14-09-18

What We Are Reading - Volume 2.009

The enclosed 2.009 version contains - interesting articles on Media Ecosystem, Raghuram Rajan's note on Bank NPAs, Indian Rupee, BS6 and EV Sustainability, Indian Real Estate, Importance of Operating Cash flow, Crypto Crash, Fast charging and Oil Supply.

• Media Ecosystem: Wall falls down	KPMG
• Note to Parliamentary Estimates Committee on Bank NPAs	Prof. Raghuram Rajan
• The Indian Rupee: Performance, Pressures and Policy	J.P Morgan
• BS6 Catapault and EV Sustainability	Phillip Capital
• The Future of India Real Estate	JLL
• Why Operating Cash Flow Is More Important than Net Profit	Aurum Capital
• Crypto's 80% Plunge Is Now Worse Than the Dot-Com Crash	Bloomberg
• ABB unveils fast-charging system to power a car	Economic Times
• Global Oil Supply	CNBC

Media ecosystems: The walls fall down

KPMG in India's Media and Entertainment report 2018

September 2018

kpmg.com/in

Introduction

The global economy has been gaining momentum, with real Gross Domestic Product (GDP) growth rising from 3.2 per cent in 2016 to 3.8 per cent in 2017 — driven by faster growth in Europe, Japan, China and the U.S.[1] Growing trade, investments and manufacturing activity haves powered the global upswing since mid-2016.[2] However, in the long term a marginal decline to around 3.7 per cent CAGR is expected following risks from growing protectionist measures, fallout from Brexit, ageing workforce and rise in borrowing costs.[3]

In contrast with the global economy, India's real GDP growth rate declined from 7.1 per cent in 2016 to 6.7 per cent in 2017 — primarily on account of demonetisation and implementation of Good and Services Tax (GST).[4] However, the Indian economy is already on its way to recovery as the negative impact of these two measures is fading, overall investment sentiment is improving, construction is recovering from a slump and the farm sector is also witnessing growth.[5] India's real GDP is expected to grow by 7.4 per cent in 2018 and 7.8 per cent in 2019.[6] Moreover, unlike the expected decline in global economy, the Indian economy is expected to further strengthen with around 8 per cent y-o-y growth during 2020–23.[7]

Strong and consistent economic growth fuelled by a rise in consumption and growth in digitisation has boded well for the Indian Media and Entertainment (M&E) industry which has grown at a CAGR of approximately 11 per cent over FY14-FY18 to reach INR1,436 billion in FY18[8]. However, in recent years, the sector was adversely impacted by major regulatory interventions by the government around demonetisation and the Goods and Services Tax (GST). These initiatives had a temporary adverse impact on both consumption and advertising spends, resulting in a slower than expected growth rate of 10.9 per cent during FY18. However, the industry is now well on the road to recovery, and aided by a buoyant Indian economy, strong domestic (particularly rural) demand and growing digital access and consumption, the sector is expected to grow at a CAGR of 13.1 per cent over the next five years to reach INR2,660.2 billion by FY23[9].

Size of the Indian media and entertainment industry

Industry performance — Historical

Overall industry size (INR billion)	FY14	FY15	FY16	FY17	FY18	Growth in FY18 over FY17
TV	433.7	489.9	551.7	595.3	651.9	9.5%
Print	248.2	268.4	288.4	308.4	318.9	3.4%
Films	126.4	126.9	137.1	145.0	158.9	9.6%
Digital advertising	32.5	47.0	64.9	86.2	116.3	35.0%
Animation and VFX	41.0	46.5	53.2	62.3	73.9	18.6%
Gaming	20.3	24.3	27.6	32.4	43.8	35.1%
OOH	19.9	22.3	25.5	28.6	32.0	11.9%
Radio	17.2	19.8	22.7	24.0	25.9	7.9%
Music	8.5	10.2	11.2	12.6	14.4	14.7%
Total	**947.6**	**1,055.1**	**1,182.3**	**1,294.7**	**1,436.0**	**10.9%**

Source: KPMG in India analysis, 2018 based on primary and secondary research

1. World Economic Outlook, International Monetary Fund, April 2018
2. World Economic Outlook, International Monetary Fund, April 2018
3. Global economic growth has peaked, says World Bank, Financial Times, 10 January 2018
4. Real GDP Growth, International Monetary Fund, accessed on 27 July 2018
5. Press Note on Provisional Estimates of Annual National Income, 2017-18 and Quarterly Estimates of Gross Domestic Product For the Fourth Quarter (Q4) of 2017-18, MOSPI, 31 May 2018
6. Real GDP Growth, International Monetary Fund, accessed on 27 July 2018
7. Real GDP Growth, International Monetary Fund, accessed on 27 July 2018
8. KPMG in India analysis, 2018 based on primary and secondary research
9. KPMG in India analysis, 2018 based on primary and secondary research

Industry advertising revenues (INR billion)	FY14	FY15	FY16	FY17	FY18	Growth in FY18 over FY17
TV	138.4	160.0	183.7	202.6	223.5	10.3%
Print	166.0	179.6	192.3	204.4	210.6	3.1%
Digital advertising	32.5	47.0	64.9	86.2	116.3	35.0%
OOH	19.9	22.3	25.5	28.6	32.0	11.9%
Radio	17.2	19.8	22.7	24.0	25.9	7.9%
Total	**374.0**	**428.7**	**489.1**	**545.7**	**608.3**	**11.5%**

Source: KPMG in India analysis, 2018 based on primary and secondary research

- Television had a relatively subdued year in FY '18, with overall revenue growing at relatively slower rate of 9.5 per cent to reach INR651.9 billion. Advertising revenues faced headwinds due to the implementation of GST and associated issues with compliance, and middling growth in the overall economy. Although national broadcasters were less impacted due to GST than the local broadcasters. At the same time, subscription revenue growth was lower than expected as the DD FreeDish subscriber base soared to 30 million and DTH ARPUs declined with increase in competitive intensity
- The print sector was adversely impacted due to the after effects of demonetisation, coupled with weak advertising demand due to implementation of GST and Real Estate Regulation and Development Act (RERA). This resulted in a growth rate of 3.4 per cent during FY18, which was the lowest in a decade. Hindi and regional newspapers fared comparatively better (4.6 per cent and 4.2 per cent respectively), while English newspapers struggled, registering a growth of 1.5 per cent during this period
- Film segment revenues grew by 9.6 per cent during FY18 to reach INR 158.9 billion on the back of a resurgence over the last couple of years driven by strong domestic box office performances, coupled with growing overseas contributions particularly through entry into new markets such as China. Additionally, growing revenues from digital rights are supporting the overall growth
- Digital advertisement revenues have been growing rapidly in India, and the trend continued in FY18 with a growth of 35 per cent to reach INR 116.3 billion. Key growth drivers were developments in digital infrastructure; increased inclusion of and adoption by regional, non-urban users; increase in the penetration of mobile phones; and increase in maturity in the digital ecosystem driven by public and private investments.
- The Indian animation and VFX industry which has been on a strong growth trajectory clocked a growth of 18.6 per cent in FY18 to reach INR 73.9 billion with a strong overseas demand for animation and VFX services as Indian players move up the value chain along with growing demand from linear TV for local animation content. Digital Video on Demand (VOD) platforms, both global and Indian, have provided an additional impetus with demand for kids' and VFX content on platforms continuing to rise, as is the improvement in production values.
- Growing digital and smartphone penetration has significantly deepened the gaming user base with the mobile-first model driving user behaviour. Launch of lower priced Chinese smartphones in the Indian market, declining cost of data, rising disposable incomes, and acceptance of digital payments have resulted in the dramatic migration of online gamers to mobile phones. The interplay of these factors has led to the gaming segment growing by 35.8 per cent in FY18 to reach INR43.8 billion.
- The Out of Home (OOH) segment grew by 11.9 percent in FY18 to reach INR 32.8 billion primarily on the back of growth in controlled environment of the airport segment, with the segment also witnessing traction from smaller airports situated in tier 2 and tier 3 cities. The growth was aided by advertisement expenditures from State and Central Governments, e-commerce and technology players.

- The radio industry witnessed muted growth in FY18 at 7.9 per cent on the back of the fallout of GST rollout as local advertisement spends were significantly reduced. Over supply from the launch of new radio stations resulted in pressure on advertisement rates which also stayed flat.
- The Indian music industry continued to see a resurgence in recent years primarily on the back of rapidly expanding digital consumption and distribution, particularly since the rollout of 4G. Data penetration and increased use of smartphones are two key contributors towards the growing consumption of music on digital.

Industry performance — Projected

Overall industry size (INR billion)	FY19	FY20	FY21	FY22	FY23	CAGR % (2018-2023)
TV	746.4	855.3	959.1	1,066.6	1,179.6	12.6%
Print	338.5	357.8	378.6	400.8	424.9	5.9%
Films	171.7	185.4	199.3	213.9	228.8	7.6%
Digital advertising	154.7	202.6	263.4	339.8	435.0	30.2%
Animation and VFX	86.7	100.9	116.8	133.5	151.8	15.5%
Gaming	55.4	70.9	84.7	103.3	118.8	22.1%
OOH	35.7	38.6	42.0	45.7	49.7	9.2%
Radio	28.3	31.8	34.8	38.8	42.1	10.2%
Music	16.6	19.1	22.1	25.6	29.6	15.5%
Total	**1,633.9**	**1,862.5**	**2,100.7**	**2,368.0**	**2,660.2**	**13.1%**

Source: KPMG in India analysis, 2018 based on primary and secondary research

Industry advertising revenues (INR billion)	FY19	FY20	FY21	FY22	FY23	CAGR (2018-2023)
TV	255.0	291.5	330.1	373.0	425.3	13.7%
Print	223.7	236.4	250.1	264.7	280.7	5.9%
Digital advertising	154.7	202.6	263.4	339.8	435.0	30.2%
OOH	35.7	38.6	42.0	45.7	49.7	9.2%
Radio	28.3	31.8	34.8	38.8	42.1	10.2%
Total	**697.4**	**800.9**	**920.4**	**1,062.0**	**1,232.7**	**15.2%**

Source: KPMG in India analysis, 2018 based on primary and secondary research

The Indian M&E industry is expected to grow at a CAGR of 13.1 per cent during FY19 to FY23 to reach INR2,660.2 billion by FY23. Advertising revenues are expected to grow at a CAGR of 15.2 per cent to reach INR1,232.7 billion by FY23.

Key segmental trends

- Television is expected to grow at a CAGR of 12.6 per cent on the back of growing TV penetration, strong advertising demand on the back of domestic consumption and major events (two cricket world cups and a general election in the next five years) supported by better distribution realisations due to operationalisation of TV digitisation
- Print is likely to continue seeing muted growth at 5.9 per cent CAGR as sluggish growth in English newspapers — due to pressure from digital platforms — could be offset by strong growth in language newspapers. Hindi newspapers are also starting to witness pressure on growth rates
- The film segment is expected to remain resilient with a 7.6 per cent CAGR on the back of strong demand from digital platforms and growing overseas revenues
- Digital advertising is likely to continue seeing strong growth at a 30.2 per cent CAGR on the back of continued deepening of digital adoption and usage particularly from regional markets providing advertisers with the opportunity to offer customised advertising to wider demographics
- The animation and VFX industry is expected to show strong growth of 15.5 per cent on the back of strong digital demand, increasing production values and technology changes
- With a growth rate of 22 per cent over the next five years, the gaming sector in India is expected to touch INR118.8 billion by 2023 on the back of continued smartphone penetration, growing gaming user base and improved monetisation supported by increased localisation and technology innovations around data and analytics, augmented reality/virtual reality and so on
- The OOH segment is expected to grow at a 9.2 per cent CAGR on the back of Indian government's smart cities' campaign, promotion of public welfare schemes and expansion of the airport network. A nation-wide policy, single window clearances, city-wise exclusive licences on a long-term basis as well as an ROI-driven measurement metric can be key game changers for the OOH sector
- The radio segment is expected to see comparatively muted growth at 10.2 per cent given the over supply from new stations and the resultant pressure on ad rates, coupled with delays in Phase III auctions
- The music segment is expected to see strong growth with a CAGR of 15.5 per cent as digital access and consumption continue to become deeper. Given the growing listenership base and innovation in the pipeline, there lies a huge opportunity in converting the advertisement based subscription ecosystem into consumer paid streaming — all that is required is an optimum revenue model.

Industry themes

Technology, Media and Telecom (TMT) convergence — Building ecosystems

As data usage becomes ubiquitous, media consumption habits of consumers are witnessing a seismic shift. Telecom and technology companies across the world sense this is an opportunity to cater to this burgeoning digital subscriber base by building a footprint across the content part of the value chain as well. Traditional media companies have started to realise how important direct access to the digital first customer is, and as a result, have started to build out direct-to-consumer platforms. As a result, the TMT sector is witnessing a convergence in business models across the globe.

Following the launch of 4G services by Reliance Jio in September 2016 at disruptive prices, it resulted in commoditisation of voice services with realisations per minute dropping by more than 30 per cent post Q2 FY17 for incumbent operators. On the other hand, data consumption has emerged as one of the primary sources of revenue growth for telcos as data costs have reduced by approximately 90 per cent since then[10].

To drive data consumption, telecom operators are increasingly looking at content as a differentiator, both in terms of customer acquisition and retention. While operators like Airtel, Idea and Vodafone have looked to aggregate content across traditional television and video OTT apps, Reliance Jio is pursuing a two-pronged strategy of both aggregating content and investing in original and exclusive content through alliances with media companies across the value chain.

Technology has also enabled content creators and TV broadcasters to transform from a predominantly B2B business into B2C business. At the same time, technology companies have also become an integral part of the media ecosystem due to their ability to reach customers directly. YouTube and Facebook account for around 60-70 per cent of the total online video consumption in India and YouTube is the largest digital video platform in the country with 225 million Monthly Active Users (MAUs)[11].

