	<b>Ms. Rajeshree Sabnavis</b> Fellow Member of ICAI, Company Secretary Shareholder Director	<ul style="list-style-type: none"><li>■ <b>Ms. Rajeshree Sabnavis</b> is part of the Direct Taxation Committee with the Bombay Chamber of Commerce where she is a Co-Chairperson. She is also a member of the EU Chamber of Commerce.</li></ul>

## Management Team

	NAME / TITLE	DESCRIPTION
	<b>Ashishkumar Chauhan</b> Managing Director & Chief Executive Officer	<ul style="list-style-type: none"> <li>■ <b>Ashish</b> is the MD &amp; CEO of BSE (Bombay Stock Exchange), the first stock exchange of Asia. He is one of the founders of India's National Stock Exchange ("NSE") where he worked from 1992 to 2000. He is best known as the father of modern financial derivatives in India due to his work at NSE. He was instrumental in setting up India's first fully automated screen based trading system and first commercial satellite communications network. 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 and was also the CEO of the cricket team Mumbai Indians in its formative years.</li> <li>■ He currently serves as the Chairperson on the Board of Governors (BoGs) of the National Institute of Technology (NIT) Manipur. He is an Advisor to the Technical Evaluation Committee set up by the Department of Posts for Postal Bank and also a part of several other 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.</li> <li>■ He holds a B Tech in Mechanical Engineering from IIT Bombay and a PGDM from IIM Kolkata. He is a Distinguished Visiting professor at Ryerson University, Toronto, Canada. In recognition of his contribution to industry he has received many awards at National and International levels.</li> </ul>
	<b>V Balasubramaniam</b> Chief Business Officer	<ul style="list-style-type: none"> <li>■ <b>V Bala</b> heads the business development encompassing Equities, Equity Derivatives, Debt, Interest Rate Futures, Currency Derivatives, Mutual Fund Distribution platform and 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.</li> <li>■ 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.</li> <li>■ 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.</li> </ul>
	<b>Nehal Vora</b> Chief Regulatory Officer	<ul style="list-style-type: none"> <li>■ <b>Nehal Vora</b> 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</li> <li>■ 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 &amp; Compliance at DSP Merrill Lynch Ltd heading Broking and Investment Banking Compliance</li> <li>■ 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</li> </ul>

## Management Team (Contd...)

	NAME / TITLE	DESCRIPTION
	<b>Nayan Mehta</b> Chief Financial Officer	<ul style="list-style-type: none"> <li>■ <b>Nayan Mehta</b> 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.</li> <li>■ He has previously worked at Credit Analysis &amp; Research Ltd. as Joint General Manager (Accounts), CFO at Multi Commodity Exchange of India Limited and has also worked at the National Stock Exchange.</li> <li>■ 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</li> </ul>
	<b>Kersi Tavadia</b> Chief Information Officer	<ul style="list-style-type: none"> <li>■ <b>Kersi Tavadia</b> 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</li> <li>■ He is instrumental in promoting, adaption of Open Source technologies and has successfully deployed one of the largest Data Warehouse on Open source platform.</li> <li>■ He has provided technical leadership &amp; architectural vision in implementation of Mission Critical Applications across the organization including IT Infrastructure, Web portals, web based and non-web based customized solutions.</li> <li>■ He is amongst the Pioneers to implement single-window Multi-Exchange online trading systems to facilitate trading across multiple asset classes.</li> </ul>
	<b>Neeraj Kulshrestha</b> Chief of Business Operations	<ul style="list-style-type: none"> <li>■ <b>Neeraj Kulshrestha</b> heads Trading, Listing, Membership Operations and listing sales.</li> <li>■ He has about 27 year experience in Capital markets, which includes Securities Markets and General Insurance.</li> <li>■ 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..</li> <li>■ He has completed his Bachelors in Computer Science from Delhi University and a MBA (Finance) from Indore University.</li> </ul>

# Lines of Business

Listing Business		Market Business			Data Business	
Primary Market	Secondary Market	BSE Star Mutual Funds platform	New Debt Segment	Membership	Post Trade	Information Products
<ul style="list-style-type: none"> <li>▪ IPO</li> <li>➢ EQUITY</li> <li>➢ SME</li> <li>➢ BOND</li> <li>▪ FPO</li> <li>▪ BSE Hi-Tech</li> <li>▪ Sovereign Gold Bonds</li> <li>▪ Mutual Fund-NFO</li> </ul>	<ul style="list-style-type: none"> <li>▪ Equity Cash</li> <li>➢ Small &amp; Medium Enterprises</li> <li>➢ Offer to Buy</li> <li>➢ Offer for Sale</li> <li>➢ Close Ended Mutual Funds</li> <li>➢ Corporate Bonds</li> <li>➢ Government Securities and Sovereign Gold Bonds</li> <li>▪ Equity Derivatives</li> <li>▪ Currency Derivatives</li> <li>▪ Interest Rate Futures</li> <li>▪ Securities lending &amp; borrowing (through ICCL)</li> <li>▪ ETF</li> </ul>	<ul style="list-style-type: none"> <li>▪ Order placement platform</li> </ul>	<ul style="list-style-type: none"> <li>▪ OTC Corporate Bond Reporting CP/CD</li> <li>▪ Trade Repository</li> </ul>	<ul style="list-style-type: none"> <li>▪ Trading Members</li> <li>▪ Clearing Members</li> <li>▪ Self-clearing Members</li> </ul>	<ul style="list-style-type: none"> <li>▪ Clearing and Settlement Services through ICCL</li> <li>▪ Depository Services through CDSL</li> </ul>	<ul style="list-style-type: none"> <li>▪ Market Data</li> <li>▪ Corporate Data</li> <li>▪ Corporate Action through SWIFT</li> <li>▪ End of Day Products</li> <li>▪ Historical Data</li> <li>▪ Macro economic Indices</li> </ul>

## Supporting Business

Technology	Index Products	Training	Corporate Social Responsibility
<ul style="list-style-type: none"> <li>▪ IT services &amp; solutions</li> </ul>	<ul style="list-style-type: none"> <li>▪ S&amp;P BSE SENSEX</li> <li>▪ Sectoral Indices</li> <li>▪ Sustainability Indices</li> <li>▪ Thematic Indices</li> <li>▪ Fixed Income Indices</li> </ul>	<ul style="list-style-type: none"> <li>▪ Training</li> <li>▪ Certification</li> <li>▪ Skill Development</li> <li>▪ Technology Incubator &amp; Accelerator Program</li> </ul>	<ul style="list-style-type: none"> <li>▪ BSE CSR Samman</li> </ul>

## BSE Global Ranking

PRODUCT	MEASURE	RANK
CURRENCY OPTIONS	17 Million Contracts Approx	2 <sup>nd</sup>
CURRENCY FUTURES	21 Million Contracts Approx	3 <sup>rd</sup>
EQUITY CASH SEGMENT	35 Million Trades Approx	10 <sup>th</sup>
	1.66 (Amount in USD Trillion) Market Capitalisation	11 <sup>th</sup>

