uTrade Solutions

Indian Financial Markets Update

H2 2016

6th January, 2017

2016 – Year of Black Swans

2016 had been a year of unexpected events, with Brexit, followed by Demonetisation in India and Trump victory in US presidential elections.

"De-globalisation" has become a new norm as developed nations struggle for growth and creating jobs for their own citizens; clearly evident from Brexit and Trump victory. Geopolitical and Climate Change related challenges continue to mount and threaten social order.

After a reasonably volatile first half in 2016, Brexit shook the European and world confidence. Though the broad damage or re-allocation of financial services within European countries (away from UK) was relatively contained.

GST bill was passed in India, alluding to "One Nation, One Tax" (though the reality was one nation, and few taxes), raising the sentiments for Indian growth in near future.

But on 8th November, **Indian Government in an unprecedented move, decided to demonetize** (i.e. discontinuation of higher denomination notes which were typically used in the parallel cash economy and harder to tax / monitor by the authorities). Whilst this may prove to be beneficial in long term, it has drastically dented the Indian economy in the short to medium term due to following factors,

- Indian economy works on ~85% cash transactions. The cash and banked economies are deeply linked. People's habits of using cash for retail, business, and other asset transactions are fairly sticky. Lack of alternate cash notes in short terms has been painful. To try and change that overnight is virtually impossible and has hurt the Indian economy.

- GDP will drop dramatically due to sudden cash crunch, and could lead to joblessness in 2017. This will become more evident in Q1 2017 when listed companies declare their results.

Nevertheless, we all look forward to 2017 optimistically and hope the Indian economy can recover from 2016 and leverage off the changes brought by the Government.

Start-up ecosystem in India witnessed massive correction with several well-funded start-ups shutting down, unicorns like Flipkart facing mark-down (valued at $5bn compared to $15bn a year ago), and new investments drying down due to lack of sustainable investment opportunities.

Donald Trump's victory in US Presidential elections was the biggest global black swan event. All the sceptics are getting around to offering him a chance to perform. In fairness, Trump is the first non-politician businessman President in decades. Trump's focus on de-regulation, jobs creation, moving away from consumption driven economy (that has led to trillions of dollars of debt in the last few decades), creating pro-business environment, investing into education and infrastructure (which almost always lead to GDP growth in long term), engaging top business leaders to help devise future policy, bringing corporate profits back to America at 10% tax rate with no questions asked (*should inspire Indian government to tax at 10% rather than ~90% for bringing money back into the country)* seem fairly promising at the outset.

From India's perspective, Trumps' focus on Indian trade partnership shall help. Though in short term, due to immigration tightening in US (challenging for Indian IT services firms), and Interest rates rising (implying that US FDI in India shall decrease), Indian economy will lose out.

Blockchain continues to dominate as the latest and possibly the greatest technology with huge potential in re-organizing worlds social economic order. There are major developments across Blockchain open source platforms (like Etherium, Multichain, R3 Corda, IBM Hyperledger), which have led to undesirable fragmentation at a very early stage of Blockchain adoption. Blockchain applications across all sectors including Financial Services, Healthcare, Identity management, etc. are moving gradually from Proof of Concepts to Minimum Viable Products. We believe in the next couple of years, we will embrace blockchain like we adopted Internet in 1998.

Technology driven Automation showed glimpses of what future might bring. With evolution of driverless cars, virtual assistants, messaging bots, healthcare ATMs, 3D printing, Artificial Intelligence; the future shall improve human lives dramatically; while at same time possibly imposing social challenges including joblessness and high dependence on technology usage.

Section 1. Buy side

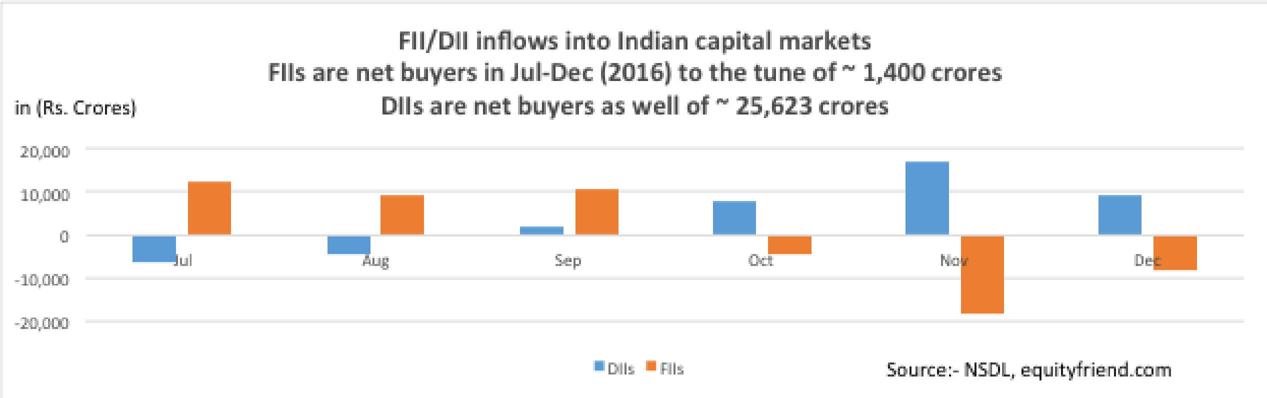
Foreign Investors investment in Indian capital markets is tapering off, amidst an uncertain global climate. India outperformed the other emerging BRIC countries.

- Brazil has started growing again in the last few months
- China, slowed down in 2016, and is expected to slow down further in 2017

Domestic institutional investors (including mutual funds) are consistently growing their assets under management, and demonetisation is likely to help them even further. This leads to higher DII participation in Indian capital markets, as shown in the graph below.