This convergence playing out in the industry has raised concerns that traditional ways of making monies may no longer continue to be optimum. Business models are likely to converge eventually, potentially leading to a TV broadcaster focussing on OTT subscription revenues, or a technology company looking to realise revenues from content syndication. The boundaries between traditional and digital are likely to blur sooner than we imagine.

Various stakeholders stand to benefit from converging business models. While media content creators can have access to wider distribution through technology companies and telcos, as well as greater avenues for content monetisation, telecom and technology companies can increase monetisation on their platforms and create differentiation in their services through content offerings.

As technology becomes pervasive in everyday life, organisations that are able to smoothly merge the traditional business models, and ensure customer stickiness on their ecosystems are likely to emerge as winners in this war of ecosystems.

10. KPMG in India analysis, 2018 based on secondary research on Annual Filings of listed telecom operators in India

11. KPMG in India analysis, 2018 based on primary research

Over the Top (OTT) video consumption — Reaching a tipping point

There has been a noticeable change in the consumption of media content in recent years with increase in both the number of online video viewing audience and the time being spent on digital media by these audiences. The online video viewing audience in India is estimated to be around 225 million in FY18, and is projected to reach 550 million by FY23[12].

Pillar No 1 — Content

Catch-up TV, movies and sports form a large portion of the content available across OTT platforms backed by traditional TV broadcasters, as this helps them avoid incurring additional costs for digital-only content. However, there is an increasing focus towards creating original content for 'digital-first audience'. While the catch-up TV content is typically monetised through the Advertisement VOD (AVOD) model, original content warrants SVOD model to recover the content investments. The last two years have also seen an increased focus on regional language content with established OTT players increasing their regional content library, along with an advent of 'regional-only' local OTT players in the industry.

Pillar No 2 — Distribution

The OTT distribution landscape also saw a change in approach with telecom operators (telcos) being seen as an alternate and important mode of distribution to reach a wider audience base. This trend is expected to accelerate with telcos seeing usage of video on their networks as a key driver of increased data consumption. Bundling of services through telcos at a more affordable price may also be more likely to attract viewers rather than subscribing to multiple individual platforms in addition to data costs.

Pillar No 3 — Monetisation

The Indian OTT industry is currently driven by AVOD or a freemium model with SVOD still at a nascent stage with 2-2.4 million subscribers having directly subscribed to OTT platforms[13], in addition to ones who are considered as paid subscribers through telco-based access. While such telco-based subscription has increased in the last year, advertisement revenues have faced challenges with falling CPM rates on account of increasing ad inventory and lack of a standardised, third party validated, digital measurement tool.

Sustainable success of OTT platform is likely to be driven by engagement through quality content, resolution of standardisation of measurement and effectiveness of distribution. While the industry may experience a focus on regional language content in the near future, there is a possibility of digital video content mirroring TV content in the long term future. As far as distribution is concerned, collaboration between OTT players and telcos is expected to be a key success factor. Lastly, monetisation is likely to pick up in the medium term, through a mix of advertising- and subscription-led models.

12. KPMG in India analysis, 2018 based on primary and secondary research

13. KPMG in India analysis, 2018 based on primary research

Rural consumption — The next frontier

Rural India and tier II and tier III cities are asserting their power over the M&E sector in recent years. Print players have consistently seen strong readership and demand from these markets, and with the maturity of urban markets, non-urban demand is driving growth in Hindi and other language newspapers. While television broadcasters have launched a number of free-to-air (FTA) channels to tap rural and semi-urban markets, radio too has moved beyond metro cities. Listenership for non-metro areas has seen a multi-fold increase, at times even more than metro cities, attracting more brands to target rural markets. Availability of data at affordable rates increased the reach of digital platforms into rural areas driving a significant growth in digital usage and changing the demographics of digital consumption from niche to mass.

Rural to propel the next phase of growth, driven by macro-economic and sector specific factors

Macro-economic drivers

- Rise in income levels
- Growing literacy rates
- Government investment.

Sector-specific factors

- Digitalisation of television combined with strong FTA offerings
- Phase III expansion of FM into tier II and tier III cities
- Growing print readership with hyper localisation of content
- Digital inclusivity leading to rapid expansion of digital user base beyond urban markets
- Inclusion of rural areas under measurement metrics.

The Indian M&E industry has entered into a mature phase, and the growth is expected to come from untapped rural markets. The growth in the sector is likely to be largely be driven by demographic and habitual shift of the consumer, where the rural population is expected to have a pivotal role to play.

Social media — Driving meaningful conversations

The importance and value proposition of social media as a platform is increasing rapidly, and barriers to connectivity such as cost of access and awareness are being resolved at a fast pace. Mobility continues to be the primary driver for social media usage in India with increasing smart phone penetration leading to an estimated 300 million[14] social media users in the country, estimated to be spending two hours and 26 minutes[15] across social media platforms on a daily basis. Given the scale of engagement, marketers are increasingly trying to engage with users on such platforms by increasing their allocation of digital ad spends on social media with an increased focus on regional markets.

To increase engagement levels, social media platforms are expanding their value proposition — from only a means to connect with friends, such platforms are being used for multiple purposes like entertainment, commerce and gaming. Through communities, social media platforms are able to attract individuals with similar interest or beliefs, and are becoming increasingly popular among marketers to connect with a specific target group. The focus of marketers is shifting from gaining basic reach to enabling more meaningful conversations to reduce the divide between the brand and target customer, unlocking value for both parties. Furthermore, content is changing from static feeds to more interactive stories, driven by digital tools and technologies, with the power shifting from content creator to the user.

While social media platforms have evolved, data security and privacy are key challenges to be addressed. Building trust through privacy management and data security may be critical in the future, and the key would be how the equation of value to the user versus the brand is managed.

Data and analytics — Every detail counts

With the advent of digital disruption, the Media and Entertainment (M&E) industry has gone through a seismic shift in the way content is created, distributed, consumed and analysed. The massive explosion of data is generating new sensitivities across the media value chain (content creators, aggregators, distributors, marketers, advertisers, consumers and so on). It is thus becoming imperative for M&E organisations to grab opportunities enclosed within data with competent analytics capabilities.

The industry is investing heavily in analytics-driven content recommendations, adaptive streaming, video and image analytics, data-driven journalism and consumer analytics. For media distributors and aggregators, data-driven decisions on content acquisition is getting increasingly contextual. Advertising agencies are also leveraging analytics techniques to find the association of audience micro segments with different content genres and themes.

A smooth amalgamation between digital and analytical solutions is transforming the sector via active audience engagement, digital experience enhancement, content personalisation, contextual marketing campaigns, resolution of customer issues and customer life time value enhancement. Organisations are using predictive models to measure the contribution of a platform (traditional versus digital) in the success of any programme, and accordingly promoting it via the most suitable medium.

While quality content and consumer preferences are expected to drive sustainable growth, a clear strategy and competent analytics capabilities will help media

14. https://forecasts-na1.emarketer.com/5ab41471a2835e0fe88f6068/5a6a4c4e00e-a9b-064048c03f, accessed on June 22, 2018

15. Digital in 2018 report, https://digitalreport.wearesocial.com/download, accessed on June 22, 2018

Audience measurement — Need of the hour

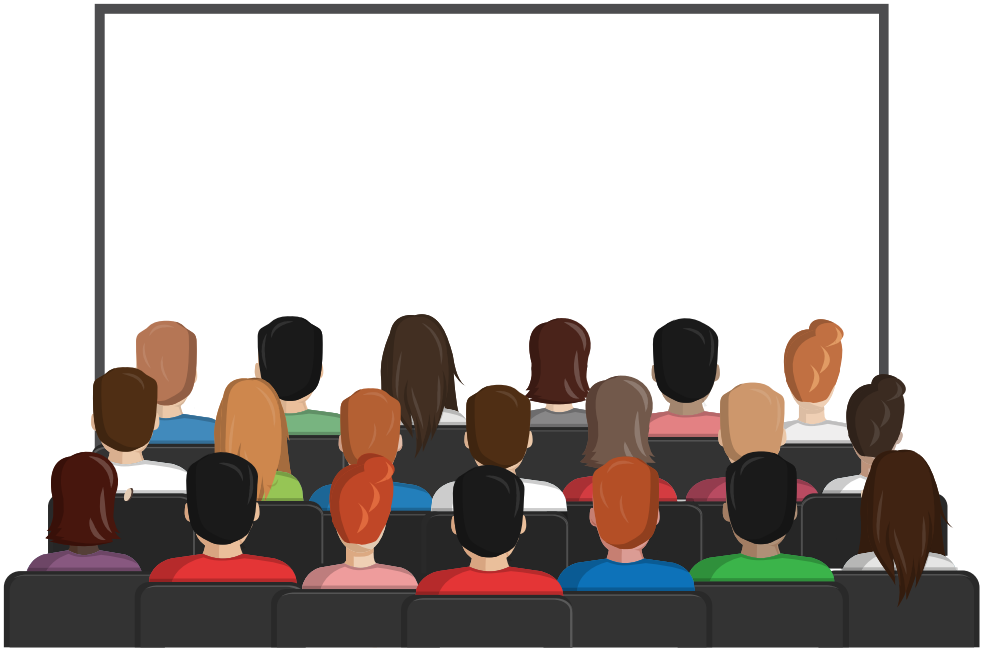
Media owners and agencies are increasingly emphasising the need for adequate, accurate, reliable and relevant data to justify and plan media spends. Research agencies, even with improved methodologies and quality checks, have struggled to meet expectations. Especially for traditional media, the core problems are operational challenges in sample selection and data collection, along with inadequate industry funding and backing to study and report a vast socio-culturally diverse market like India.

Amongst traditional media, television has been at the forefront of increasing the reach and accuracy of audience measurement through deepening of coverage and measurement metrics by Broadcast Audience Research Council (BARC).

Indian Readership Survey (IRS), the lone readership study for print readership in India, released its latest report in 2018 after a gap of four years. The industry's mixed reactions on IRS 2013 results pushed for complete overhaul in the IRS methodology. This led to a data-dark period of three years, which affected the media planning and the decision-making ability in print medium.

The radio industry is in need of a concrete audience research and measurement agency as the current methodology of TAM's Radio Audience Measurement (RAM) follows a manual diary method, and is only limited to the four metro cities. The same holds true for OOH advertising owing to its inherent challenges in measuring the audience, and lack of an independent industry-accepted monitoring body. On the other hand, digital medium has seen increase in its share of media spends by offering advertisers easy ways of targeting and measuring audience real-time, though there is absence of a standardised, third party validated, digital measurement tool.

Riding on the advancement in technology, media measurement has moved beyond measuring just viewing impressions. Advertisers are looking to study and analyse media consumption habits and patterns of viewers across platforms to better understand consumer behaviour. In line with this, deeper coverage, consistent methodology, and transparent approach and cross platform audience measurement tools are critical to meet the needs of the industry.



Tech trends

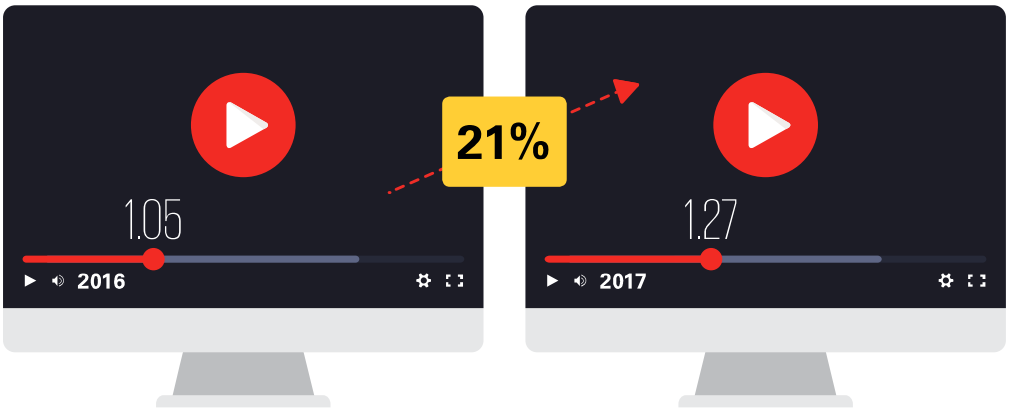
Rapid technology evolution is playing a significant and disruptive role in media creation, distribution and consumption. Technical innovations such as digital delivery and consumption, artificial intelligence, Internet of Things, impending 5G rollout, robotics and automation, augmented/virtual reality, 3D printing, blockchain, though at varying stages of maturity, have the potential to dramatically impact businesses and consumers, and the M&E sector is no exception.

In this report, we have evaluated four technology trends — digital content disruption (cord cutting), artificial intelligence, augmented/virtual reality and blockchain and their potential impact on the Indian M&E industry.