*\*Source: World Federation of Exchanges*

*Data as of September 2016*

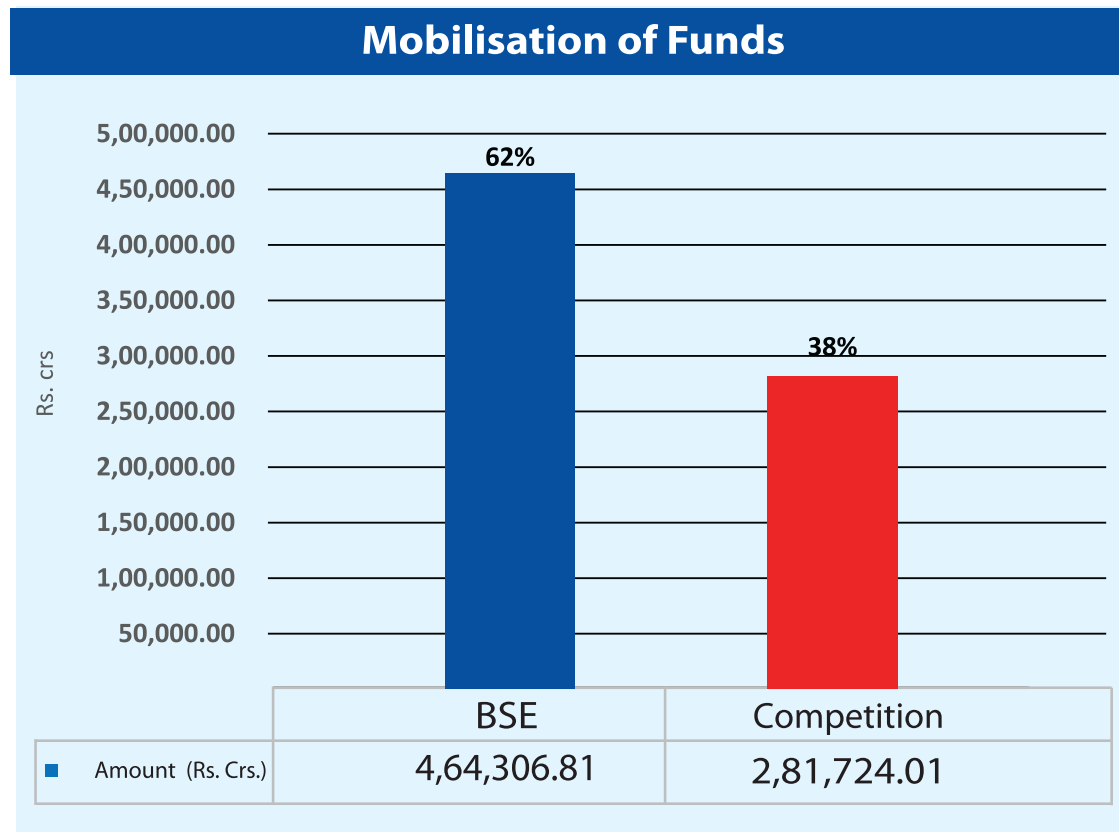




# Listing Business



## Equity and Debt Mobilisation of funds (Public Offer)

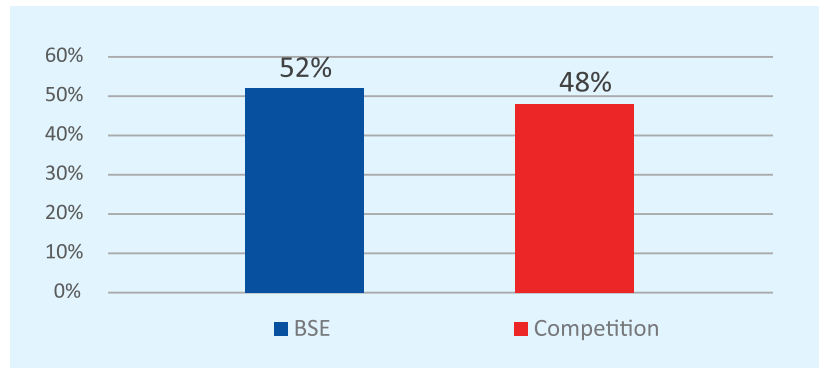


5373 Companies  
listed with  
Equities

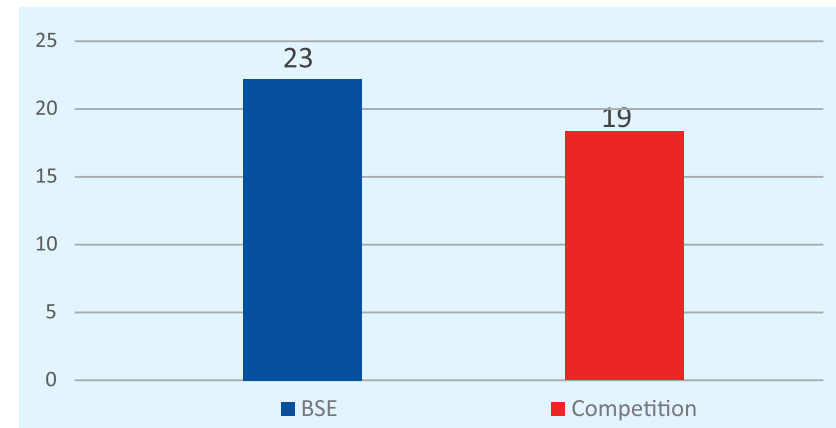
- Amount raised across the Exchanges since April 2015 till October 2016

# Equity and Debt Market

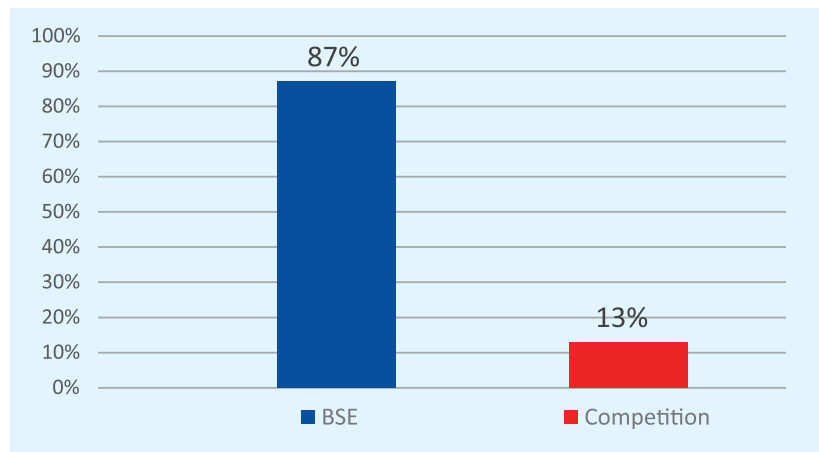
**Bidding statistics for Equity IPO (%) \***



**Designated Exchange for Equity IPO  
No. of issues \***



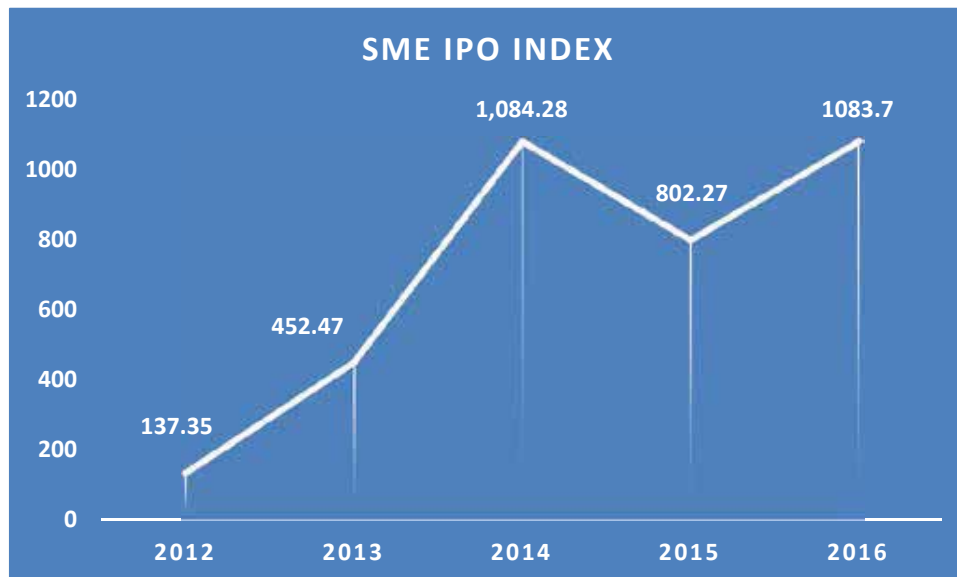
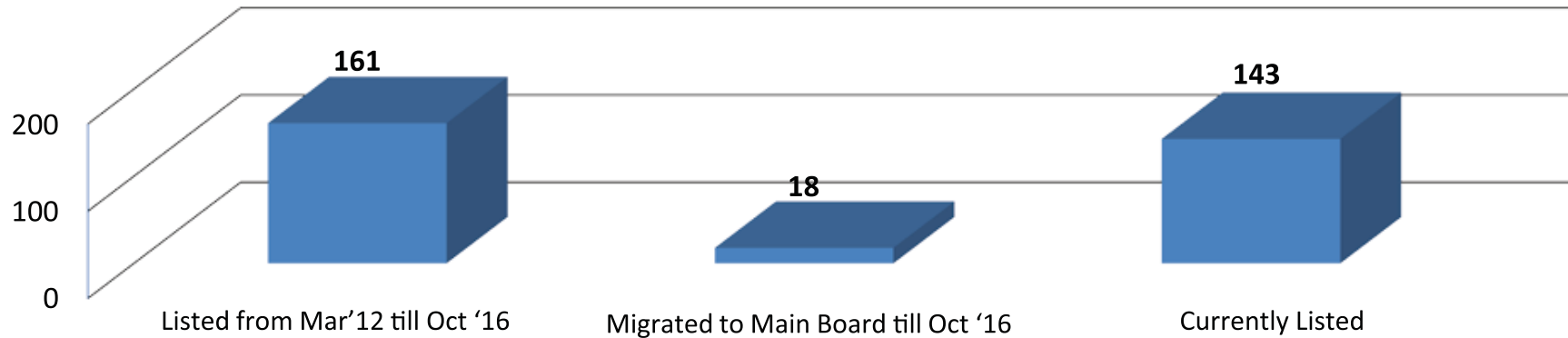
**Bidding Statistics for Debt (%)\***