Foreign institutional investors, dominated by US driven capital, are moving funds back to US due to their interest rates increase towards the end of last year. Risk adjusted return of few basis points raise in US make non-US investments unworthy.

The chart below shows increased net inflow into Indian capital markets by both Domestic as well as Foreign Institutional Investors.



Following are some of the news stories relevant to the Buy Side:

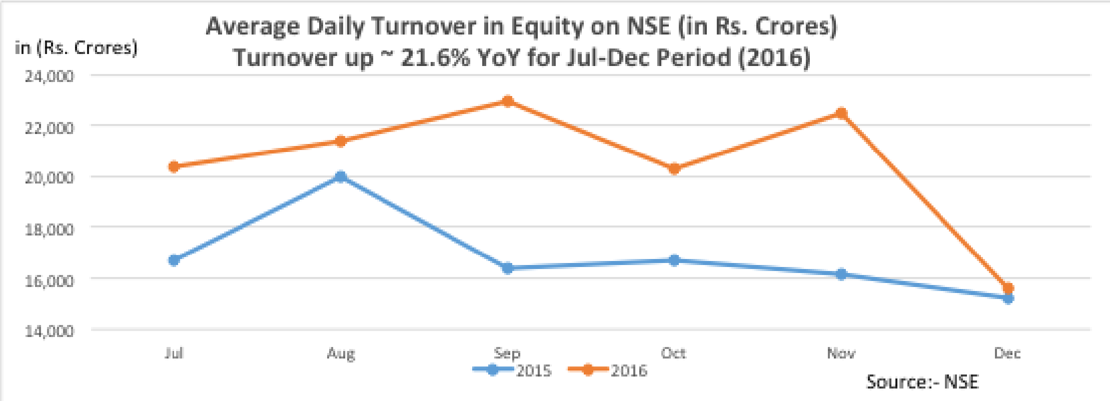
- Mutual Funds AUM has increased at a fast pace to Rs.16.5 trillion by the end of Nov 2016 Mint

Section 2. Sell Side

Indian brokers shall soon be required to isolate client assets, and return client money on a periodic basis, reducing the revenue brokers can make.

The trend of Indian market trading volumes and trading opportunities:

- Seemed good in Aug – Oct this year, following GST
- November was highly volatile post demonetisation, due to expected uncertainties.
- December was a very slow month due to demonetisation as well as year-end Christmas holidays for FIIs. This apparent from exchange volumes shown below too.



Retail volumes picked up in the middle part of 2016, but tapered off post demonetisation.

Several brokers had to reduce their operations and investment plans due to the cash crunch in the economy (and their sources of funding).

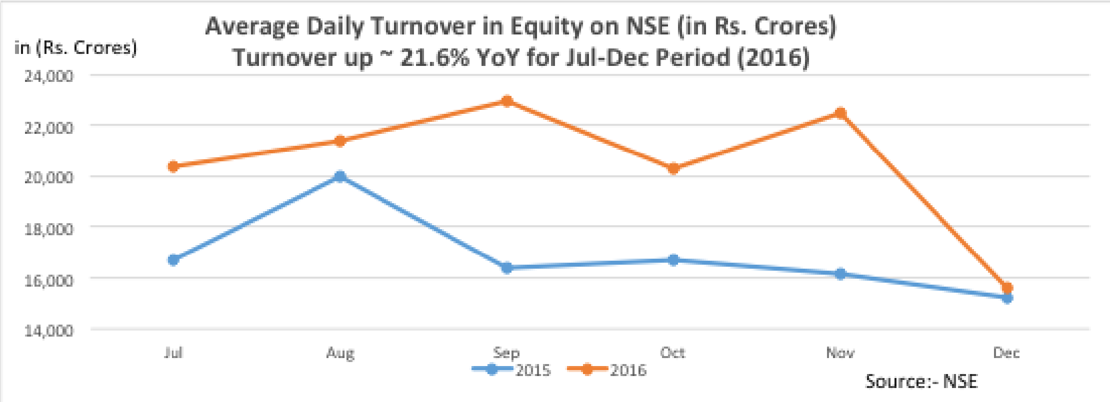
In other major news,

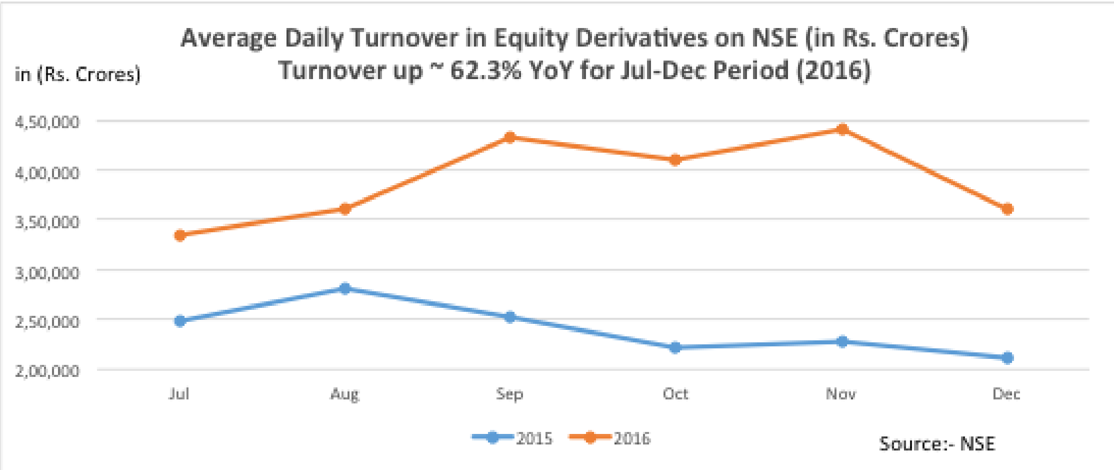
- Indian stock markets downgraded - post demonetization
- Retail brokers start offering algos to retail clients, in order to increase volumes and create trading opportunities. Business Standard
- Stocks brokers stocks rallied this year, led by diversified businesses, as well as better monsoon, GST, etc. leading to better market conditions. The Economic Times
- Cost effective discount broking model continues the get investors' attention. Full service brokers have also launched a differently branded discount broking arm to compete in the space. DNA India
- Various Global Institutional Brokers (including Societe Generale, Standard Chartered, Barclay's) have reduced India operations by either shutting down their institutional brokerage arms or research divisions. Primary driving factors are attributed to global strategic decisions by the banks, high domestic compliance and lack of ample revenue opportunities. This created better space for domestic players to increase market share, especially in the Institutional Buy Side market.