Cutting the TV cord — Harmonious co-existence	AR and VR — Reality reimagined
• Mature TV and digital markets like the U.S. are witnessing an increasing shift of viewers from TV to digital-only consumption on the back of price arbitrage and strong digital infrastructure • In India, TV offers a strong proposition in terms of price and content along with continued headroom for growth and lack of depth in digital infrastructure (especially Fixed line internet) • As a result, digital consumption appears to be largely complimentary to TV by enabling latent individual viewing.	• AR and VR have the potential to significantly disrupt the way media is created and consumed • In India, AR and VR are still in their infancy with limited adoption across sectors • The technology faces multiple constraints ranging from hardware limitations and availability, dearth of content and skill gaps • As a result, while usage of AR/VR is likely to increase among both consumers and businesses, it may still not become essential in the near future.
Digital video — A complimentary medium Short to medium term impact — **Minimal** 	High potential for growth Short to medium term impact — **Not imminent yet** 
Artificial intelligence (AI) — Blending science and creativity	**Blockchain — Hype or disruptor**
• As media organisations evolve to B2C models, understanding and anticipating user behaviour and proactively driving user engagement becomes critical. AI has a very significant role to play in this evolution • Key aspects of usage include neural networks and meta data, natural language processing, macro and micro trends through algorithm based systems and localisation through deep learning • Though at an early stage, the adoption appears fairly rapid and is likely to see significant benefits in the short to medium term.	• Use cases of blockchain in M&E revolve around the ability of blockchain to provide transparency to elements of the media and entertainment supply chain. • Some of the current use cases revolve around customer loyalty programmes, royalty management, content distribution and payments and curbing piracy • Blockchain has tremendous disruptive potential though the adoption in India is still at very early stages. Several applications are currently at the proof of concept stage.
Critical for organisations Short to medium term impact — **Rapid adoption expected** 	Transformative potential Short to medium term impact — **Currently in infancy** 

Online video consumption on a growth trajectory in India

Average time spent watching online videos (hours per week)

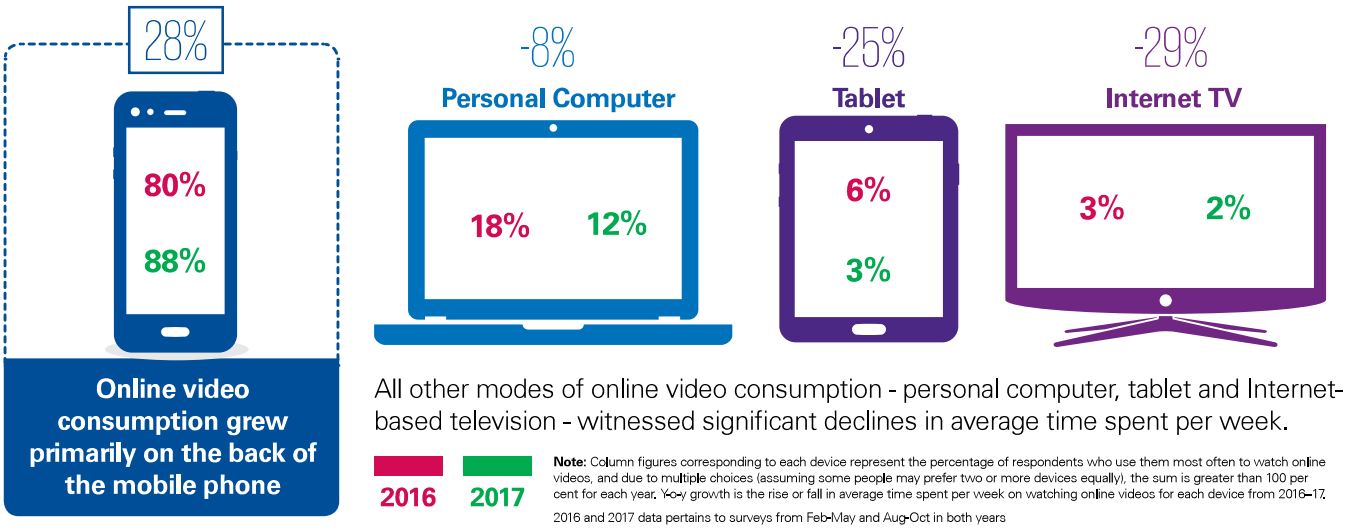


Online video consumption grew 21 per cent y-o-y in 2017 - in terms of average time spent per week across all age groups and socio-economic classes

Where are we watching?

Devices used to watch video

Mobile, the most preferred device for watching online videos



Online video consumption grew primarily on the back of the mobile phone

All other modes of online video consumption - personal computer, tablet and Internet-based television - witnessed significant declines in average time spent per week.

2016 2017

Note: Column figures corresponding to each device represent the percentage of respondents who use them most often to watch online videos, and due to multiple choices (assuming some people may prefer two or more devices equally), the sum is greater than 100 per cent for each year. Y-o-y growth is the rise or fall in average time spent per week on watching online videos for each device from 2016–17.

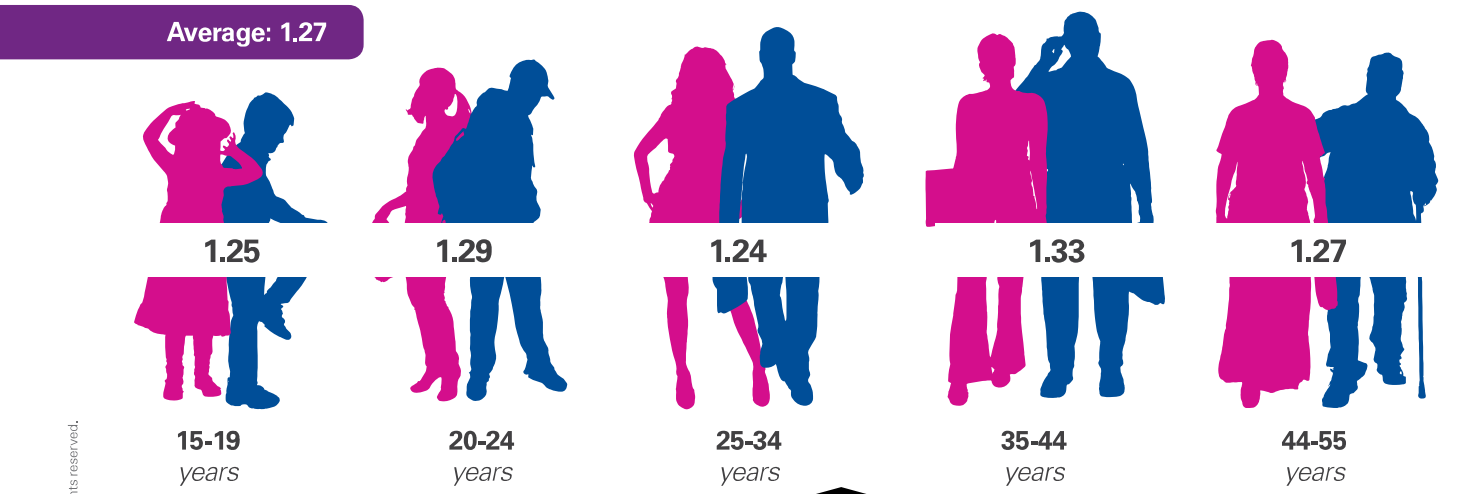
2016 and 2017 data pertains to surveys from Feb-May and Aug-Oct in both years

Source: Kantar IMRB's TGI

Who is watching?

Digital video is no longer a ***millennial*** phenomenon

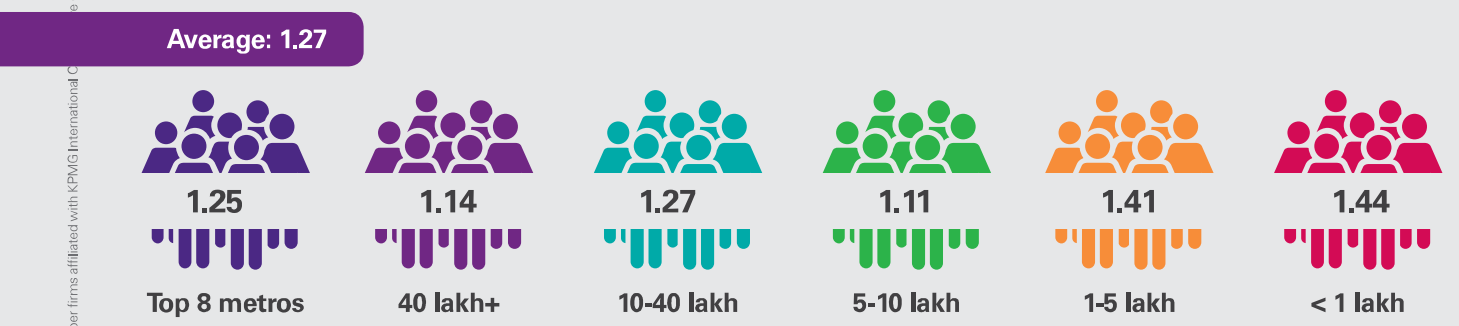
Time spent on online video viewing — by age group (hours per week, 2017)



The relatively older demographics (35–55 years) spend equal or more time watching videos online than the average time spent on online video viewing.

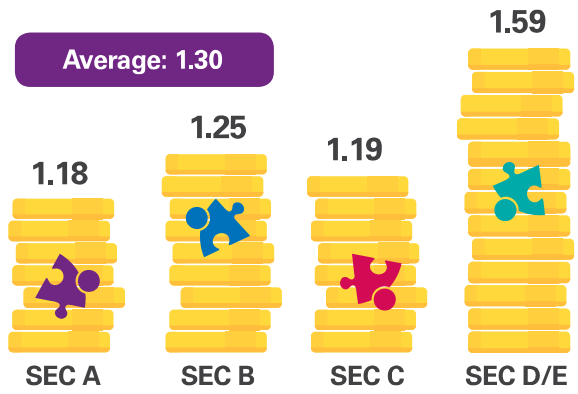
Time spent on online video viewing – By population of town (hours per week; 2017)

Digital video is finding its ***mass*** appeal



Small towns with population less than one lakh or 1–5 lakh are spending the maximum time watching online video content — compared to metro cities and other bigger towns.

Time spent on online video viewing – By socio-economic class (per week; 2017)



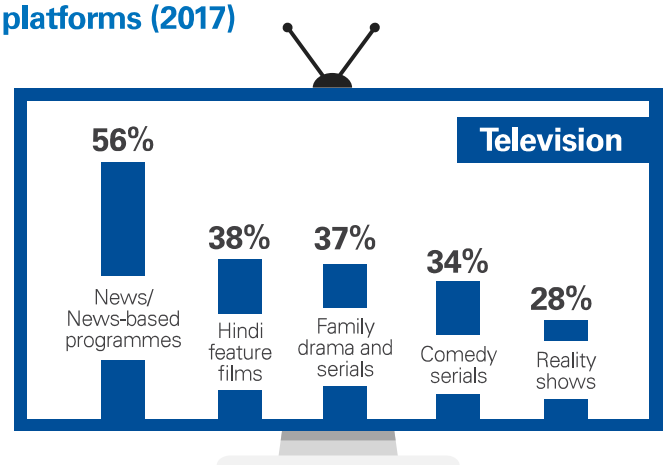
In congruence with the data on small towns, the lowest socio-economic classes (SEC D/E) spend a significantly higher share of their time watching online videos - compared to SEC A, B and C

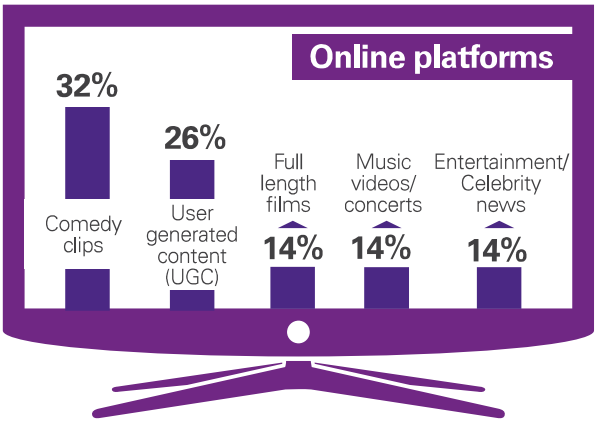
Source: Kantar IMRB's TGI

What are we watching?

Comedy and ***user-generated content*** take the lead in digital

Top five categories of video content Indians prefer to watch on TV vis-à-vis online platforms (2017)





Content preferences for Indian viewers **differ starkly** in nature across television and digital medium

While comedy features in both television and online video preferences, the kind of content within comedy would typically vary

Television : **Comedy serials**

Online : **Stand-up comedy clips, Short-format UGC**

User Generated Content (UGC) occupies the **2nd largest** share in online video consumption — indicating the strength of YouTube and other social media platforms in attracting people towards their video content

Reruns of TV shows on the web occupies the **7th rank** with 10.6 per cent of the respondents watching reruns on digital platforms

Note: Figures corresponding to each category represent the percentage of respondents who agreed to 'specially choosing to watch' those categories on TV/digital platforms. There were multiple choices, of which the top five categories receiving maximum responses for each of TV and digital platforms have been depicted.

Source: Kantar IMRB's TGI

Essentially, India is going big on online video viewing

Key takeaways

Mobile drives online video consumption

- Overall, the average time spent by Indians watching online videos grew 21 per cent y-o-y in 2017
- It grew solely on the back of the mobile phone, which is now the most preferred device for online video consumption by 88 per cent Indians.

Demographics don't matter

- Indians spent 1.27 hours per week watching online videos in 2017; those aged between 35–44 year spend maximum time watching online videos
- Small towns with population less than one lakh or one–five lakh and SEC D/E spend the maximum time watching online videos.

Varying content preferences on digital

- Content preferences for Indian viewers differ starkly in nature across the television and digital medium
- Comedy clips and User Generated Content (UGC) occupy the top two spots for online video viewing.

Driven rapidly by increasingly affordable data plans offered by telecom players and the widespread proliferation of smartphones, Indians have adopted online video consumption as a prominent media consumption habit.

Source: Target Group Index (TGI) India <2016/2017 depending on the data point> Wave 2. TGI is a pan India urban study done amongst respondents in the age range of 15 to 55 years, new SEC/NCCS ABCDE. It is a primary study which is administered face to face, and as a diary placement. Responses are captured at the claimed level only.

Source: Kantar IMRB's TGI

Note to Parliamentary Estimates Committee on Bank NPAs[1]

1) Why did the NPAs occur?