- BSE is the preferred choice for listing Privately Placed Debt Instruments (PPDI). In FY15-16, BSE has listed 1760 Instruments vis-a-vis 1339 on other Exchange. In F.Y. 2016-17 till October 2016, Exchange has listed 1479 instruments with a market cap of Rs. 2,37,164.5 crores vis a vis 774 instruments on the other Exchange.
- In F.Y 2015-16, 20 Debt Public issues have tapped the market. BSE is the Designated Stock Exchange for 20 issues with 15 issues being listed only on BSE.
- In F.Y 2016-17 till October 2016, 10 Debt Public issues have tapped the market and BSE is the Designated Stock Exchange for the 8 public issues.

# SME Platform

## Companies on BSE-SME Platform



- BSE is the first stock exchange in India to receive approval from SEBI on 26th September 2011 to launch SME Platform. SME IPO Index was launched on 14th December, 2012 aimed at tracking the companies listed on SME platform with a Base value of 100. As on 31st October, 2016 its value was 1,083.70.
- BSE SME Platform provides a great opportunity to the entrepreneurs to raise equity capital for the growth and expansion of their companies. Listing of the companies brings visibility and corporate governance into the company which further enhances the credibility of company. It will help unleash the valuation of the company and in the process create wealth for all the stakeholders including investors, and facility to exit at any point of time. It also provides the immense opportunity to the investors to identify and invest in the good companies at early stage.
- Total Market Capitalization of 143 companies – ₹10,069.30 Crs
- Total Market Capitalization of 18 companies Migrated to main Board – ₹ 5627.61 Crs

Data as of October 2016

## BSE Hi-Tech

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.



### 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

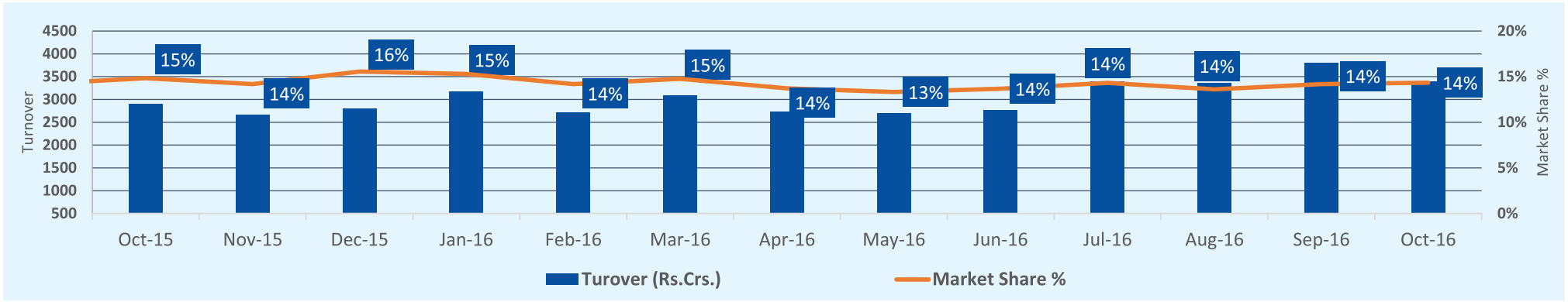


**Market  
Business**

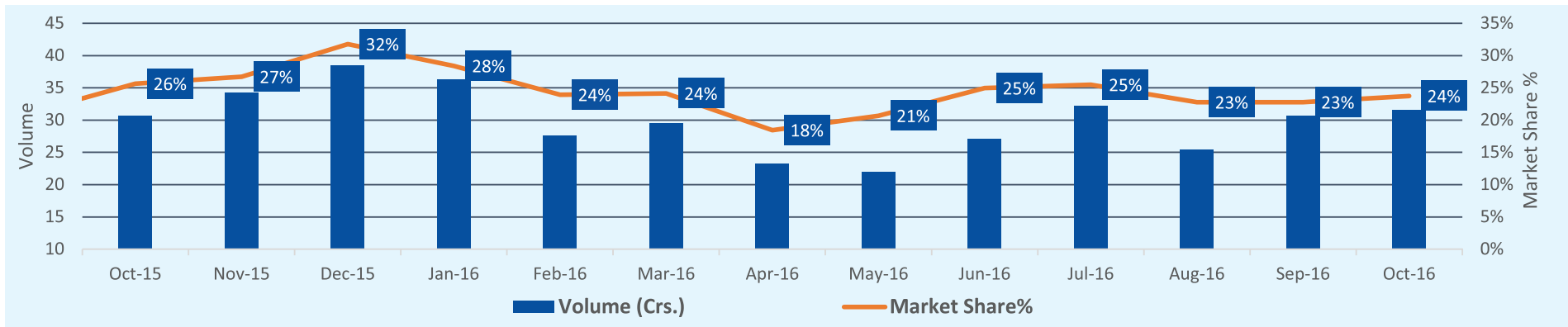
**3SE**  
*EXPERIENCE THE NEW*

# Equity Cash Market

**Avg Equity Turnover(Rs. Crs.) and Market Share (%)**



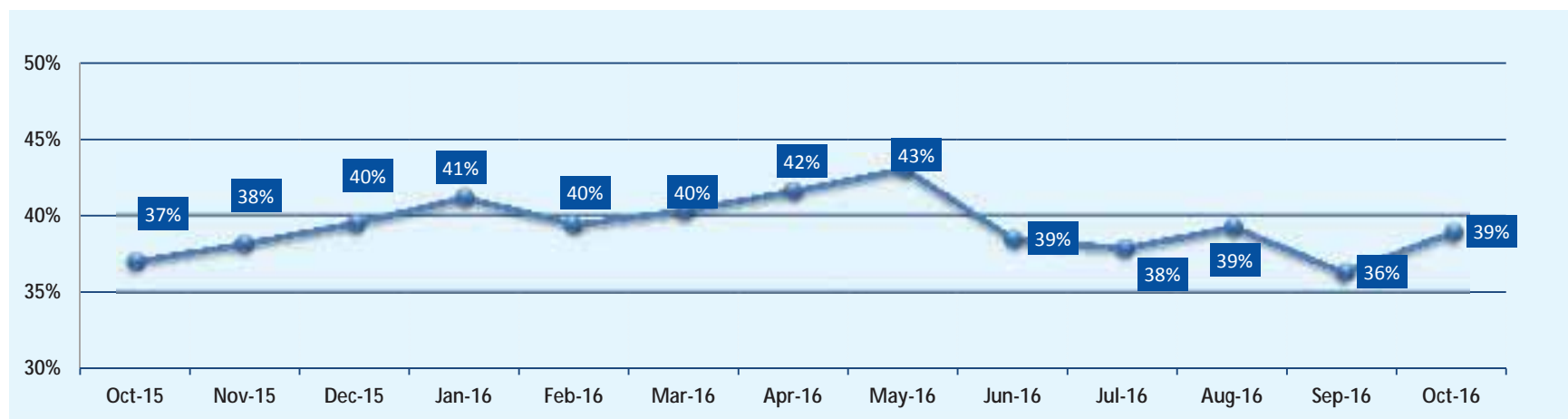
**Avg Equity Volume (No. Of Shares Traded in Crs.) & Market Share (%)**