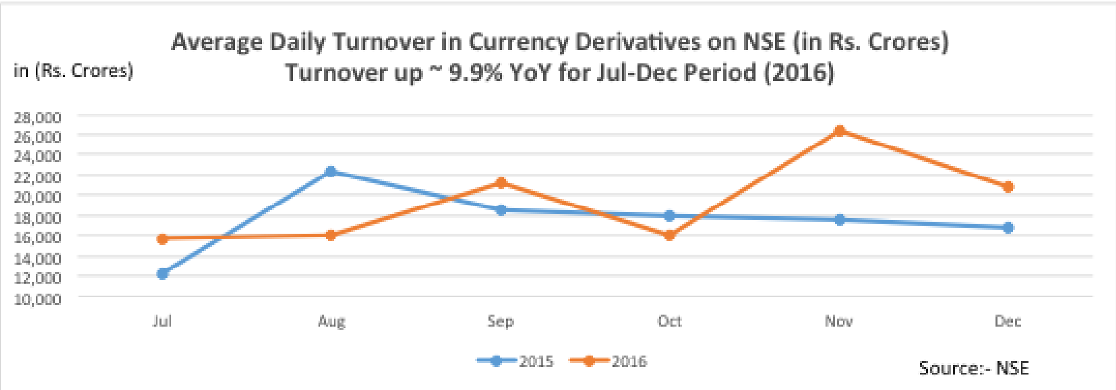
Section 3. Exchanges

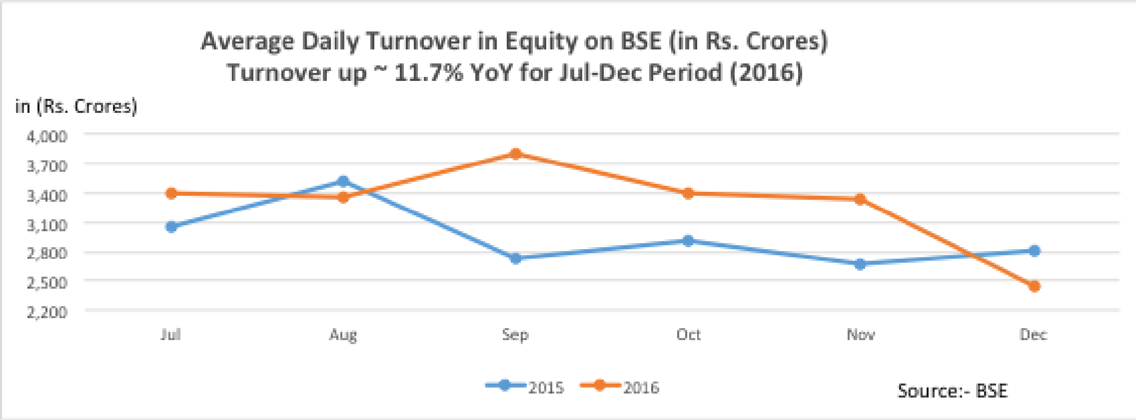
Volumes on Indian exchanges dropped in the later part of the year.

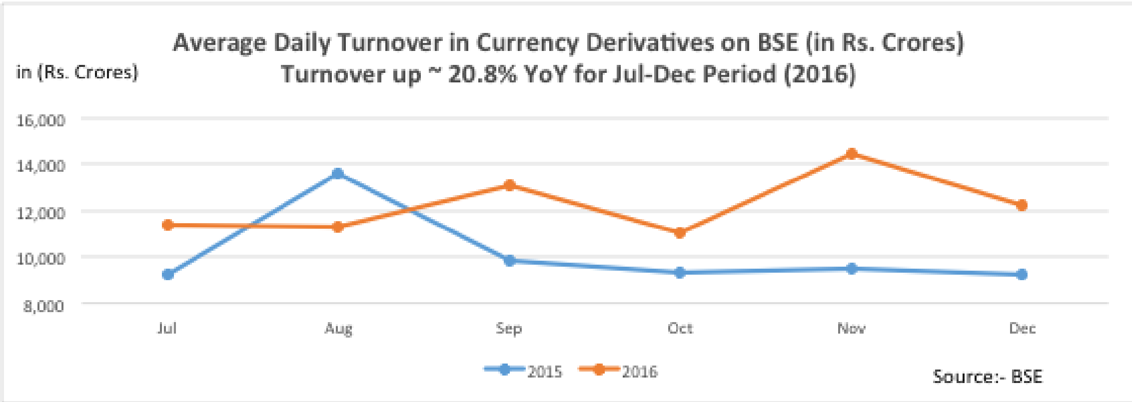
The monthly exchange-wise volumes compared to the year before are depicted below:

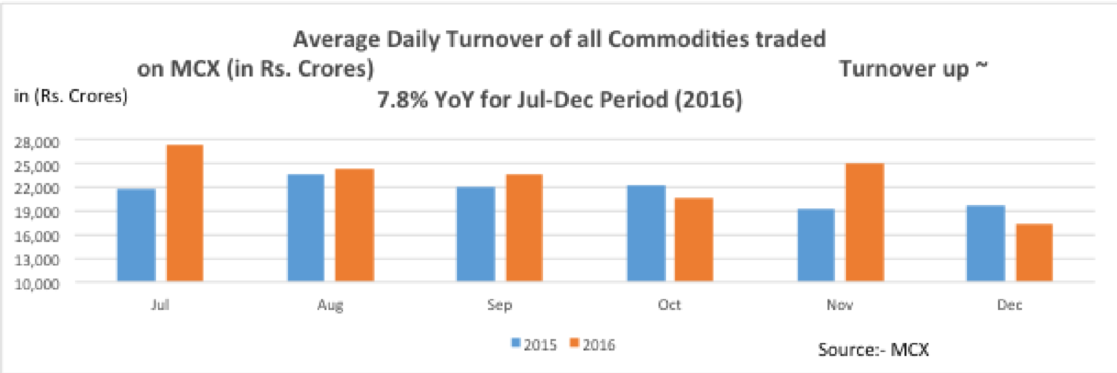












NSE planning to raise ~ Rs. 10,000 crores in IPO The Economic Times

BSE planning to raise ~ Rs. 1,200 crores in IPO The Economic Times

NSE Is looking for a new CEO as Chitra-ramkrishna-steps-down-as-md-and-ceo-of-nse

BSE is launching the IFSC GIFT city exchange in January 2017. This is along with an Indian Government backed attempt to make the GIFT city as the Singapore / Dubai alike market of India, within India. link

NSE shall also launch its exchange in GIFT city soon. link

Commodities exchanges shall be launching commodities options fairly soon.

SEBI eases trading norms for equity derivatives The Times of India

Section 4. Regulatory Developments

RBI got a new Governor, and was swamped with Demonetisation planning and reactively dealing with its after-effects.

Demonetization has definitely hurt the Indian economy in the short term, and it's still yet to be seen how India recovers from it. **Indian Government in an unprecedented move, decided to demonetize** (i.e. discontinuation of higher denomination notes which were typically used in the parallel cash economy and harder to tax / monitor by the authorities). Whilst this "may" prove to be beneficial in long term, it has drastically dented the Indian economy in the short to medium term due to following factors,

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- GDP will drop dramatically due to sudden cash crunch, and joblessness shall rise in 2017. This will become more evident in Q1 2017 when listed companies declare their results.

Nevertheless, we all look forward to 2017 optimistically and hope the Indian economy can recover from 2016 and leverage off the changes brought by the Government.

Some relevant RBI related news and articles.

- Demonetisation blunder- note size changed and ATM machines don't support it. India Today
- Peer-to-Peer Lending has delayed the proposed regulation to March 201. RBI P2P Consultation Paper
- RBI believes in the potential of Blockchain, the core technology behind Bitcoin. Gadgets Now- RBI Blockchain News
- Payment Banks - Aimed at serving the unbanked, which unfortunately have failed to take off in India. Business Standard- Payment Banks
- RBI should be able to say NO to government. Rajan- DNA News

SEBI is looking for a new chief, as Mr. UK SInha's term is ending in March 2017

The algo norm changes by SEBI are still being debated with a third study being done currently. SEBI - 3rd study to review algo trading changes (LIVE Mint)

Here is the link to the SEBI discussion paper around algo trading that came out in 2016, and uTrade team's response submitted to the regulator.

The proposed measures are high level, and the detailing shall make them more concrete and enable detailed analysis.

Here is our take on these suggested measures,

5.1 **Minimum Resting Time for Orders**

It's a basic need for any active trader (manual or algo driven flow) to respond to fast moving markets by modifying or cancelling an order as soon as possible. Taking this facility away shall deter the trading behaviour and reduce certain kinds of trading, including but not limited to market making. It may also lead to sub-optimal trade executions for institutional traders and would most likely lead to lesser liquidity and wider spreads.

Minimum resting period shall also make it harder for any new exchange in the future to be able to build liquidity. A research report of the Government Office for Science in the UK tried to prove this point, (UK research on minimum resting period discouraging market makers). This may lead to monopolies across incumbent exchanges, which is not healthy for the market. It will not help the end investor by any means.

Also, let's take an example with a resting period of 500ms. A trader in Mumbai can send orders and receive executions from Singapore Exchange (for instance) more than 7 times (average round trip execution between Mumbai and Singapore is 70ms – 100ms). Hence, in this time frame, when a trader can modify his order on the Indian exchange, the price can move on Singapore exchange more than 7 times (for Mumbai traders) and possibly 100s of times (for international traders closer to Singapore). This will take away trading opportunities from Indian markets and traders. If more liquidity shifts to Singapore, FIIs (foreign institutional investors) are less likely to come to India for trading, leading to even more liquidity shifting away.

As noted in the SEBI paper, the ASIC did not go ahead with this implementation, as it did not seem to solve any issue materially.

We operate in a globally competitive world. Indian exchanges have built great infrastructure to compete with global exchanges for global products. Regulators and exchanges have built comprehensive risk frameworks around these markets. Slowing them down would make India less competitive despite having great available technologies.

5.2 **Frequent Batch Auctions**

Auctions lead to uncertainty in continuous price discovery and order execution prices, which are needed in today's fast moving markets. Batch auctions work better in less liquid products. For highly liquid products, batch auctions are not an efficient trading mechanism and have not been adopted anywhere else.