I have not seen a study that has unearthed the precise weight of all the factors responsible, but here is a list of the main ones.

Over-optimism:

A larger number of bad loans were originated in the period 2006-2008 when economic growth was strong, and previous infrastructure projects such as power plants had been completed on time and within budget. It is at such times that banks make mistakes. They extrapolate past growth and performance to the future. So they are willing to accept higher leverage in projects, and less promoter equity. Indeed, sometimes banks signed up to lend based on project reports by the promoter's investment bank, without doing their own due diligence. One promoter told me about how he was pursued then by banks waving checkbooks, asking him to name the amount he wanted. This is the historic phenomenon of irrational exuberance, common across countries at such a phase in the cycle.

Slow Growth

Unfortunately, growth does not always take place as expected. The years of strong global growth before the global financial crisis were followed by a slowdown, which extended even to India, showing how much more integrated we had become with the world. Strong demand projections for various projects were shown to be increasingly unrealistic as domestic demand slowed down.

Government Permissions and Foot-Dragging

A variety of governance problems such as the suspect allocation of coal mines coupled with the fear of investigation slowed down government decision making in Delhi, both in the UPA and the subsequent NDA governments. Project cost overruns escalated for stalled projects and they

[1]This note was prepared by Professor Raghuram G. Rajan on September 6th 2018 at the request of the Chairman of the Parliament Estimates Committee, Dr. Murli Manohar Joshi, MP.

became increasingly unable to service debt. The continuing travails of the stranded power plants, even though India is short of power, suggests government decision making has not picked up sufficient pace to date.

Loss of Promoter and Banker Interest

Once projects got delayed enough that the promoter had little equity left in the project, he lost interest. Ideally, projects should be restructured at such times, with banks writing down bank debt that is uncollectable, and promoters bringing in more equity, under the threat that they would otherwise lose their project. Unfortunately, until the Bankruptcy Code was enacted, bankers had little ability to threaten promoters (see later), even incompetent or unscrupulous ones, with loss of their project. Writing down the debt was then simply a gift to promoters, and no banker wanted to take the risk of doing so and inviting the attention of the investigative agencies. Stalled projects continued as "zombie" projects, neither dead nor alive ("zombie" is a technical term used in the banking literature).

It was in everyone's interest to extend the loan by making additional loans to enable the promoter to pay interest and pretend it was performing. The promoter had no need to bring in equity, the banker did not have to restructure and recognize losses or declare the loan NPA and spoil his profitability, the government had no need to infuse capital. In reality though, because the loan was actually non-performing, bank profitability was illusory, and the size of losses on its balance sheet were ballooning because no interest was actually coming in. Unless the project miraculously recovered on its own – and with only a few exceptions, no one was seriously trying to put it back on track – this was deceptive accounting. It postponed the day of reckoning into the future, but there would be such a day.

Malfeasance

How important was malfeasance and corruption in the NPA problem? Undoubtedly, there was some, but it is hard to tell banker exuberance, incompetence, and corruption apart. Clearly, bankers were overconfident and probably did too little due diligence for some of these loans. Many did no independent analysis, and placed excessive reliance on SBI Caps and IDBI to do

the necessary due diligence. Such outsourcing of analysis is a weakness in the system, and multiplies the possibilities for undue influence.

Banker performance after the initial loans were made were also not up to the mark. Unscrupulous promoters who inflated the cost of capital equipment through over-invoicing were rarely checked. Public sector bankers continued financing promoters even while private sector banks were getting out, suggesting their monitoring of promoter and project health was inadequate. Too many bankers put yet more money for additional "balancing" equipment, even though the initial project was heavily underwater, and the promoter's intent suspect. Finally, too many loans were made to well-connected promoters who have a history of defaulting on their loans.

Yet, unless we can determine the unaccounted wealth of bankers, I hesitate to say a significant element was corruption. Rather than attempting to hold bankers responsible for specific loans, I think bank boards and investigative agencies must look for a pattern of bad loans that bank CEOs were responsible for – some banks went from healthy to critically undercapitalized under the term of a single CEO. Then they must look for unaccounted assets with that CEO. Only then should there be a presumption that there was corruption.

Fraud

The size of frauds in the public sector banking system have been increasing, though still small relative to the overall volume of NPAs. Frauds are different from normal NPAs in that the loss is because of a patently illegal action, by either the borrower or the banker. Unfortunately, the system has been singularly ineffective in bringing even a single high profile fraudster to book. As a result, fraud is not discouraged.

The investigative agencies blame the banks for labeling frauds much after the fraud has actually taken place, the bankers are slow because they know that once they call a transaction a fraud, they will be subject to harassment by the investigative agencies, without substantial progress in catching the crooks. The RBI set up a fraud monitoring cell when I was Governor to coordinate the early reporting of fraud cases to the investigative agencies. I also sent a list of high profile

cases to the PMO urging that we coordinate action to bring at least one or two to book. I am not aware of progress on this front. This is a matter that should be addressed with urgency.

2) **Why did the RBI set up various schemes to restructure debt and how effective were they?**

When I took office it was clear that bankers had very little power to recover from large promoters. The Debts Recovery Tribunals (DRTs) were set up under the Recovery of Debts Due to Banks and Financial Institutions (RDDBFI) Act, 1993 to help banks and financial institutions recover their dues speedily without being subject to the lengthy procedures of usual civil courts. The Securitization and Reconstruction of Financial Assets and Enforcement of Security Interests (SARFAESI) Act, 2002 went a step further by enabling banks and some financial institutions to enforce their security interest and recover dues even without approaching the DRTs.

Yet the amount banks recover from defaulted debt was both meager and long delayed. The amount recovered from cases decided in 2013-14 under DRTs was Rs. 30590 crores while the outstanding value of debt sought to be recovered was a huge Rs 2,36,600 crores. Thus recovery was only 13% of the amount at stake. Worse, even though the law indicated that cases before the DRT should be disposed off in 6 months, only about a fourth of the cases pending at the beginning of the year were disposed off during the year – suggesting a four year wait even if the tribunals focused only on old cases. However, in 2013-14, the number of new cases filed during the year were about one and a half times the cases disposed off during the year. Thus backlogs and delays were growing, not coming down. A cautionary point as we welcome the NCLT's efforts is that the DRTs and SARFAESI were initially successful, before they became overburdened as large promoters understood how to game them.

The inefficient loan recovery system gave promoters tremendous power over lenders. Not only could they play one lender off against another by threatening to divert payments to the favored bank, they could also refuse to pay unless the lender brought in more money, especially if the lender feared the loan becoming an NPA. Sometimes promoters offered low one-time settlements (OTS) knowing that the system would allow the banks to collect even secured loans only after years. Effectively, bank loans in such a system become equity, with a tough promoter

enjoying the upside in good times, and forcing banks to absorb losses in bad times, even while he holds on to his equity.

The RBI decided we needed to empower the banks and improve on the ineffective CDR system then in place. Our first task was to make sure that all banks had information on who had lent to a borrower. So we created a large loan database (CRILC) that included all loans over Rs. 5 crore, which we shared with all the banks. The CRILC data included the status of each loan – reflecting whether it was performing, already an NPA or going towards NPA. That database allowed banks to identify early warning signs of distress in a borrower such as habitual late payments to a segment of lenders.

The next step was to coordinate the lenders through a Joint Lenders' Forum (JLF) once such early signals were seen. The JLF was tasked with deciding on an approach for resolution, much as a bankruptcy forum does. Incentives were given to banks for reaching quick decisions. We also tried to make the forum more effective by reducing the need for everyone to agree, even while giving those who were unconvinced by the joint decision the opportunity to exit.

We also wanted to stop ever-greening of projects by banks who want to avoid recognizing losses – so we ended *forbearance*, the ability of banks to restructure projects without calling them NPA in April 2015. At the same time, a number of long duration projects such as roads had been structured with overly rapid required repayments, even though cash flows continued to be available decades from now. So we allowed such project payments to be restructured through the 5/25 scheme provided the long dated future cash flows could be reliably established. Of course, there was always the possibility of banks using this scheme to evergreen, so we monitored how it worked in practice, and continued tweaking the scheme where necessary so that it achieved its objectives.

Because promoters were often unable to bring in new funds, and because the judicial system often protected those with equity ownership, together with SEBI we introduced the Strategic Debt Restructuring (SDR) scheme so as to enable banks to displace weak promoters by

converting debt to equity. We did not want banks to own projects indefinitely, so we indicated a time-line by which they had to find a new promoter.

We adjusted the schemes with experience. Each scheme's effectiveness, while seemingly obvious when designing, had to be monitored in light of the distorted incentives in the system. As we learnt, we adapted regulation. Our objective was not to be theoretical but to be pragmatic, even while subjecting the system to increasing discipline and transparency.

All these new tools (including some I do not have the space to describe) effectively created a resolution system that replicated an out-of-court bankruptcy. Banks now had the power to resolve distress, so we could push them to exercise these powers by requiring recognition. The schemes were a step forward, and enabled some resolution and recovery, but far less than we thought was possible. Incentives to conclude deals were unfortunately too weak.

3) Why Recognize Bad Loans?

There are two polar approaches to loan stress. One is to apply band aids to keep the loan current, and hope that time and growth will set the project back on track. Sometimes this works. But most of the time, the low growth that precipitated the stress persists. Lending intended to keep the original loan current (also called "ever-greening") grows. Facing large and potentially unpayable debt, the promoter loses interest, does little to fix existing problems, and the project goes into further losses.

An alternative approach is to try to put the stressed project back on track rather than simply applying band aids. This may require deep surgery. Existing loans may have to be written down somewhat because of the changed circumstances since they were sanctioned. If loans are written down, the promoter brings in more equity, and other stakeholders like the tariff authorities or the local government chip in, the project may have a strong chance of revival, and the promoter will be incentivized to try his utmost to put it back on track.

But to do deep surgery such as restructuring or writing down loans, the bank has to recognize it has a problem – classify the asset as a Non Performing Asset (NPA). Think therefore of the NPA classification as an anesthetic that allows the bank to perform extensive necessary surgery to set the project back on its feet. If the bank wants to pretend that everything is all right with the loan, it can only apply band aids – for any more drastic action would require NPA classification.

Loan classification is merely good accounting – it reflects what the true value of the loan might be. It is accompanied by provisioning, which ensures the bank sets aside a buffer to absorb likely losses. If the losses do not materialize, the bank can write back provisioning to profits. If the losses do materialize, the bank does not have to suddenly declare a big loss, it can set the losses against the prudential provisions it has made. Thus the bank balance sheet then represents a true and fair picture of the bank's health, as a bank balance sheet is meant to. Of course, we can postpone the day of reckoning with regulatory forbearance. But unless conditions in the industry improve suddenly and dramatically, the bank balance sheets present a distorted picture of health, and the eventual hole becomes bigger.

4) Did the RBI create the NPAs?

Bankers, promoters, or their backers in government sometimes turn around and accuse regulators of creating the bad loan problem. The truth is bankers, promoters, and circumstances create the bad loan problem. The regulator cannot substitute for the banker's commercial decisions or micromanage them or even investigate them when they are being made. Instead, in most situations, the regulator can at best warn about poor lending practices when they are being undertaken, and demand banks hold adequate risk buffers. The RBI is primarily a referee, not a player in the process of commercial lending. Its nominees on bank boards have no commercial lending experience and can only try and make sure that processes are followed. They offer an illusion that the regulator is in control, which is why nearly every RBI Governor has asked the government for permission to withdraw them from bank boards.

The important duty of the regulator is to force timely recognition of NPAs and their disclosure when they happen, followed by requiring adequate bank capitalization. This is done through the RBI's regular supervision of banks.

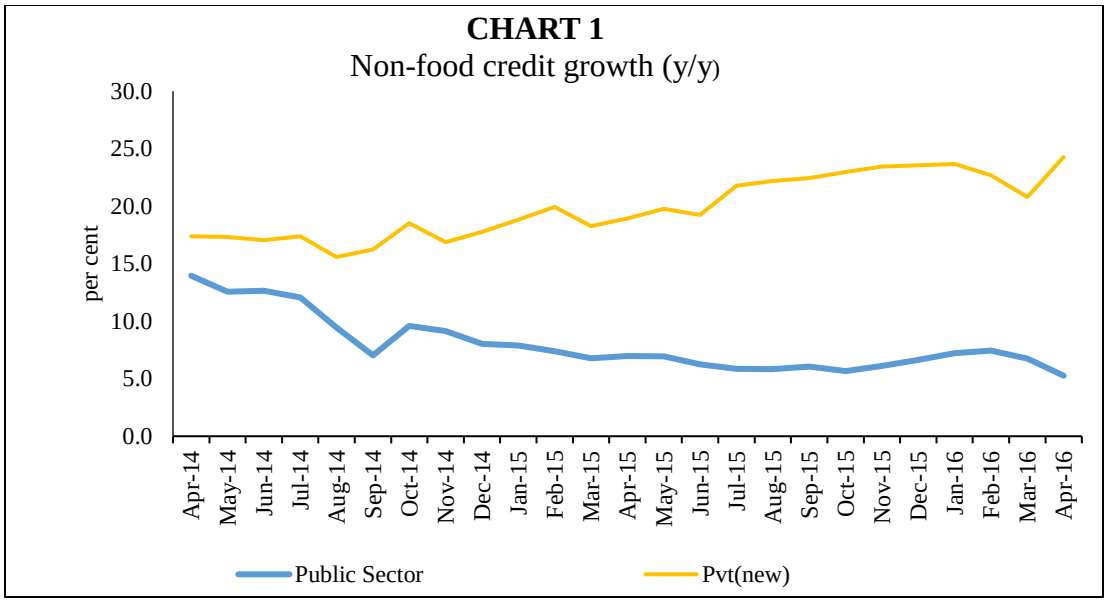
5) Why did RBI initiate the Asset Quality Review?