Data as of October 2016

# Currency Derivatives

## Avg Market Share %



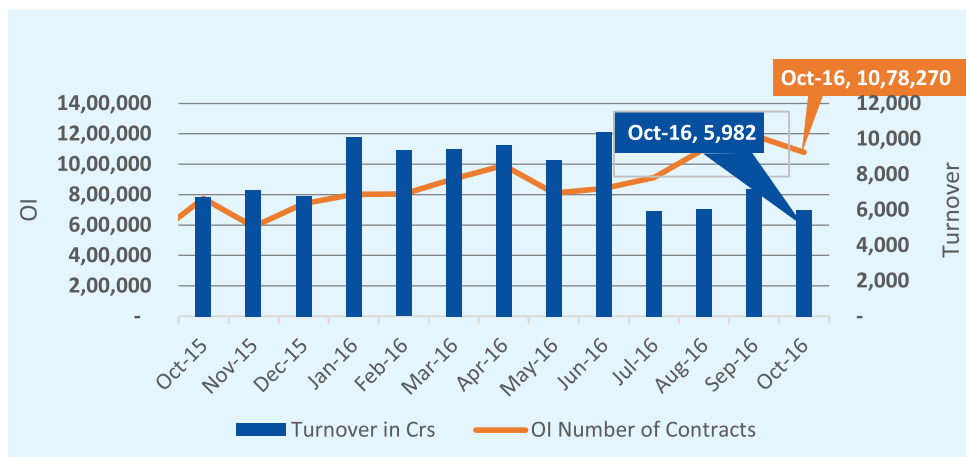
## Competitive Advantage

Currency		BSE	NSE	MSEI
Exchange Transaction Charges (Rs / Per Cr)	Futures	10	110	105
Cost Saving @ BSE up to		90.91%		
Exchange Transaction Charges (Rs. / Per Cr.)	Options	10	4000	1000
Cost Saving @ BSE up to		99.75%		

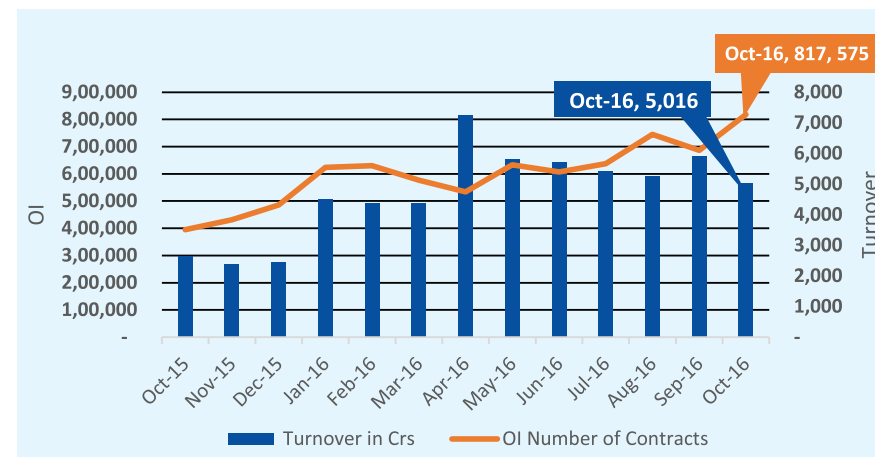


## Currency Derivatives cont....

### Avg Currency Futures Turnover Vs OI



### Avg Currency Options Turnover Vs OI



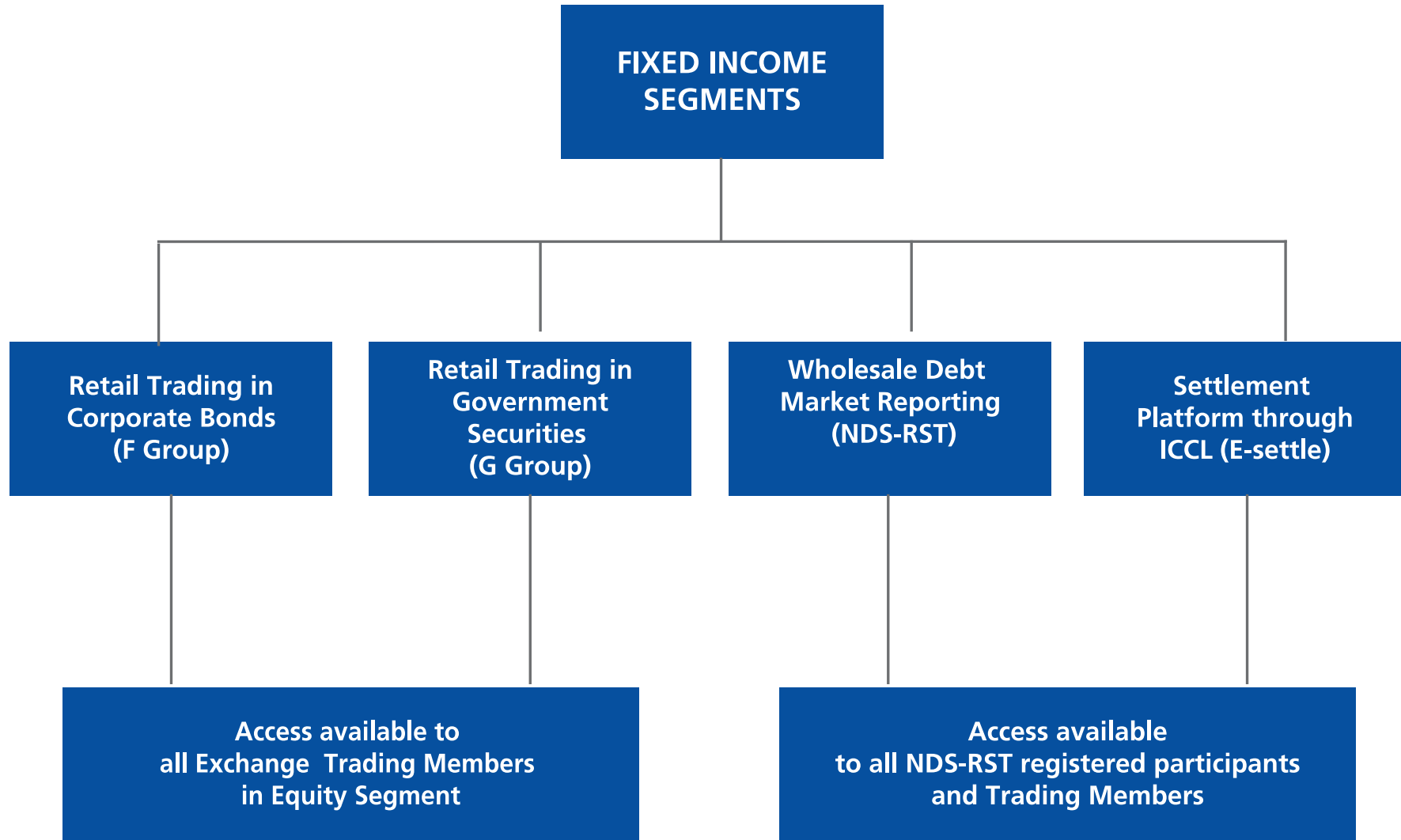
### Futures Daily Avg Turnover & OI YOY % change

Instrument	Daily Avg Turnover & OI			
	Turnover (Rs. Crs.)	Oct'16	Oct'15	YOY % Change
Turnover (Rs. Crs.)		5,982	6,711	-11%
OI (Number of Contracts)		10,78,270	7,75,622	39%