The other proven solution to avoid continuous price discovery is use of dark pools. They efficiently manage transfer of larger institutional orders without price information leakage. They are however not allowed in India yet, and maybe a topic for another debate in the future.

5.3 **Random Speed Bumps or delays in order processing / matching**

This measure was first considered by the European market regulator under MiFID (Markets in Financial Instruments Directive) but then eventually not implemented, as it did not seem to solve the real problem of fair access. It is tantamount to having a speed bump on a high way where you slow down to cross the speed bump, and then speed up again without really enhancing the needed safety measure.

5.4 **Randomization of Orders received during a period (say 1-2 seconds)**

Randomization of order matching has been introduced in 2 FX markets- Reuters EBS and ParFX in 2014. The markets have not necessarily appreciated it. It works for some banks and institutional traders to cross their flow, as is the intention of this platform in the first place.

This is less likely to work for large liquid high volume market with several types of investors and traders. Randomization is also likely to lead to uncertainty and possibly high volatility.

Take an example, if a trader in London wants to trade Nifty futures, he may get it in 1-2 seconds randomly at some point at NSE, or he can get done within 100 milliseconds (1/10th of a second) on Singapore Exchange. The uncertainty and delay may reduce market makers, foreign investors, in the Indian markets, and hence reduce liquidity.

5.5 **Maximum order message to trade ratio requirement**

This measure helps weed out unwanted orders (assuming it's implemented correctly and penalizes especially out of range priced orders, rather than including around markets bid offers prices). This is already implemented to an extent by NSE and seems like an acceptable and useful measure.

There is an interesting paper on Oslo Stock Exchange around this topic (Oslo Order Trade ratio paper), which seems worthwhile to consider.

5.6 **Separate queues for co-lo orders and non co-lo orders (2 queues)**

It depends on how this is to be implemented. At a high level, it's likely to fragment market access, and very likely create unintentional arbitrage opportunity. For example, an algo may operate across 2 servers, one being in NSE co lo, second one being in Tata BKC data centre in NSE proximity, and plan to achieve the similar trading execution as was originally intended.

This fragmentation may lead to two markets being operated within a single exchange. This will lead to higher spreads for the non co-lo orders, which will have a detrimental effect on the investors whom SEBI is trying to protect. To circumvent this, the brokers may start routing even the retail orders to co-lo and this will lead to further depletion of liquidity in the "non co-lo market", having adverse impact on the investors.

5.7 **Review of Tick by Tick data feed**

This idea needs further detailing but the key point is that information should be available to all participants. More information may cost more.

Tick By Tick (TBT) data feed offers all orders, trades, modifications, etc, which is useful for some algos. In snapshot, some of this information is lost.

Even if the exchange offers 5 levels snapshot feed, or 50 level snapshot feed, firstly a retail / manual trader will not benefit from deeper order depth as he mostly trades on the top of order book price only. Secondly, the cost of more information is likely to be higher; hence a retail investor may not subscribe to deeper order depth in the first place. That leaves us back to square one, i.e. the current model of TBT for algo traders and Snapshot feed for retail traders.

Additional Insights:

1. **Algo trading / HFT has led to deeper liquid markets**, with tighter spreads. Indian markets are already able to support most number of orders compared to other exchanges in the world, and have been relatively stable (barring a couple of incidents) in the last 5 years, since the introduction of co-lo and algos. The existing risk management framework for Indian security exchanges which include a mandatory algorithm approval process and over thirteen risk checks for all algo orders are very comprehensive.

Any major change in the system may lead to lesser liquidity and wider spreads, thereby would affect the efficiency of order execution for both retail and institutional investors.

2. **Slowing down may render Indian Markets Globally less competitive in the eyes of FIIs,** who can trade Nifty / Sensex on foreign exchanges like SGX, DGCX etc. Any major slowdown in trading may lead to Indian markets losing out on the shift in FIIs trading volume outside India.

3. **There is no precedence for most changes being considered**. These suggested measures have not proven whether they have led to actual improvement in market safety, without reducing liquidity. Hence it's better to consider incremental changes rather than any major reforms.

4. **Fair access to markets** Cost of algo / co lo access can be brought down. One solution is the model of sharing co-lo rack, servers across members in order to make algos, co-lo, TBT more accessible to wider market participants. This idea has been analyzed by NSE and already implemented by BSE.

5. **Need investment into educating retail traders on how to use algos,** in our experience, most Tier 2/3 towns based retail traders lack sound understanding of algos and their usage. Making market wide changes may not solve the lack of their algo trading knowledge that needs to be funded separately. Indian exchanges are already trying to do this currently.

6.**Best execution policies across the market may be debated for the future** and are likely to be constructive for the markets in the long term.

   a. Europe has enforced best execution by allowing brokers to define these policies themselves, and then implement them. The objective is to make sure they give their investors (retail, institutional etc.) the most efficient order execution prices.

b. US has implemented RegNMS which gets exchanges to execute any trade at the best price available in the market. So, if Nasdaq gets a client order, and the best prevailing price is at NYSE, Nasdaq perforce has to route the order to NYSE.

7. **SEBI, Exchanges may consider moving to real time surveillance** (instead of T+1 surveillance) and try to capture any potential manipulations which may be possible pre-trade (for example at orders, cancellation level, which do not make it to trade, and hence possibly not as well examined in T+1 surveillance reports)

Conclusion

- Order to trade ratio debate is relevant and is already being implemented by the Indian Exchange(s).