Once we had created enough ways for banks to recover, we decided to not prolong forbearance beyond when it was scheduled to end. Banks were simply not recognizing bad loans. They were not following uniform procedures – a loan that was non-performing in one bank was shown as performing in others. They were not making adequate provisions for loans that had stayed NPA for a long time. Equally problematic, they were doing little to put projects back on track. They had also slowed credit growth. What any student of banking history will tell you is that the sooner banks are cleaned up, the faster the banks will be able to resume credit. We proceeded to ensure in our bank inspections in 2015 that every bank followed the same norms on every stressed loan. We especially looked for signs of ever-greening. A dedicated team of supervisors ensured that the Asset Quality Review (AQR), completed in October 2015 and subsequently shared with banks, was fair and conducted without favor. The government was kept informed and consulted on every step of the way, after the initial supervision was done.

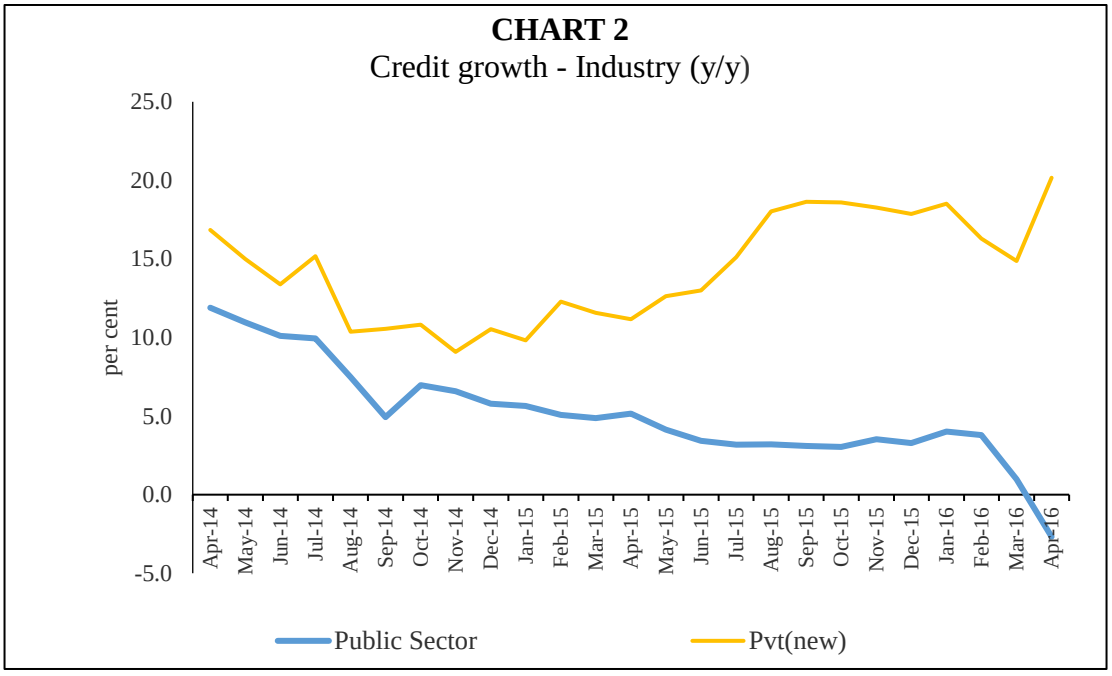
6) Did NPA recognition slow credit growth, and hence economic growth?

The RBI has been accused of slowing the economy by forcing NPA recognition. I actually gave a speech in July 2016 on this issue before I demitted office, knowing it was only a matter of time before vested interests who wanted to torpedo the clean-up started attacking the RBI on the growth issue.

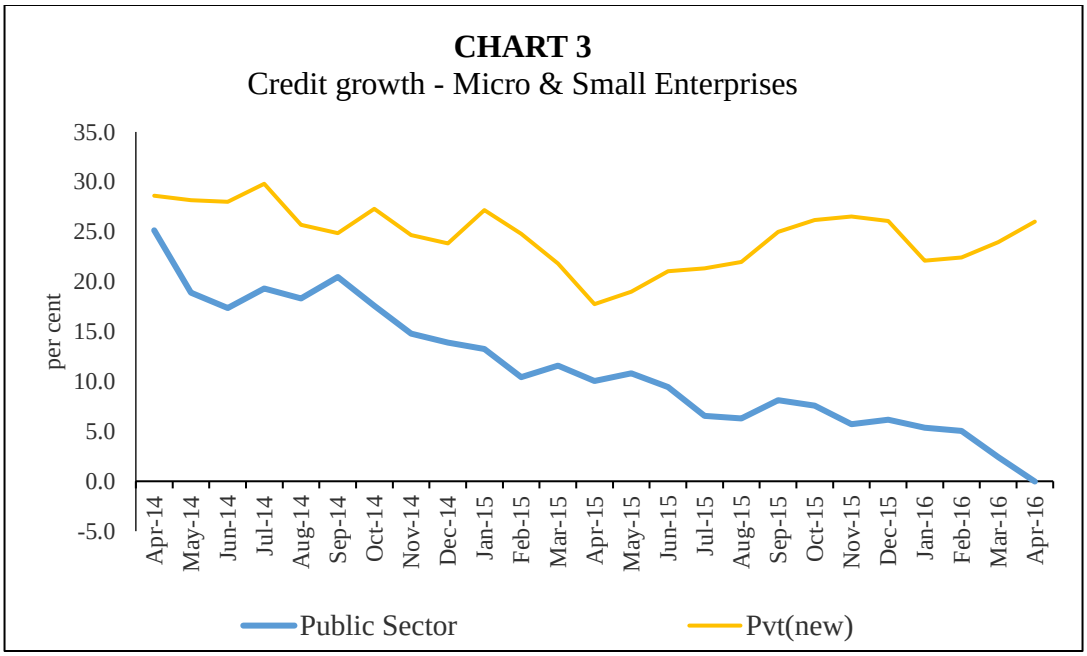
Simply eye-balling the evidence suggests the claim is ludicrous, and made by people who have not done their homework. Let us start by looking at public sector bank credit growth compared with the growth in credit by the new private banks. As the trend in non-food credit growth shows (Chart 1), public sector bank non-food credit growth was falling relative to credit growth from the new private sector banks (Axis, HDFC, ICICI, and IndusInd) since early 2014.



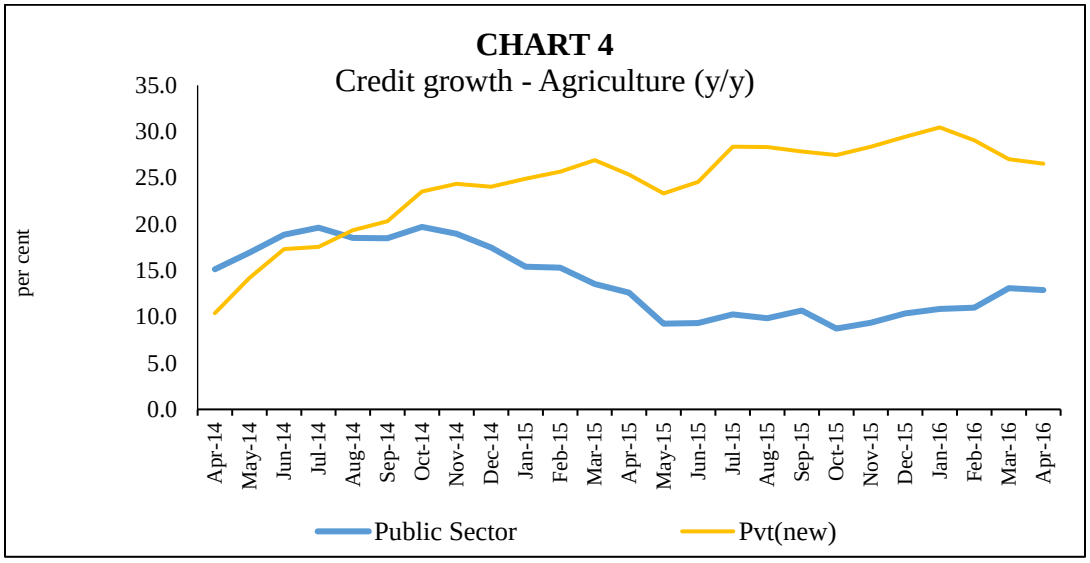
This is reflected not only in credit to industry (Chart 2), but also in credit to micro and small enterprise credit (Chart 3).[2]



[2] In Chart 2, the negative growth in April 2016 may be an aberration because of UDAY bonds being transferred from bank loan books to investments.



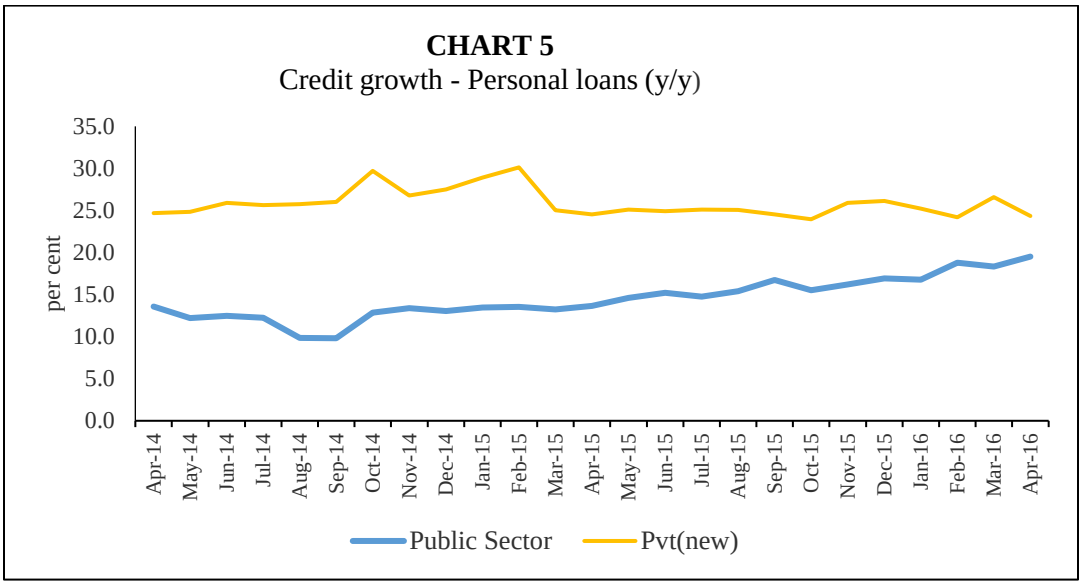
The relative slowdown in credit growth, albeit not so dramatic, is also seen in agriculture (Chart 4), though public sector bank credit growth picked up once again in October 2015.

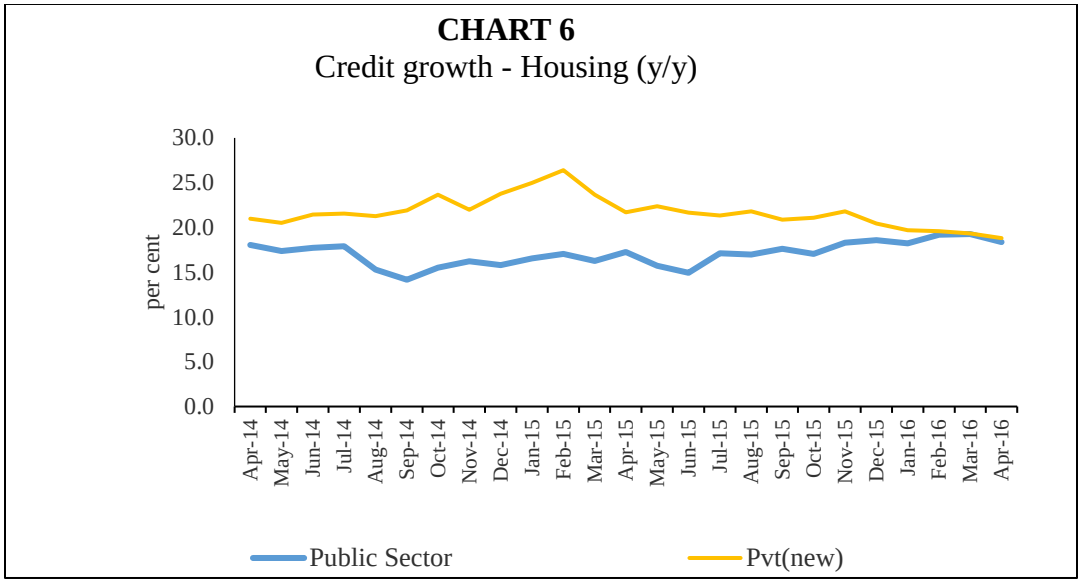


Whenever one sees a slowdown in lending, one could conclude there is no demand for credit – firms are not investing. But what we see here is a slowdown in lending by public sector banks vis a vis private sector banks.