### Futures Daily Avg Turnover & OI YOY % change

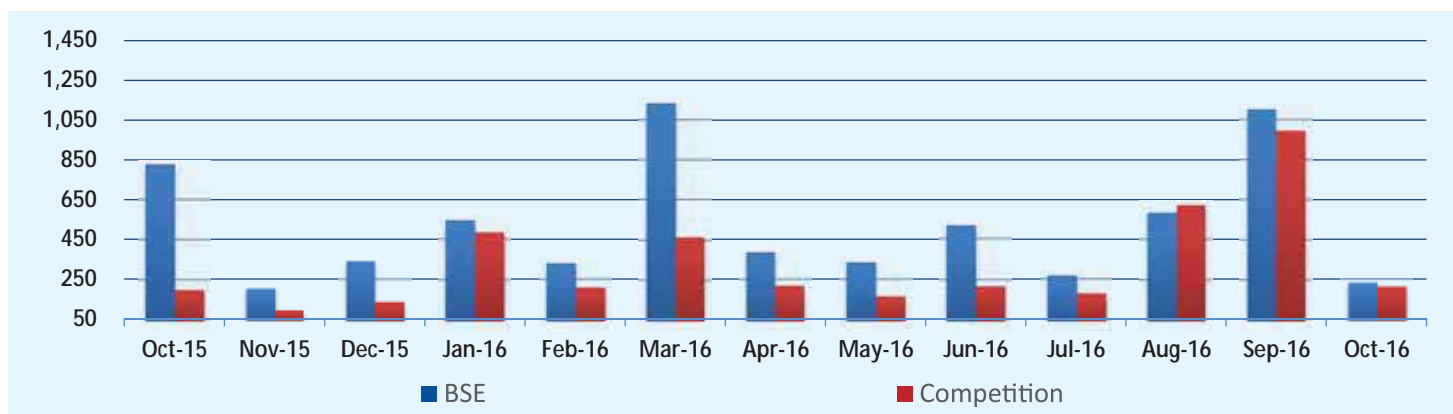
Instrument	Daily Avg Turnover & OI			
	Turnover (Rs. Crs.)	Oct'16	Oct'15	YOY % Change
CURRENCY OPTIONS		5,016	2,454	104%
OI (Number of Contracts)		8,17,575	3,95,094	107%

# Fixed Income Segments Overview



## Fixed Income Segments

### Retail Trading in Corporate Bonds (Rs. Crs.)



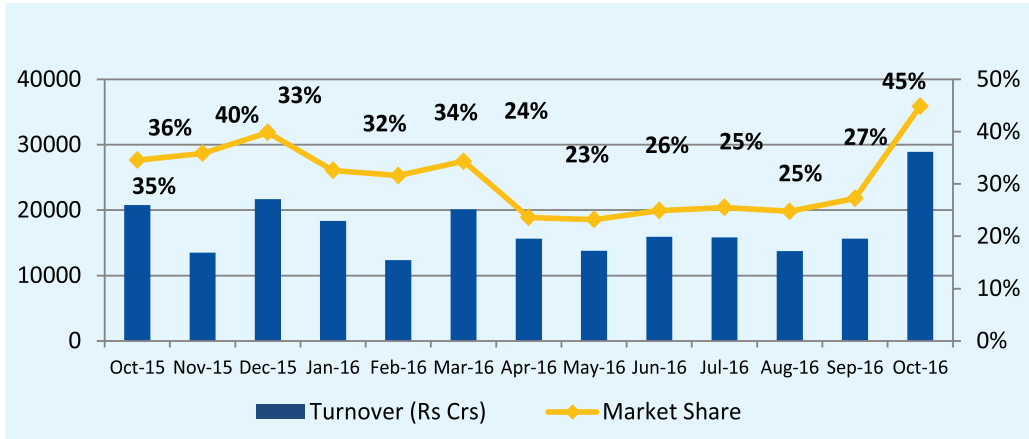
Retail Trading In Corporate Bonds (F Group)	FY 2014-15	FY 2015-16	2016-17
Turnover (Rs. Crs.)	3,756	4,608	3,455
Number of Member / Participants	1353	1,358	1,373
Wholesale Segment Reporting Of Government Bonds	FY 2014-15	FY 2015-16	2016-17
Turnover (Rs. Crs.)	2,21,233	2,27,124	1,19,515
Number of Member / Participants	130	130	130
Wholesale Segment Reporting Of Corporate Bonds (ICDM)	FY 2014-15	FY 2015-16	2016-17
Turnover (Rs. Crs.)	2,03,387	2,07,652	1,35,269
Number of Member / Participants	1169	1,232	1301
Settlement Of Corporate Bonds and CP/CD (E- Settle)	FY 2014-15	FY 2015-16	2016-17
Settlement Of Corporate Bonds (Rs. Crs.)	44,432	57,874	7,214
Settlement of CPs/CDs (Rs. Crs.)	1,90,407	4,63,134	2,19,376
Number of Member /Participants	1,169	1,232	1301

- BSE has maintained the 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 October 2016 was 52%
- Market Share reporting volumes in Wholesale Debt Market of Government Bonds in October 2016 was 45%. 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 October 2016 Rs. 7145.16 Crs