- Cost of co-lo access could be brought down by sharing of co-lo racks, through empanelled vendors, as is being done by BSE, and planned by NSE

Indian Commodity Option

The commodity derivative exchange is all set to launch options contract for trading. Earlier, when only the trade of futures on commodities were allowed, now commodity options products will soon be launched which would increase the risk management alternates for market participants. Commodity option product is an easy instrument as compared to futures which involves complex daily mark to market/ margin management etc.
SEBI is also intending to allow more products in commodity trading which would result in increase of more participants in the market. Already, diamond, cocoa, pig iron etc. has made its place in the list approved by SEBI. Participants of market have been hoping to know if trading in commodity indexes, weather derivatives etc would be allowed in future. This decision would definitely bring more liquidity and would attract more investors to the commodities market.

Section 6. Capital Markets Technologies in India and beyond

The focus of algo traders has shifted from need for speed to smarter algo logic. Several quantitative, technical indicators based algo developers seem consistently to do well. Focus on FPGA based trading has reduced, as software offers benefits of cost effectiveness similar to FPGA performance.

Several exchange members continue to white label their retail front ends, mobile app based trading continues to be the focus, self-register sign-ups and training focussed simulated trading is also being widely offered now.

Key Indian trading technology providers include Thomson Reuters' Omnesys (for institutional and retail platforms), Financial Technologies (for click traders), Greeksoft (for algos) and Symphony Fintech (for retail algos). For charts based trading, Spider and Falcon seem to lead the way. Other vendors like Modulus, Protrader, etc. are trying to expand in Indian markets for retail platforms. Global software like Flextrade, Fidessa, Ullink are also used by some institutions in India. Heckyl dominates the analytics space in Indian capital markets.

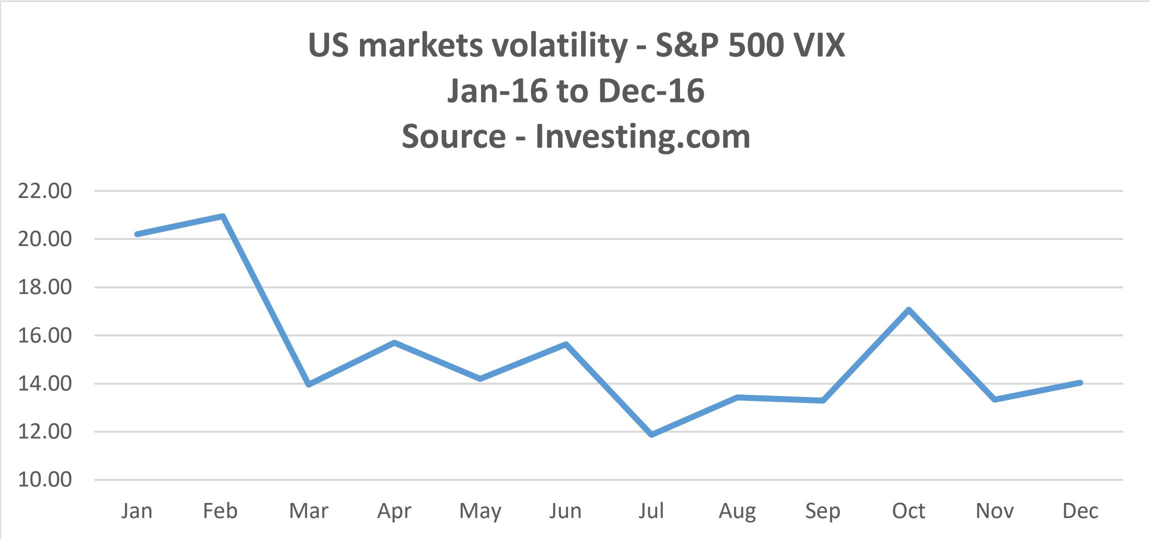
uTrade competes as well as collaborates with several vendors listed here.

Amid global MnA, Thomson Reuters has acquired a buy side software firm Redi (which was previously owned by Lehman Brothers pre-bankruptcy in 2008) Finextra

Section 7. Worldwide themes

United States

US markets saw continued liquidity fragmentation across 10+ exchanges, 10+ dark pools, and several alternate trading venues. Both trading opportunities and volatility reduced during the year, compared to the year before.



Donald Trump's victory in US Presidential elections was the biggest global black swan event. All the sceptics are getting around to offering him a chance to perform. In fairness, Trump is the first non-politician businessman President in decades. Trump's focus on de-regulation, jobs creation, moving away from consumption driven economy (that has led to trillions of dollars of debt in the last few decades), creating pro-business environment, investing into education and infrastructure (which almost always lead to GDP growth in long term), engaging top business leaders to help devise future policy, bringing corporate profits back to America at 10% tax rate (with no questions asked) seem fairly promising at the outset.

The rise in US Interest rates would lead to re-allocation of capital back into US markets, aiding its economy even further.

Regulatory package Mifid II is slated for implementation in January 2018. [European Commission Press Release]

CFTC stirs outrage over algo trading source code proposals. [Finextra]

Section 8. Global Fintech

Fintech had the best year in 2016, with highest investment (~$22bn) pouring into Fintech firms globally.

Furthermore, PWC estimates that Fintech investments shall exceed $150bn in the next 5 years. Financial Services has been a highly regulated and slow to evolve sector. Now technology driven disruptions are suddenly offering leapfrog value creation for the Fintech firms and sector overall.

Fintech Banks have proven the offline Banks model can be replaced efficiently. Atom, Moven and Simple are driving this revolution forward.

US based Fintech firms (like all start-ups), shall face a tough time ahead due to rising interest rates and hence the cost of capital.