Interestingly, if we look at personal loan growth (Chart 5), and specifically housing loans (Chart 6), public sector bank loan growth approaches private sector bank growth. So the reality is that

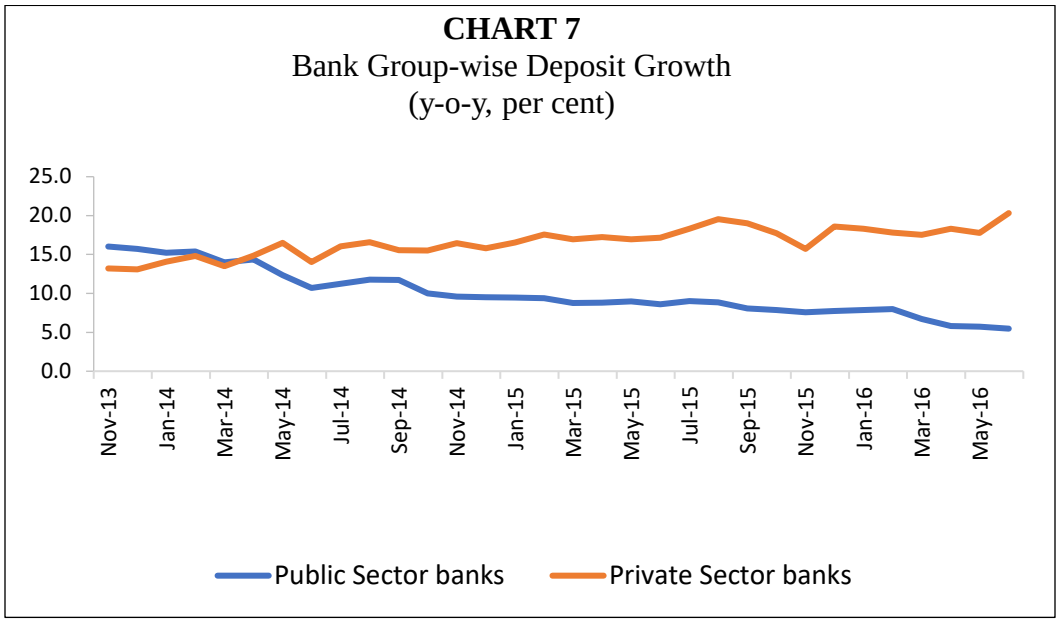
public sector banks slowed lending to the sectors where they were seeing large NPAs but not in sectors where NPAs were low.





The fact that the public sector bank credit slowdown to industry dates from early 2014 suggests that the bank cleanup, which started in earnest in the second half of fiscal year 2015, was not the cause. Indeed, the slowdown is best attributed to over-burdened public sector bank balance sheets and growing risk aversion in public sector bankers. Their aversion to increasing their activity can be seen in the rapid slowdown of their deposit growth also, relative to private sector banks (see

Chart 7). After all, why would public sector banks raise deposits aggressively if they are unwilling to lend?



In sum, the Indian evidence, supported by the experiences from other parts of the world such as Europe and Japan, suggests that what we were seeing was classic behavior by a banking system with balance sheet problems. We were able to identify the effects because parts of our banking system – the private banks -- did not suffer as much from such problems. The obvious remedy to anyone with an open mind would be to tackle the source of the problem – to clean the balance sheets of public sector banks, a remedy that has worked well in other countries where it has been implemented. This is not a "foreign" solution, it is an economically sensible solution. It is something that has been repeatedly flagged by the government's own Economic Survey, under the guidance of the respected Dr. Arvind Subramanian. Clean up was part of the solution, not the problem.

7) Why do NPAs continue mounting even after the AQR is over?

The AQR was meant to stop the ever-greening and concealment of bad loans, and force banks to revive stalled projects. The hope was that once the mass of bad loans were disclosed, the banks, with the aid of the government, would undertake the surgery that was necessary to put the projects back on track. Unfortunately, this process has not played out as well. As NPAs age, they require more provisioning, so projects that have not been revived simply add to the stock of

gross NPAs. A fair amount of the increase in NPAs may be due to ageing rather than as a result of a fresh lot of NPAs.

Why have projects not been revived? Since the post-AQR process took place after I demitted office, I can only comment on this from press reports. Blame probably lies on all sides here.

a) Risk-averse bankers, seeing the arrests of some of their colleagues, are simply not willing to take the write-downs and push a restructuring to conclusion, without the process being blessed by the courts or eminent individuals. Taking every restructuring to an eminent persons group or court simply delays the process endlessly.
b) Until the Bankruptcy Code was enacted, promoters never believed they were under serious threat of losing their firms. Even after it was enacted, some still are playing the process, hoping to regain control though a proxy bidder, at a much lower price. So many have not engaged seriously with the banks.
c) The government has dragged its feet on project revival – the continuing problems in the power sector are just one example. The steps on reforming governance of public sector banks, or on protecting bank commercial decisions from second guessing by the investigative agencies, have been limited and ineffective. Sometimes even basic steps such as appointing CEOs on time have been found wanting. Finally, the government has not recapitalized banks with the urgency that the matter needed (though without governance reform, recapitalization is also not like to be as useful).
d) The Bankruptcy Code is being tested by the large promoters, with continuous and sometimes frivolous appeals. It is very important that the integrity of the process be maintained, and bankruptcy resolution be speedy, without the promoter inserting a bid by an associate at the auction, and acquiring the firm at a bargain-basement price. Given our conditions, the promoter should have every chance of concluding a deal before the firm goes to auction, but not after. Higher courts must resist the temptation to intervene routinely in these cases, and appeals must be limited once points of law are settled.

   That said, the judicial process is simply not equipped to handle every NPA through a bankruptcy process. Banks and promoters have to strike deals outside of bankruptcy, or if promoters prove uncooperative, bankers should have the ability to proceed without them.

Bankruptcy Court should be a final threat, and much loan renegotiation should be done under the shadow of the Bankruptcy Court, not in it. This requires fixing the factors mentioned in (a) that make bankers risk averse and in (b) that make promoters uncooperative.

We need concentrated attention by a high level empowered and responsible group set up by government on cleaning up the banks. Otherwise the same non-solutions (bad bank, management teams to take over stressed assets, bank mergers, new infrastructure lending institution) keep coming up and nothing really moves. Public sector banks are losing market share as non-bank finance companies, the private sector banks, and some of the newly licensed banks are expanding.

8) What could the regulator have done better?

It is hard to offer an objective self-assessment. However, the RBI should probably have raised more flags about the quality of lending in the early days of banking exuberance. With the benefit of hindsight, we should probably not have agreed to forbearance, though without the tools to clean up, it is not clear what the banks would have done. Forbearance was a bet that growth would revive, and projects would come back on track. That it did not work out does not mean that it was not the right decision at the time it was initiated. Also, we should have initiated the new tools earlier, and pushed for a more rapid enactment of the Bankruptcy Code. If so, we could have started the AQR process earlier. Finally, the RBI could have been more decisive in enforcing penalties on non-compliant banks. Fortunately, this culture of leniency has been changing in recent years. Hindsight, of course, is 20/20.

9) How should we prevent recurrence?

- **Improve governance of public sector banks and distance them from the government.**
    - Public sector bank boards are still not adequately professionalized, and the government rather than a more independent body still decides board appointments, with the inevitable politicization. The government could follow the

PJ Naik Committee report more carefully. Eventually strong boards should be entrusted with all decisions but held responsible for them.

- Pending the change above, there is absolutely no excuse for banks to be left leaderless for long periods of time as has been the case in recent years. The date of retirement of CEOs is well known and government should be prepared well in advance with succession. Indeed, it would be good for the old CEO and the successor to overlap for a few months while they exchange notes. All the more reason to delegate appointments entirely to an entity like the Bank Board Bureau, and not retain it in government.
- Outside talent has been brought in very limited ways into top management in Public Sector Banks. There is already a talent deficit in internal PSB candidates in coming years because of a hiatus in recruitment in the past. This needs to be taken up urgently. Compensation structures in PSBs also need rethinking, especially for high level outside hires. Internal parity will need to be maintained. There will be internal resistance, but lakhs of crores of national assets cannot be held hostage to the career concerns of a few.
- Risk management processes still need substantial improvement in PSBs. Compliance is still not adequate, and cyber risk needs greater attention.

- **Improve the process of project evaluation and monitoring to lower the risk of project NPAs**

(i) Significantly more in-house expertise can be brought to project evaluation, including understanding demand projections for the project's output, likely competition, and the expertise and reliability of the promoter. Bankers will have to develop industry knowledge in key areas since consultants can be biased.

(ii) Real risks have to be mitigated where possible, and shared where not. Real risk mitigation requires ensuring that key permissions for land acquisition and construction are in place up front, while key inputs and customers are tied up through purchase agreements. Where these risks cannot be mitigated, they should be shared contractually between the promoter and financiers, or a transparent arbitration system agreed upon. So, for instance, if demand falls below

projections, perhaps an agreement among promoters and financier can indicate when new equity will be brought in and by whom.

(iii) An appropriately flexible capital structure should be in place. The capital structure has to be related to residual risks of the project. The more the risks, the more the equity component should be (genuine promoter equity, not borrowed equity, of course), and the greater the flexibility in the debt structure. Promoters should be incentivized to deliver, with significant rewards for on-time execution and debt repayment. Where possible, corporate debt markets, either through direct issues or securitized project loan portfolios, should be used to absorb some of the initial project risk. More such arm's length debt should typically refinance bank debt when construction is over.

(iv) Financiers should put in a robust system of project monitoring and appraisal, including where possible, careful real-time monitoring of costs. For example, can project input costs be monitored and compared with comparable inputs elsewhere using IT, so that suspicious transactions suggesting over-invoicing are flagged? Projects that are going off track should be restructured quickly, before they become unviable.

(v) And finally, the incentive structure for bankers should be worked out so that they evaluate, design, and monitor projects carefully, and get significant rewards if these work out. This means that even while committees may take the final loan decision, some senior banker ought to put her name on the proposal, taking responsibility for recommending the loan. IT systems within banks should be able to pull up overall performance records of loans recommended by individual bankers easily, and this should be an input into their promotion and pay.

- **Strengthen the recovery process further.**
    - Both the out of court restructuring process and the bankruptcy process need to be strengthened and made speedy. The former requires protecting the ability of

bankers to make commercial decisions without subjecting them to inquiry. The latter requires steady modifications where necessary to the bankruptcy code so that it is effective, transparent, and not gamed by unscrupulous promoters.

- **Government should focus on sources of the next crisis, not just the last one. In particular, government should refrain from setting ambitious credit targets or waiving loans.**

(i) Credit targets are sometimes achieved by abandoning appropriate due diligence, creating the environment for future NPAs. Both MUDRA loans as well as the Kisan Credit Card, while popular, have to be examined more closely for potential credit risk. The Credit Guarantee Scheme for MSME (CGTMSE) run by SIDBI is a growing contingent liability and needs to be examined with urgency.

(ii) Loan waivers, as RBI has repeatedly argued, vitiate the credit culture, and stress the budgets of the waiving state or central government. They are poorly targeted, and eventually reduce the flow of credit. Agriculture needs serious attention, but not through loan waivers. An all-party agreement to this effect would be in the nation's interest, especially given the impending elections.

13 September 2018

The Indian Rupee: Performance, Pressures and Policy Implications

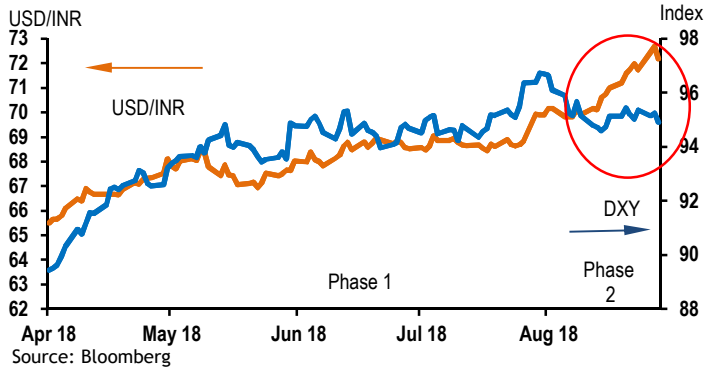
- **The Indian rupee has depreciated in tandem with the broader emerging markets universe and Asian currencies between April and July, reflecting broad dollar strength.**
- **This was a much-needed and healthy correction in response to rising external imbalances, with India's current account deficit tracking 3% of GDP in 2018-19.**
- **However, the rupee has come under renewed pressure since August, and the pace of depreciation has quickened in recent days, creating concerns that market expectations may be getting unanchored with exporters sitting out and importers front-loading.**
- **Given these dynamics, the likelihood of some policy response has increased meaningfully, with reports that a high-level government meeting may be convened on this issue over the weekend.**
- **Apart from heavier FX intervention and a rate hike at or before the October review, one cannot rule out other measures that have been adopted in the past (special oil window, requiring exporters to being back their proceeds faster, other regulatory measures and potentially even efforts to mobilize more resources) being adopted at some point in the foreseeable future if pressure on the currency sustains.**
- **Strategy: The adjustment seen in INR FX is getting to meaningful levels from an historical context. Rhetoric around the pace of depreciation is also shifting and the RBI has the means to manage the new current account reality. However, FX valuations don't suggest the rupee is necessarily cheap, even after the most recent adjustment, given the broader headwinds that emerging markets must confront.**

INR depreciation was in the middle of the pack…

After the Goldilocks environment of 2017, emerging markets have been under sustained pressure since April. The first phase of this stress – which lasted until August – was largely reflecting broad dollar strength. The DXY Index appreciated 8% during that time which, in turn, was symptomatic of: (i) U.S. exceptionalism and the divergence of U.S. growth from the rest of the world, particularly the Euro Area; (ii) expectations of continued US policy normalization exposing soft underbellies in many large EM markets (Argentina, Turkey) which, in turn, induced more 'flight to safety' flows, strengthening the U.S. dollar, and thereby creating a vicious cycle; and (iii) the escalation of the ongoing trade conflict between the US and China;

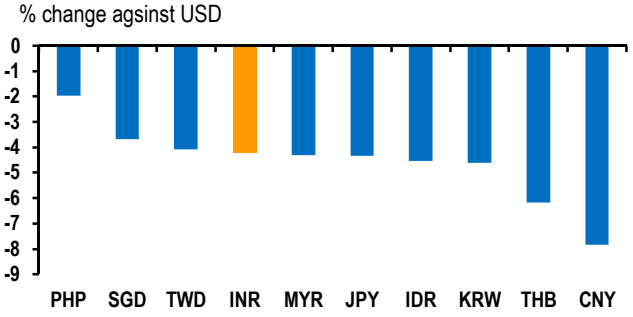
Against this backdrop, it was unsurprising that the Indian rupee was also facing depreciation pressures. But this first phase was largely reflective of broad dollar strength (Phase 1 of Figure 1 below). Comparisons with Asia are generally unwarranted, given the preponderance of current account surplus economies in the region vis-à-vis India's current account deficit nature (CAD). That said, the rupee's depreciation was in line with the Asian economies in this first phase (Figure 2). Furthermore, when compared to a broad basket of EM countries, the rupee's depreciation between April and August was right in the middle of the pack.