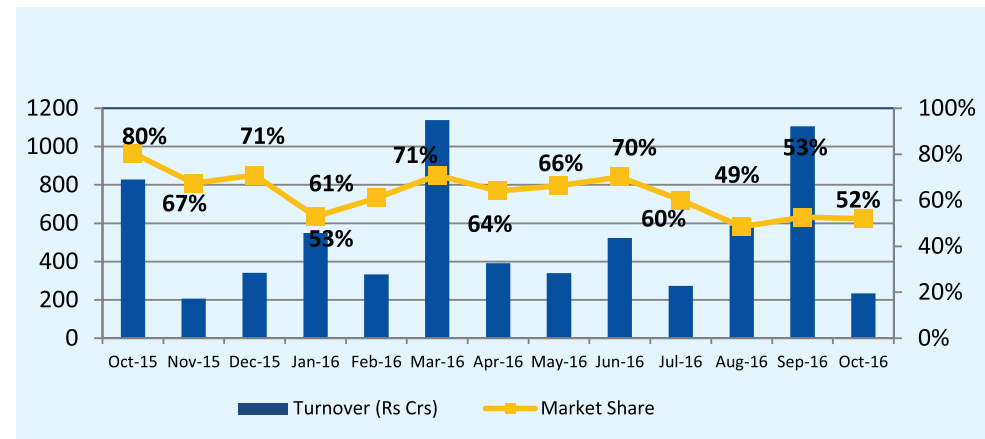
Data as of October 2016

# Fixed Income Segments (cont..)

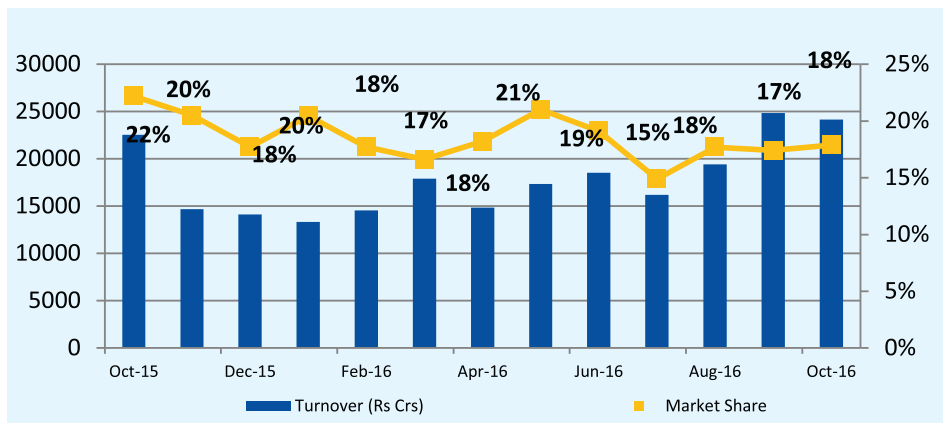
## G-Sec Reporting



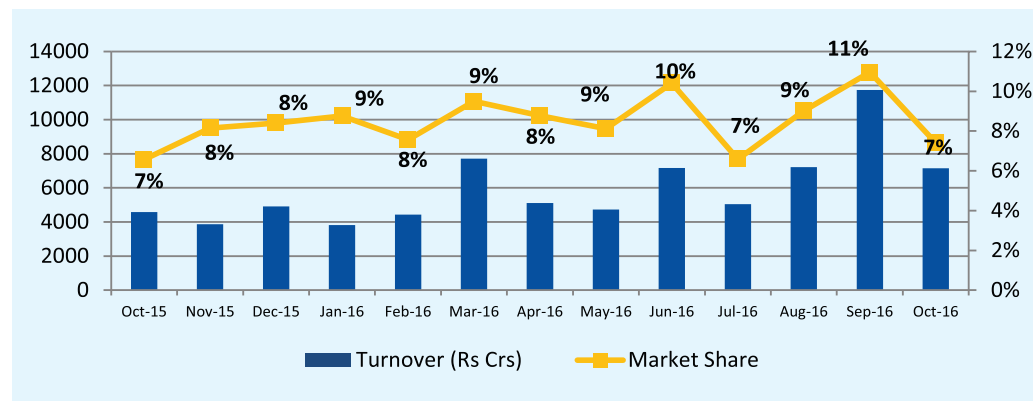
## F - Group



## Corporate Bond Reporting

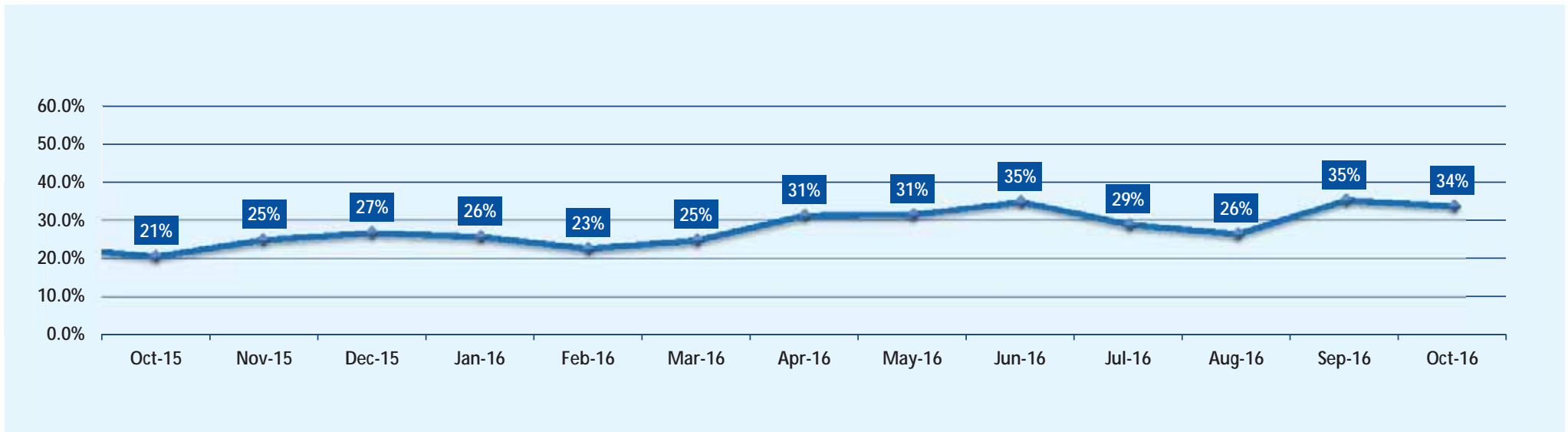


## ICCL Settlement



# Interest Rate Derivatives

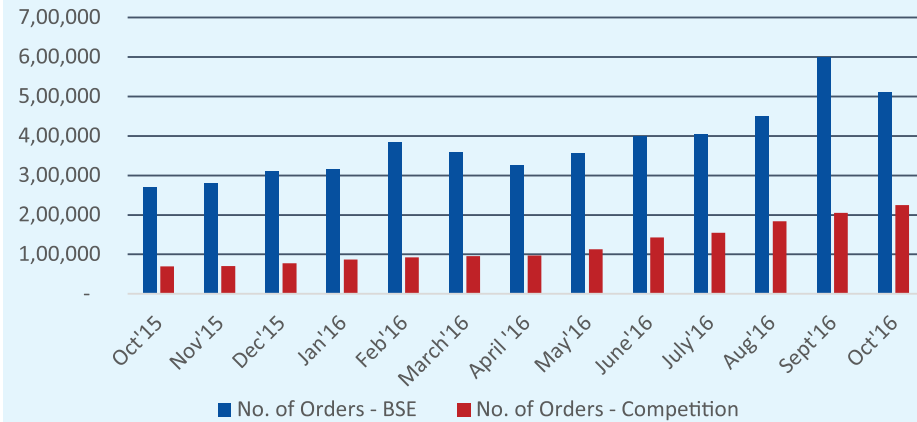
Avg Market Share %



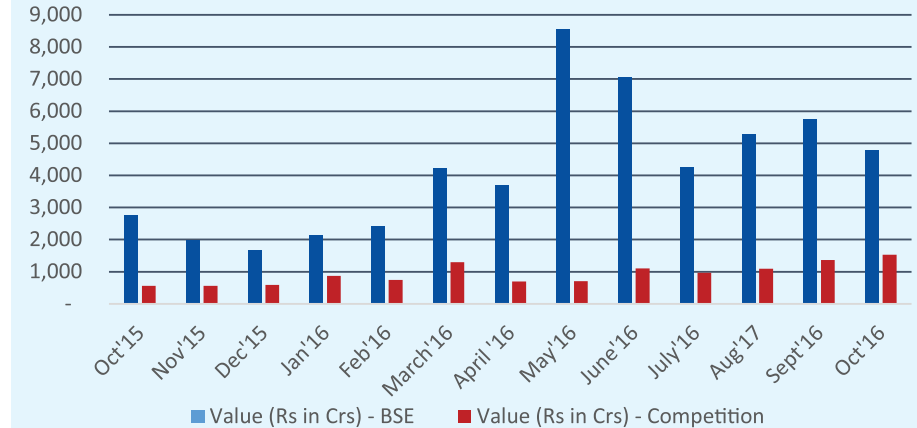
Data as of October 2016

# Mutual Fund Distribution Platform-StAR MF

No. of Orders



Value (Rs. Crs.)



## PLATFORM FEATURES

- Completely digital- Demat and Non Demat /Mutual Fund transactions , while facilitating the benefits of Physical mode
- 24x7 order acceptance
- SGB enabled for MFDs
- 6 day order holding facility
- Paperless SIP
- Any day STP and SWP

## CONNECTIVITY & USPs

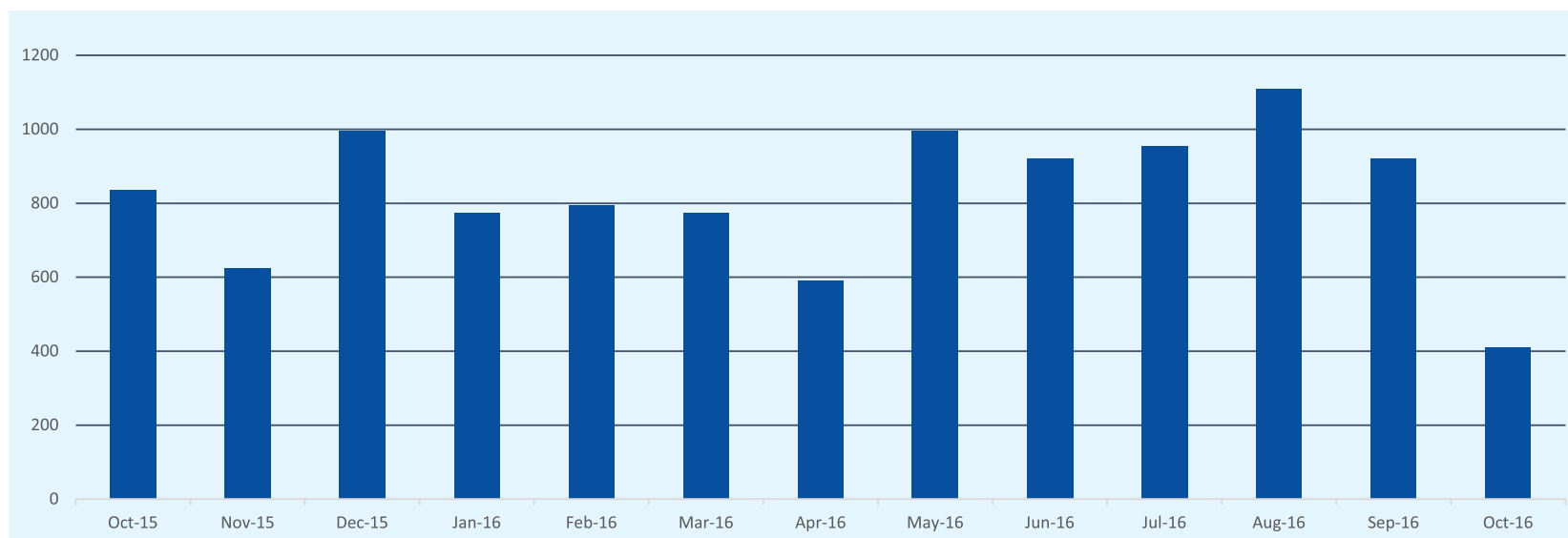
- Multi-mode of platform access
- Unique overnight investments framework
- Completely digital and REAL Time Investors registration / onboarding
- Widely accepted by NDs / Custodians / Brokers / IFA Platform / New age Digital Distributors / IFAs,
- E-submission and online MFD Registration

## PLATFORM STATISTICS

- Over 33 Lakh orders aggregating to Rs 44,235 Crs has been transitioned on BSE StAR MF Platform during FY 15-16
- Market Share 85% in FY'15-16 , Over 400000 SIPs/XSIPs registered, Market Share 90% in FY 16-17.
- Largest number of transaction executed in our platform

## Exchange Traded Funds

Turnover (Rs Crs.)