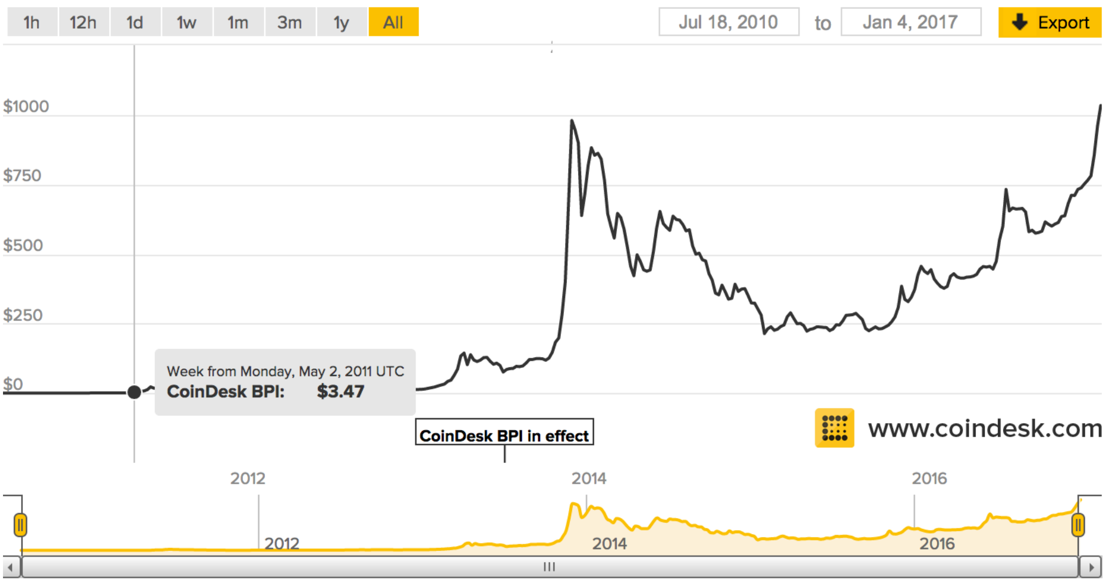
London after Brexit is being challenged by Berlin, Paris, Amsterdam and various European centres leading to fragmentation of Fintech firms away from London.

Emerging market fintech firms are growing rapidly, including, the Chinese (Alipay, Baidu, Tencent, Wechat) and Indian unicorns (PayTM and Freecharge).

Indian payment platforms (including PayTM) benefitted tremendously with the demonetization move, as the small payments also moved to electronic means and PayTM offers a great alternative to debit / credit card system. Though, PayTM still need to prove a sustainable business model beyond the wallets business, which has not scaled anywhere else in the world, yet. Also, Indian Government driven UPI (unified payment interface) breaks the barriers to entry in payment space for any bank and app provider, as long as they can build a smart business model around the payments. This shall further challenge PayTM's long-term defensibility.

- Challenge to PayTM - With UPI, who needs payment wallets?
- PayTM gets payment bank approval in an attempt to diversify. But given the sustainable revenue challenges in the payments banks, it may be harder to truly monetise this bank (several other Indian conglomerates who got this license actually surrendered it due to business viability challenge)

Bitcoin value has soared above $1000, with 300,000 merchants accepting Bitcoins around the world, including EnY in Switzerland. Global Geopolitical uncertainties, including concerns around China and Demonetization in India may have contributed to this raise in Bitcoin value.



At the same time, Blockchain technology and its uses are being explored by 1000s of start-ups around the world. Unfortunately, the underlying blockchain platforms are fragmented and there are 10s of them (like Etherium, Corda, Hyperledger, Multichain, etc. etc.). It has become a battle of platforms and in time, hopefully they would consolidate and the create value in some way.

Banks have also created their own versions of Blockchain platforms and are trying to solve their internal issues using Blockchain. Here is our blog on how its going, Why-are-banks-using-blockchain?

Here are some other selected few Bitcoin and Blockchain related updates,

- IBM Blockchain to address Banks KYC
- Bitcoins being used in Senegal - may expand further in Africa
- 7500-faceless-coders-paid-bitcoin-built-hedge-funds-brain - blind leading the blind
- R3 consortium loses bank - cuts fund raising target
- Koreas-central-bank-considers-supernode-for-blockchain-oversight

Section 9. What are we reading?

Here is a selection of our favourite articles and content from 2016.

- Probably aliens sending us signals
- Robots will replace doctors, lawyers and other professional
- Netherland Government gets the power of Open Source - mandates open standards
- Before the Flood - a movie on climate change
- When you miss the biggest investment opportunities as a VC.
- India-will-be-late-by-50-years-in-achieving-education-goals-Unesco
- US exchanges seek Blockchain regulation
- WHO says-90%-world-breathing-polluted-air
- Air Pollution costs India 8.5% of its GDP *(We reckon this GDP loss due to air pollution is much higher, we shall publish our own research in 2017)*
- Why a good enough Product Manager is not Good Enough
- Indian Poker Startups grow - amid regulatory uncertainty
- Flipkart - Amazon copies from us
- Microsoft-hololens - future of computing
- Silicon-valley-has-an-empathy-vacuum - highly recommended read on social responsibility of tech platforms
- Flipkart - Ola seek Govt protectionism against foreign rivals - Uber - Amazon
- Winter got colder for Indian startups - Flipkart marked down to $5bn (from $15bn 2 years ago)
- Telemedicine makes healthcare accessible (we are also doing something interesting in this space, more to follow in 2017)
- Perfect-code-is-an-illusion
- Poison on your plate - quality of food in India
- Gotta love the guts and marketing here Slack took-out-a-full-page-ad-in-the-new-york-times-to-welcome-its-new-competitor - Microsoft

Section 10. Updates: uTrade Solutions

Some of the Product Developments at uTrade Solutions in 2016:

- muTrade has launched an Options Algo form with 16 options based algos built into 1 screen
- Several uTrade clients have launched white labelled platforms built on uTrade retail software
- uTrade is a default trading terminal for exchanges including GMEX (UK), Ceed (Chicago), Case (Dushanbe), ALT X (Uganda), HNX (Vietnam)
- muTrade has added Russia and Turkey for low latency algo trading
- muTrade has been certified with SGX upgrade Titan platform which is to be launched later this year
- muTrade has included span margining along with its algo platform
- muTrade has added ladder, charting, look up tree, and various advanced UI features
- uTrade has launched a subsidiary focussed on Blockchain products, called Hashcove. It has following 3 products so far, KYChain, Hashdegree and uClear

uTrade News, Blogs and Events (selected few)

- uTrade and Object trading partner for global market access
- uTrade interview on CNBC around how HFT benefits retail investors CNBC Interview
- Can-governments-use-blockchain-to-be-more-efficient-and-regain-public-trust?
- Why-are-banks-using-blockchain?
- Hashcove - KYChain on Blockchain
- How-startups-are-using-blockchain-tech-for-kyc-verification-financial-security?
- Blockchain sets its sights on the OTC market Treasury Today UK
- Hashcove / uTrade partner with Israel based blockchain platform - Multichain
- uTrade ships blockchain clearing platform to GMEX, UK Finextra
- Demistifying blockchain Businessworld
- uTrade brings bitcoin tech to market | The Hindu Business Line
- Why-p2p-lending-opportunity-may-not-scale-for-a-long-time (pre-demonetization)
- How to identify and avoid a Kodak failure moment Blog
- Future of Bitcoin Blog

More available at

http://www.utradesolutions.com/newsroom.html

http://hashcove.com/newsroom.html

http://kunalonfintech.com/

uTrade updates and news, from the 2015 Archive

Major product developments at uTrade Solutions in 2015:

- uTrade launched Listed Markets, in addition to Forex and CFDs trading software in Chile.
- uTrade integrated with Activ, eSignals, CQG, TT FIX, etc. for market data. Easyscreen, TT FIX, Bloomberg FIX for global orders and executions were also successfully integrated.
- uTrade launched its native mobile, html5 and desktop apps for trading and admin/risk management.
- uTrade added chart based trading into its software and improved its UI dramatically.
- muTrade added SGX and DGCX for low latency algo trading.
- muTrade optimized its latencies to single digit microseconds from tick to order.
- muTrade also launched DMA FIX API
- muTrade also has an Algos API for customizing client algos
- muTrade comes integrated with a secondary risk management system.
- muTrade added a variety of inbuilt arbitrage, market making and execution algorithms on its platform.

uTrade in the News

- http://www.business-standard.com/article/news-ani/now-get-education-degrees-kyc-documents-issued-and-verified-via-blockchain-116102600484_1.html
- http://kunalonfintech.com/why-p2p-lending-opportunity-may-not-scale-for-a-long-time/
- http://www.objecttrading.com/2016/12/05/object-trading-adds-india-russia-frontier-dma-utrade-integration/
- Rising Stars |Bloomberg TV India https://www.youtube.com/watch?v=d7jYlTK3MSw
- Algo Trading – Setting the Record Straight | Moneycontrol
- Why participants in the Indian financial market need to adopt secondary risk management systems | Business Insider India
- Why open source is a game changer for financial services industry | ERP Insights
- Why Algo trading must not be blamed for market crashes | Data Quest

Section 11. uTrade Solutions - Company Overview

uTrade Solutions is a fintech company providing enterprise solutions including multi-asset trading platform, algorithmic trading engine, risk management solutions, and Blockchain Solutions to financial institutions and their end customers. Our product suite includes the following:

- ✓ **Multi Asset Trading platform:** with full suite application and html5 web-based front ends (Including admin functions, risk management, order management, connectivity to exchanges etc.). It supports trading for all listed products including equities, futures, options, commodities, as well as for non-listed products like FX, CFDs, etc.
- ✓ **Low latency algorithmic trading platform:** Used in exchange co-location environment or in client data centers/cloud for fastest access to markets to execute arbitrage, market making, execution, excel based, quant driven, api based proprietary and various other strategies across all asset classes. It also provides FIX APIs for DMA and Algos access
- ✓ **Open Source, Risk Management, and Custom Solutions**: We also customize and open source some modules of our technologies.
- ✓ **Hashcove Blockchain Solutions:** uTrade is driving new solutions enabled by the latest technologies including Blockchain. We have built Clearing, KYC, and Digital documents issuance focused Blockchain products. We are also partnering with clients to guide and provide Blockchain Solutions for their desired workflows. www.hashcove.com

We have built our products from ground-up with a modular architecture in order to effectively address current and rapidly evolving user needs. We have also filed for 6 patents in India and 1 patent in US/UK to lead innovation in the trading life cycle.

Please watch our video demos at www.youtube.com/utradesolutions

In 2013-2014, uTrade Solutions was recognized as a leading innovative fin-tech start-up by:

FinTech Innovation Lab | RED HERRING ASIA WINNER 100 | NASSCOM® | CII Confederation of Indian Industry

Section 12. uTrade's Global Footprint (client presence)

Disclaimer

This information is intended for sharing the news coverages, independent opinions around the markets, product details, for the purpose of information sharing or potential partnership opportunity. The information shall not be distributed or used by any person or entity in any jurisdiction or countries where such distribution or use would be contrary to the applicable laws or Regulations. It is advised that prior to acting upon this information, independent consultation / advise may be obtained and necessary due diligence, investigation etc. may be done at the users end. You may also contact us directly for any questions or clarifications. All statements regarding the future are subject to inherent risks and uncertainties, and many factors may lead to actual profits or losses & developments deviating substantially from what has been expressed or implied in such statements.

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