Figure 1: Dollar Index (DXY) versus the Rupee



Source: Bloomberg

Figure 2: INR versus other Asian Currencies - Mid-April to July, 2018



Source: Bloomberg

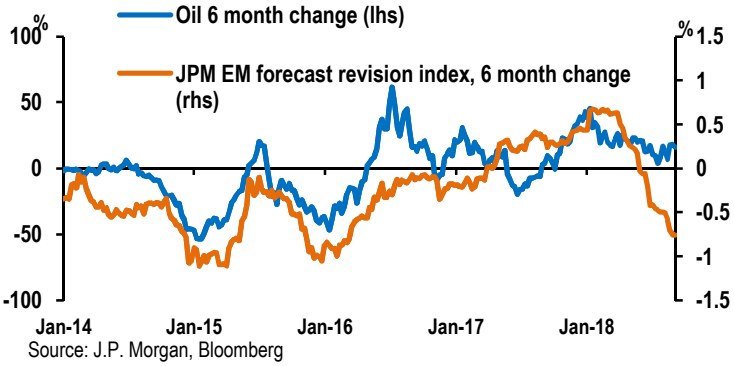
…but has come under increased pressure over the last month

Over the last month, however, a more ominous phase appears to have taken hold. The Dollar Index has weakened and stabilized and the Euro has bounced back. This should normally be accompanied by EM currencies also bouncing back. Instead, however, EM current account deficit currencies have come under renewed pressure, and the INR has been no exception (see the divergence between the DXY and the Indian rupee in Phase 2 of Figure 1).

This has two worrying implications. First, it suggests that global markets have begun to demand a significant risk premia of EM CAD economies. Second, the natural hedge that India benefits from between the dollar and Oil – a strong dollar (and therefore weaker rupee) is typically accompanied by lower oil prices and vice versa – has broken down. India is now being simultaneously buffeted by a weaker currency and higher oil prices, both of which are hastening the pace at which pump prices need to go up. Interestingly, oil is also showing resilience to persistent EM growth downgrades (Figure 3).

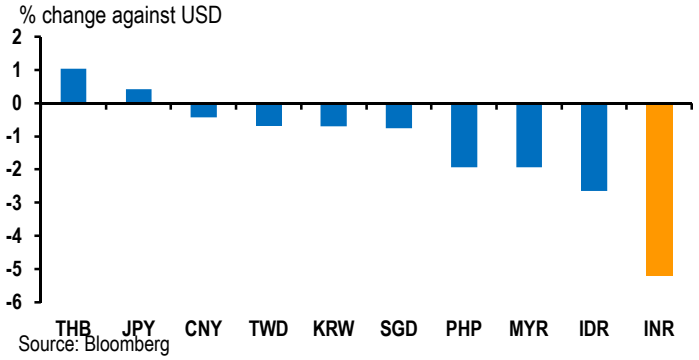
All this has meant that the pace of rupee depreciation has quickened over the last month and the INR is now underperforming the Asian CAD economies meaningfully (Figure 4), though it has still done significantly better than other EMs such as Argentina, Turkey, South Africa, and Brazil.

Figure 3: Oil versus EM Forecast Revision Index



Source: J.P. Morgan, Bloomberg

Figure 4: INR versus other Asian Currencies - August-September, 2018



Fundamental stress points are known

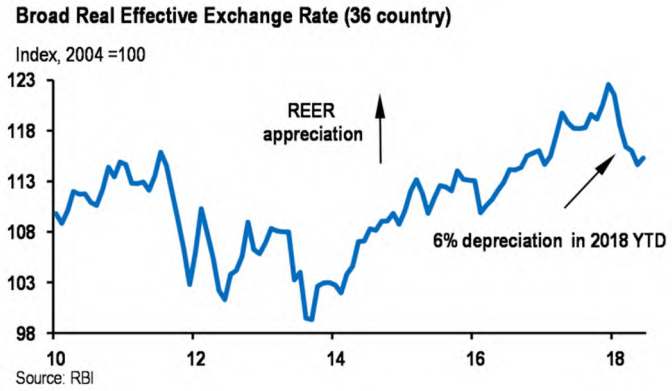
India's fundamental stress point this year is a current account deficit tracking about 3% of GDP or $80 billion for this financial year, a sharp widening from the 1.9% of GDP outturn last year – and a phenomenon that we have been flagging since the start of the year (see, "*India in 2018: more discretion, less valor*," JPMorganMarkets, January 18, 2018). As we have previously analyzed, this is the upshot of both the underlying CAD (ex oil and gold) deteriorating in recent years, and because crude prices have jumped 50% over the last year.

A CAD of this magnitude will be challenging to finance in the current environment, and there is a perception of a meaningful funding gap. This is because FDI and NRI deposits – the more stable sources of funding – typically account for about $50 billion every year. The rest are cyclical flows that will be hard to attract in the current environment. All this was evident in the April-June balance of payments (BoP), which registered its largest deficit in almost seven years. The CAD widened to 2.4% of GDP (and is expected to widen further in subsequent quarters) and healthy net FDI flows, notwithstanding, portfolio, ECB and trade-credit outflows resulted in a meaningful BoP hole. To be sure, portfolio flows have been flat in subsequent months, but we expect the BoP to remain in deficit in the coming quarters. These dynamics create a persistent headwind for the rupee.

And some real depreciation was necessary and healthy

In the near term, any funding gap can easily be filled through a drawdown in FX reserves. But this cannot sustain quarter after quarter, for fear of destabilizing market expectations. Instead, the CAD will need to be compressed below 3% of GDP to be sustainable in the coming quarters and years. As we have previously discussed, this will require both expenditure switching (through a real depreciation of the currency) and expenditure control (tighter monetary and fiscal) to reduce aggregate demand (see "*India delicate 'balancing' act,* "JPMorganMarkets, July 24, 2018).

Between January and August this year, India's broad trade-weighted exchange rate has depreciated about 6.5% but this is against the backdrop of the 20% real appreciation the previous four years – a symptom of the Dutch Disease from the oil-windfall that India received in recent years (see *"Has India caught the Dutch Disease?,"* JPMorganMarkets, June 8, 2018). As we have previously discussed, the real appreciation – along with other factors – also contributing to the sharp widening of the underling current account deficit. Furthermore, we find that the elasticity of India's exports to movements in the rupee is much larger than previously thought (see *"India delicate 'balancing' act,"* JPMorganMarkets, July 24, 2018). Therefore, some rupee depreciation was much-needed and healthy and will eventually boost competitiveness and help compress the CAD. There are already early signs of this. The drag from net trade was the lowest in five quarters in the 2Q GDP report and new export orders in August were the highest since February. That said, the full impact of rupee depreciation on the CAD is likely to take some time and, therefore, demand management measures will likely be required to keep the CAD sustainable, as discussed below.



But are expectations now coming into play?

India's rising external imbalances have been on offer for several months. What has likely changed in recent weeks are concerns that market expectations may be getting unanchored. If economic agents anticipate relentless depreciation, it often induces behavioral changes that reinforce that very depreciation. Exporters postpone hedging and importers prepone dollar purchases. These inter-temporal adjustments are making the contemporaneous BoP gap even larger than it needs to be. To the extent that this exerts more depreciation pressures, expectations stand validated, ex post, and induce even greater behavioral changes, thereby creating self-fulfilling prophecies. Concerns are these dynamics have begun weighing on the rupee in recent weeks.

Likelihood of some policy response has increased; mix of instruments likely to be used

It's important for policymakers to break any such self-fulfilling prophecies by leaning against the wind and, to the extent possible, engineering two-sided volatility to temper expectations and keep markets honest.

It is therefore likely that FX intervention will be stepped up to slow the pace of depreciation and thereby help correct market expectations. However, this will likely need to be accompanied by complementary measures. While the rupee depreciation experienced thus far will eventually help compress external imbalances by boosting exports and impinging on imports, that will likely take some time. In the interim, fiscal and monetary policy will have to share the burden. The importance of tighter fiscal policy cannot be overemphasized. Fundamentally, the CAD is simply investment minus savings. The higher the consolidated fiscal deficit, the lower will be aggregate savings and the higher the economy's CAD. The more the fiscal tightens, the greater the CAD will compress without needing to slash investment or private consumption.

Monetary policy will have to play its part, too. Despite the soft August CPI print (largely on account of muted food prices), we now expect the RBI to hike both at the October and December review, in anticipation of the inflationary impacts from a weaker currency and higher oil prices, and to help temper the current account deficit, and the macroeconomic instability and higher inflation down the line that it risks engendering. An outside chance of an inter-meeting hike before the October policy exists if the currency continues to come under sustained pressure (see, *"India: Adding and bringing forward monetary tightening on currency and crude pressure,"* JPMorganMarkets, September 12, 2018).

In the past, policymakers have used other instruments as well, creating a special oil window, requiring exporters to bring back a larger fraction of their proceeds sooner, introducing other prudential measures on the capital account, and creating an FCNR deposit scheme for non-resident Indians. If the pressure on the rupee sustains, some combination of these measures cannot be ruled out, especially given news reports that the Prime Minister will convene a high-level meeting over the weekend to take stock of the situation and discuss options.

Strategy implications

We have been cautious on INR in 2018 (see our last update *"INR FX: Little respite for the rupee",* 15/08/2018). INR has seen some adjustment ~ some -14% from the year-to-date highs against the USD, which is getting close to previous sell-off episodes; -22% in 2013 taper tantrum and -20% in 2011 European sovereign debt crisis. Clearly, the rate of depreciation is also getting more attention from the authorities, so the likelihood of policies that are aimed at stabilizing FX sentiment has certainly risen. We would also note that there has already been a degree of unwind in carry sensitive flows in 2018, whilst RBI has probably sold around half of the reserves it

built up in 2017 (+67bn, spot and forwards) (Figure 5). Hence, this should still leave the RBI with the ability to manage the new current account reality. Finally, we would note that the authorities' are likely to be mindful of the spillover effects from a rapidly depreciating FX into imported price pressures.

However, FX valuations do not suggest the rupee is necessarily cheap, even after the most recent adjustment, given the broader headwinds that emerging markets must confront.

Figure 5: INR FX valuations suggest the currency is broadly fair

REER	% Deviation from long-term PPP (1)	FX that sustains NIIP at current level (2)	Balassa-Samuelson framework (3)	Wtd average deviation (4) (of 1,2 and 3)	Latest NIIP % of GDP	Latest 4qma current a/c % of GDP
CNY	7.3	4.7	-4.7	3.9	12	0.5
INR	1.1	-3.4	-7.1	-2.3	-16	-1.9
IDR	-5.9	-3.1	-1.4	-3.9	-32	-2.3
MYR	-10.2	-5.5	-19.6	-10.2	-5	3.3
PHP	0.6	-1.3	-1.7	-0.7	-11	-0.6
SGD	1.0	-22.5		-10.8	245	18.9
KRW	4.0	-7.4	8.2	0.3	17	4.6
TWD	-1.5	-19.5	-18.0	-12.0	209	14.3
THB	5.8	-15.6	16.2	-0.7	-6	9.3

Negative sign in Cols 1-4 means currencies are cheap

Col 4 combines Cols 1, 2 & 3 in a 40:40:20 ratio

Source: J.P. Morgan

Figure 6: Indian BoP position still manageable

India BoP Summary in USDbn	2014	2015	2016	2017	1Q18	2Q18	3Q18 until 31st Aug**
1. Overall BoP position	**39**	**44**	**18**	**38**	**13**	**-11**	**-6**
2. ow Current account deficit	-27	-23	-12	-39	-13	**-16**	**-14**
3. Financial account (1 - 2)	67	67	30	77	26	4	**8**
4. ow net FDI	23	36	39	29	6	10	**5**
5. ow net portfolio investments	38	9	-5	31	2	-8	**1**
6. Financial account ex FDI & portfolio investments (3 - 4 - 5)	**6**	**21**	**-5**	**17**	**18**	**3**	**2**
7. ow RBI forward purchases / sales*	-39	5	1	-29	8	10	**2**
8. Financial account ex FDI & portfolio & RBI forward purchases (6 -7)	**45**	**16**	**-6**	**46**	**9**	**-8**	**0**

** -ive sign implies purchases, ** estimates*

Source: J.P. Morgan

Emerging Markets Asia, Economic and Policy Research

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BY NITESH SHARMA AND VIPUL AGRAWAL

A story of the BS-6 catapault and EV sustainability

Paul Quayle / Alamy Stock Photo

Run up to the big (BS-6) change

GV met with a range of industry participants to understand the changes and impact of BS-6

The Indian automobile industry is in the midst of a paradigm change in technology

- Transition to BS-6 norms directly from BS-4 (skipping BS-5)
- Potential structural change in demand patterns with electric vehicles (EV) gaining traction

The decision taken in 2017 to implement BS-6 from 1st April 2020 implied that India's vehicles industry had only three years left to transition. This is a very short period compared to the nine years that Europe took to transition to Euro-6 (for passenger and commercial vehicles) from Euro-4. It can be recalled that the implementation of BS-4 norms on a pan-India basis took six long years. In any case, the government's decision to skip the implementation of BS-5 and directly implement BS-6 norms has led to India's vehicle Industry luminaries making a beeline for their drawing boards with various product plans, and sorting out their supply-chain management with vendors.