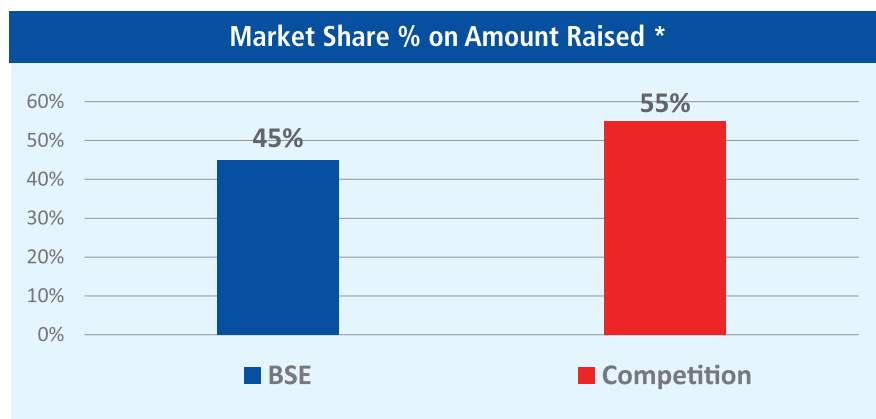
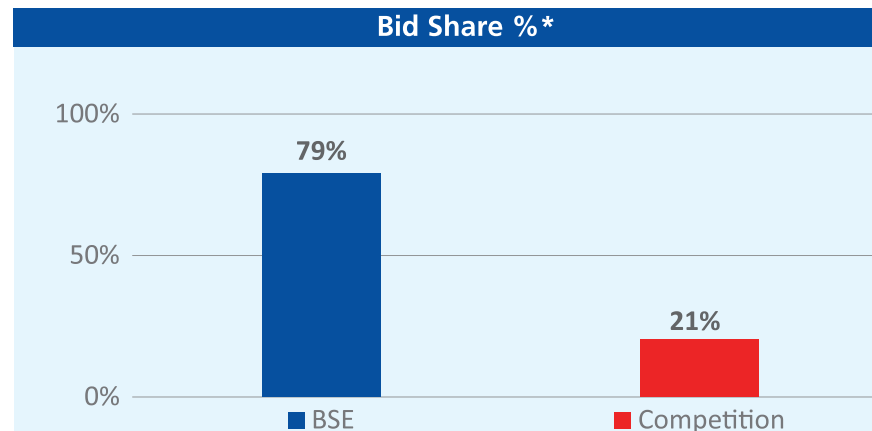
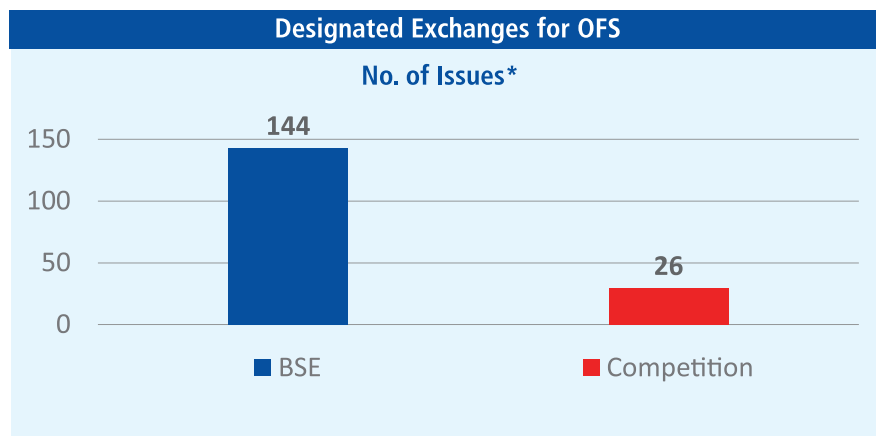
Turnover Slab	BSE	Competition	Cost Saving @ BSE
Up to 1250 Crs	275	325	15.38%
>1250 Crs < 2500 Crs	275	320	14.06%
>2500 Crs < 5000 Crs	275	315	12.70%
>5000 Crs < 10000 Crs	275	310	11.29%
>10000 Crs < 15000 Crs	275	305	9.84%
>15000 Crs	275	300	8.33%

- 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
- 49 ETF listings on BSE as on September 2016\*

Data as of October 2016

# 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 ,170 companies have completed OFS issues of which BSE was appointed the Designated Stock Exchange in 144 issues. Over 700 members have participated in OFS via BSE platform.
- The process has helped the Government to raise over Rs. 86,712 Crs through divestment of holdings in PSUs.



97 OFS issues were conducted Exclusively on BSE platform

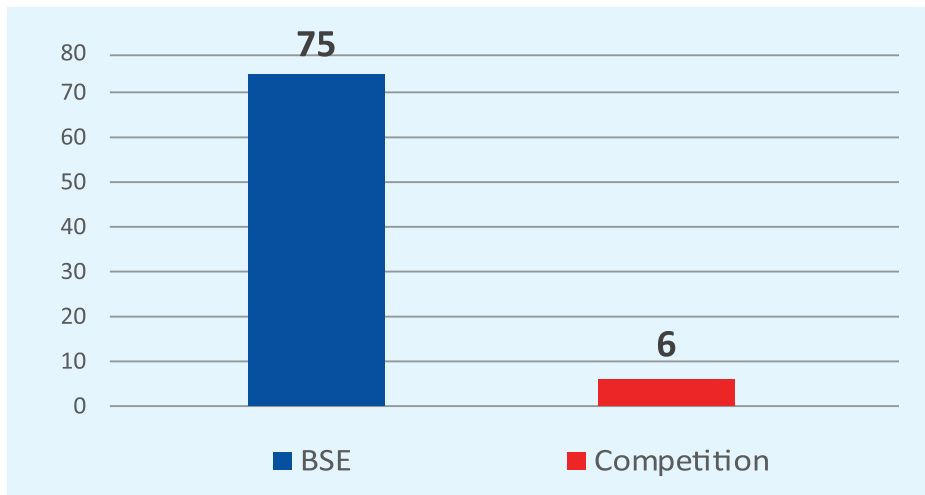
\*Since Feb 2012

Data as of October 2016

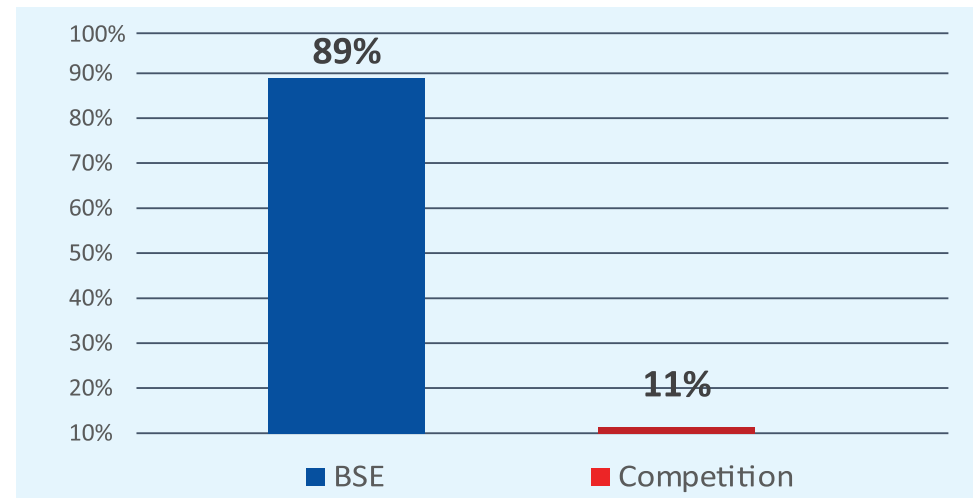


# Offer to Buy (OTB) – Acquisition Window

Designated Exchanges for OTB  
No. Of Issues\*



Bid Share %\*



- 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 1st July, 2015.
- Till Oct’ 16, 81 companies have completed their OTB issues of which BSE was appointed the Designated Stock Exchange in 75 OTB issues.

\* Since July 2015

67 issues  
were conducted  
exclusively  
on BSE platform



**Data  
Business**



## Data Business Product

### 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 or Historical

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



# Technology Initiatives

**3SE**  
EXPERIENCE THE NEW

# Bolt Plus on Web (BoW)



One Window with Multiple Utilities			
Exchanges	Products	Users	Connectivity
<ul style="list-style-type: none"> <li>BSE →</li> <li>NSE →</li> <li>MCX →</li> <li>NCDEX</li> </ul>	<ul style="list-style-type: none"> <li>Equity – F&amp;O – Currency– IRF - OFS – Mutual Fund – SLB – Debt – ITP</li> <li>Equity – F&amp;O – Currency</li> <li>Commodities</li> </ul>	<ul style="list-style-type: none"> <li>Dealers</li> <li>Investors</li> <li>Admin for HO</li> <li>Multiple Mini Admin for Regions &amp; Branches</li> <li>RMS</li> </ul>	<ul style="list-style-type: none"> <li>Leased Line</li> <li>Internet</li> </ul>

Application for Desktop and Mobile	
<p><b>User friendly features</b></p> <ul style="list-style-type: none"> <li>Dual Market Depth Display</li> <li>AMO – After Market Orders</li> <li>Time base Square up for Intraday transactions and One click square up on M2M Alert.</li> <li>Corporate Information Analysis</li> <li>Top Gainers / Top Losers - Most Active by VOLUME / VALUE</li> <li>User define short keys - predefine Key Mapping Styles for ODIN-NOW</li> <li>NEWS Plus with RSS feeds and Twitter</li> <li>Web links for 100 + Visual Operational Help Video's</li> <li>Member Branding through EXE</li> </ul>	<ul style="list-style-type: none"> <li>Tip of the Day prompt on login – notifying what all can be done</li> <li>Member Branding through EXE Trade commencement in one day</li> <li>No Extra hardware like TAP-IML server required</li> </ul>



Bolt + on Web (BoW) – Free of cost for all members

# New Trading Architecture – BOLT PLUS

## Bolt Plus Live

- Products available for trading
  - Currency Derivatives – 29<sup>th</sup> November 2013
  - Interest Rates Futures - 28<sup>th</sup> January 2014
  - Equity Derivatives - 10<sup>th</sup> February 2014
  - Equity – 7<sup>th</sup> 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  $\mu$ s (Gateway in to Gateway out)
- Network latency for Colo users – 10  $\mu$ s
- Throughput Capacity: 5 lacs order per second
- Scalability: Horizontally scalable by adding partitions

## Technology Programme –Co-location 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).
- Market access across Equity, Equity Derivatives and Currency Derivatives segments.
- 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.

### 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;

- 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

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
Co-location 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	<b>Annual Cost per connection</b> Rs.10 Lakhs for 400 messages/sec
Market data connectivity cost	Free (including EOBI feed)	<b>TBT feed Annual Cost per feed</b> Full Rack : Rs.1.00 Lakh / Half Rack: Rs.1.00 Lakh

\*10G network with Solarflare card SFN7322F with Onload # Based on market feedback



## Sponsored Market Access

### Implementation of 'Sponsored Market Access' (SMA) at Co-location

- 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 Co-location 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

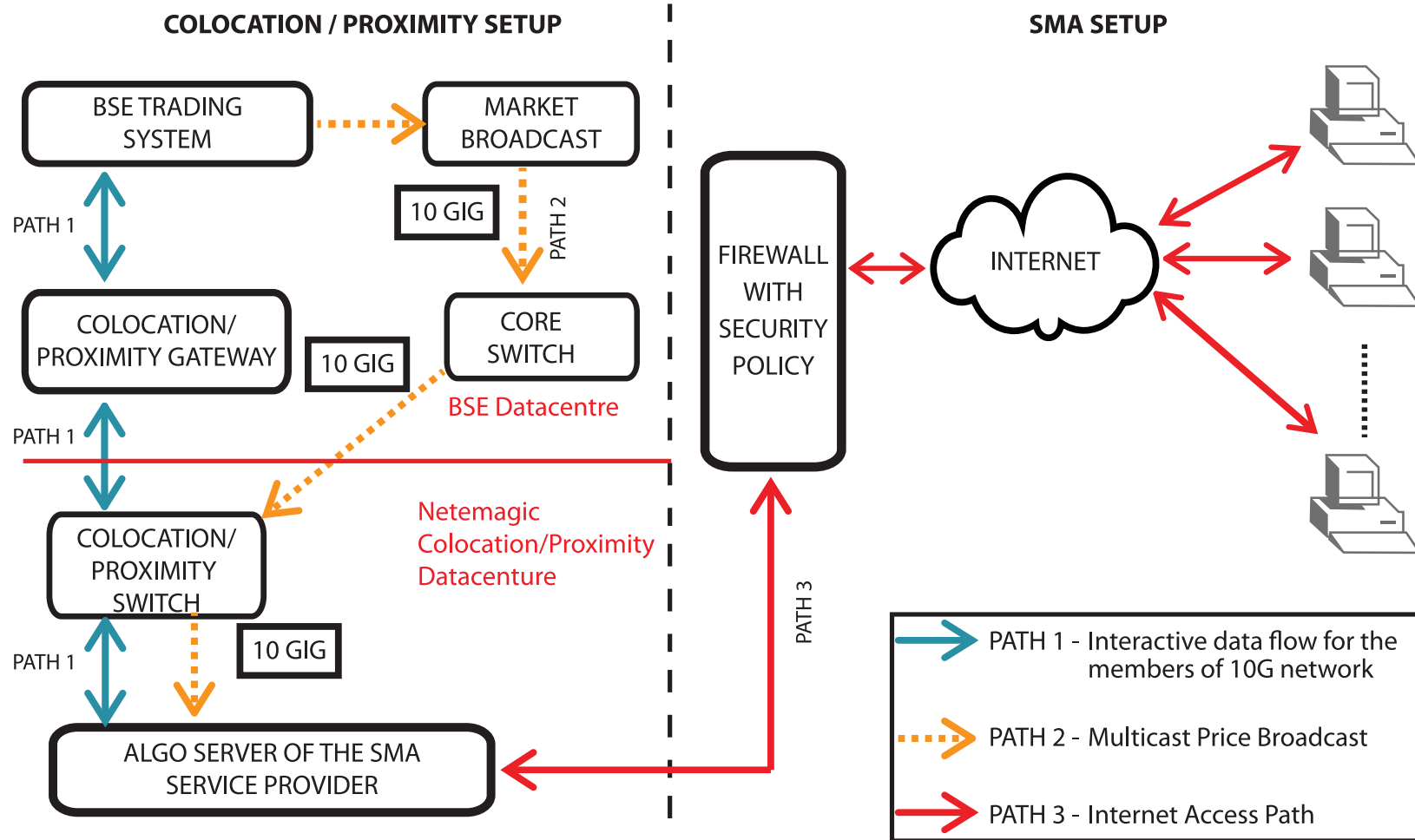
#### For Members

- Zero capital expenditure on infrastructure at Co-location.
- The algo orders will be generated at Co-location and sent to the BSE Trading system via the high speed 10G Co-location 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 Co-location.
- 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 Co-location



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

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