From all angles, it looks like the road ahead for OEMs is daunting and that the transition phase is going to be difficult. In this issue, Ground View has taken a long ride into the various technical by-lanes and commercial alleyways of the BS-6 transition motorway and tried to estimate the impact on various OEMs. This follows many discussions with technology partners, global suppliers, auto ancillaries, R&D professionals, and OEMs.

Later in the issue, GV also shares its experience of a 1,500km EV ride in Norway over five days and gets into the details of that country's EV ecosystem. This experience helped get a deeper understanding of 'living an EV life', whether it is achievable for India, and the forthcoming challenges in implementation of the government's plan to make India an EV nation from as early as 2030.

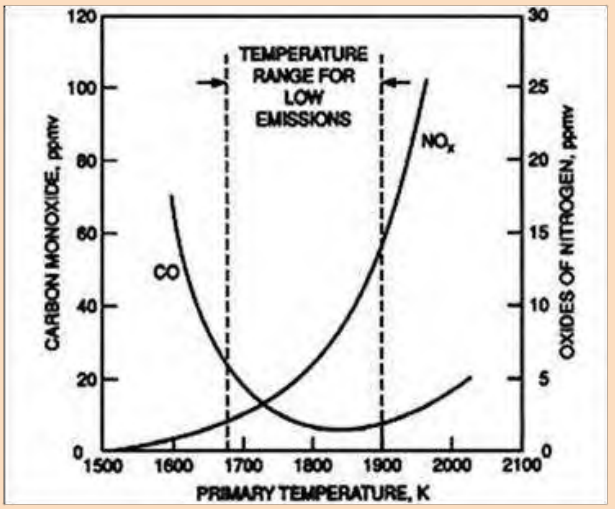
BS-4 to BS-6: An expensive yet mandatory journey

GET SET GO……This is what the Ministry of Road Transportation basically asked of automobile manufacturers a couple of years ago, when it advanced the deadline for implementation of BS-6 norms in India. Shocked initially, the industry quickly started devising plans for its implementation. This rollout is not going to be a simple affair. Not only will it need considerable effort from auto OEMs, but also from the entire ecosystem – ranging from vendors to fuel availability. While technology implementation has precedents in the developed world (except for two-wheelers), which is already producing Euro-6 vehicles, customising the rollout for Indian conditions and establishing a supply chain remains daunting.

Some clear winners and losers are already visible in the transition process. Consumers are set to lose some, gain some. The green lobbies rejoiced when the government decided to skip BS-5 and implement BS-6 (better for the environment) directly; however, this fresh(er) air will also burn a hole in consumers' pockets, given high costs (especially during the initial years) due to high import content.

The main change that will be needed will be managing engine temperature – in fact, it's of the utmost importance. It determines the emissions from a vehicle. Lower engine temperatures will entail higher carbon monoxide emission while higher temperature will mean excess nitrogen oxides (NOx) release.

Controlled engine temperature and air/fuel ratio is of utmost importance to control emissions



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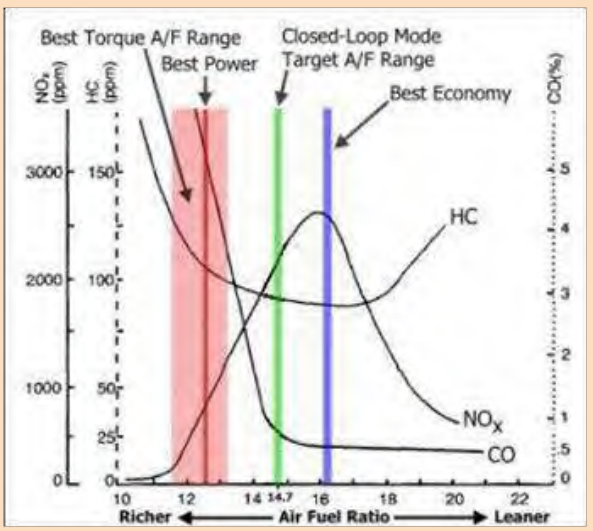


Air-fuel ratio plays an important role in particulate matter emission, power and mileage of the vehicle

Phanie / Alamy Stock Photo

TWO WHEELERS MIGHT HIT A SPEED BUMP

Dinodia Photos / Alamy Stock Photo

Changes for two wheelers post BS6

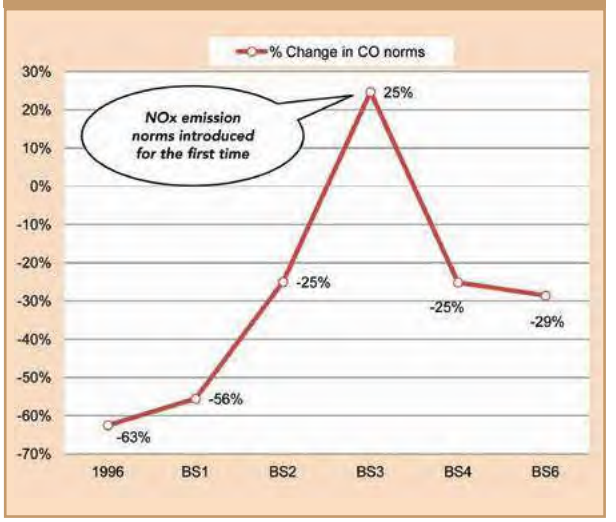
The lower end might see pressure. Bajaj's price aggression could prove fruitful after BS6

In terms of (lower) emissions, the Indian 2W industry will be at par with the most advanced globally, even vs. developed nations such as the US and the EU. While the EU is still working with Euro-5 norms (implementation date for Euro-6 norms not yet decided), the US is substantially behind in terms of emission limits. Advanced technology will come at higher costs and will hit the lower end of the industry more.

NOx to be contained in a big way: The entire system will have to be altered

The NOx emission limit, introduced in BS-4, has to be reduced by 83% under BS-6. In addition, the Non Methane Hydrocarbon (NMHC) emission limit has been introduced for the

CO emission norms in 2W



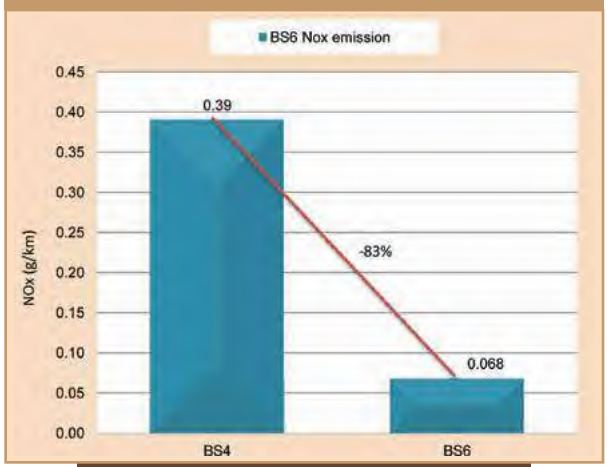
*NOx norms were introduced for the first time with BS-3, hence the increase in CO emissions

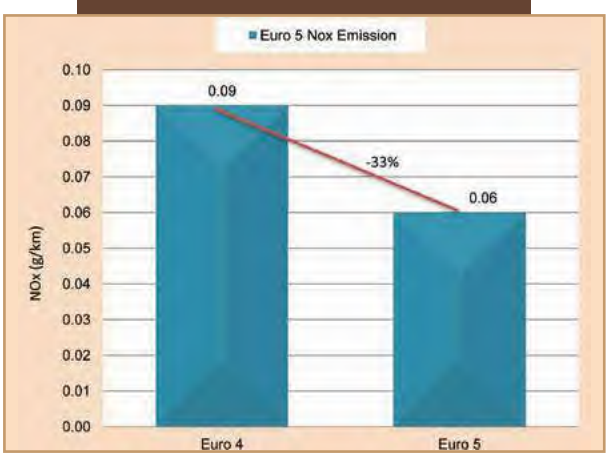
first time. In order to adhere to these norms, OEMs are shifting from mechanical fuel injection systems (carburettor-based) to electronic fuel injection systems. This requires tweaking the exhaust system – which means the engine and after-treatment system has to be altered. These changes would imply an additional cost of Rs 5000-8000 per vehicle, says Mr Singh who works with the R&D department of a leading two-wheeler manufacturer. He says that all OEMs are working with different partners and are at different stages of this transition. "One thing is clear – that 2W volumes will fall sharply due to price hikes. Which OEMs will sail through smoothly…only time will tell," he philosophises.

"One thing is clear – that 2W volumes will fall sharply due to price hikes."

- Mr Singh (R&D department at a leading two-wheeler manufacturer)

BS6 emission norms would mean an 83% reduction in NOx in the two-wheeler segment





There will be two major areas that will be modified to complete the migration

- Intake system
- Exhaust system

Intake system

• Currently, two-wheelers are able to adhere to BS-4 norms by using carburettors as fuel-intake systems. These are priced at c.Rs 400-800 by OEMs, depending on the variant. Their cost has decreased significantly with ageing and localisation of technology. For example, this part was sold for Rs 1,600 for Yamaha FZ in 2010 (OEM supply), said an employee of an auto component company. But with localisation of parts and increased volumes, prices have plummeted by as much as c.60% over the years.

• After BS-6, OEMs will shift to 'fuel injection' systems, which will prove costly due to their high import content. However, costs should reduce with localisation of parts. While component manufacturers will be increasingly localised, some of the sophisticated parts such as fuel injector nozzles would be imported from Thailand and Japan because they are unlikely to be available in the desired quantity in India.

Fuel-injection system: Consists of three parts

1) Throttle body

It would cost c.Rs 700. It is used for controlled intake of air. In fuel injected engines, it controls the amount of air flowing into the engine, in response to the driver's accelerator-pedal input.

2) Fuel injector:

Would cost c.Rs 500. Works like a spray nozzle of a hose, ensuring that the fuel comes out as a fine mist. The fuel mixes with the air passing through the inlet manifold or port and the fuel/air mixture enters the combustion chamber.

3) Fuel pump

Costs about Rs 1,000. Used to pressurise the fuel to the fuel injector as the input from the ECU.

ECU (Engine control unit) - The brain of a bike

Would be priced at Rs 1,000 according to Mr Bharadwaj. The main difference between electronic injection and mechanical injection is that the former is controlled by a complex microprocessor unit. The ECU is fed with information from sensors mounted on the engine and measures air pressure, engine temperature, accelerator position, engine speed, throttle position, and crankshaft position.

All this information is used by the ECU to meter the fuel far more accurately than the old mechanical system, which relies on sensing the pressure alone. Simply put, the ECU takes inputs from multiple sensors and runs the engine in the most efficient way, resulting in controlled emissions – thereby meeting BS-6 norms.

Proposed EFI suppliers to OEMs

OEM	Suppliers
Hero	Multiple sourcing partners 2 models sourced from Continental 2 from Keihin 1 from Mikuni Will source electronic systems through its JV with Magneti Marelli
Bajaj Auto	Keihin and Bosch are its sourcing partners
TVS	Keihin, Mikuni and Continental
RE	Mikuni for throttle body and FI system from Bosch
Yamaha	Mikuni for throttle body and FI system from Bosch
Suzuki	Mikuni for throttle body and FI system from Keihin

Proposed cost of parts for BS6

System	Cost per part for a Fuel Injection System	
Intake System	Parts	Cost (Rs)
	Throttle Body	700-1200
	Fuel Injector	500-700
	Fuel Pump	1000-1300
Functional parts	ECU	1000-1300
	OBD	700-1350
Exhaust	Oxygen Sensor	200-350
	Muffler	1000-1500
	Total	**5000-8000***

* Price would vary per OEM per model

Exhaust system

In a two-tea hour-long discussion, Mr Bhardwaj revealed that in order to meet BS-6 emission requirements, two-wheelers would have to undergo two changes in their exhaust systems:

1. Use oxygen sensors
2. Upgrade mufflers to three-way loading

Oxygen sensor: O2 sensors are mounted in the exhaust manifold, which monitors the quantum of unburned oxygen in the exhaust. This helps the ECU understand if the fuel mixture is rich (less oxygen) or lean (more oxygen). This sensor is generally cheaper and would cost OEMs Rs 200-350.

Muffler (silencer): The bigger change in exhaust systems would be the up-gradation of mufflers to three-way loading, to control NOx emission, apart from reducing carbon monoxide and unburned hydrocarbons – which the existing two-way muffler does. This up-gradation would cost additional Rs 1,000-1,500.

BS-6 requires two-wheelers to be fitted with 'on board diagnostic' (OBD) systems to keep a check on emission levels.

OBD stage 1 is applicable from 2020, and stage 2 will be made compulsory from 2023. The transition also coincides with the mandatory usage of CBS/ABS braking systems. "All this means OEMs grappling with additional pressure," muses Mr Bharadwaj.

OBD requirements post BS6

Monitoring items	OBD Stage 1 1 April, 2020	OBD Stage 2 1 April, 2023
Circuit continuity for all emission related power train component (if equipped)	Yes	Yes
Distance travelled since MIL (malfunction indicator lamp) ON	Yes	Yes
Electrical disconnection of electronic evaporative purge control device (if equipped and if active)	Yes	Yes
Catalytic converter monitoring	No	Yes
EGR system monitoring	Yes	Yes
Misfire detection	No	Yes
Oxygen sensor deterioration	No	Yes

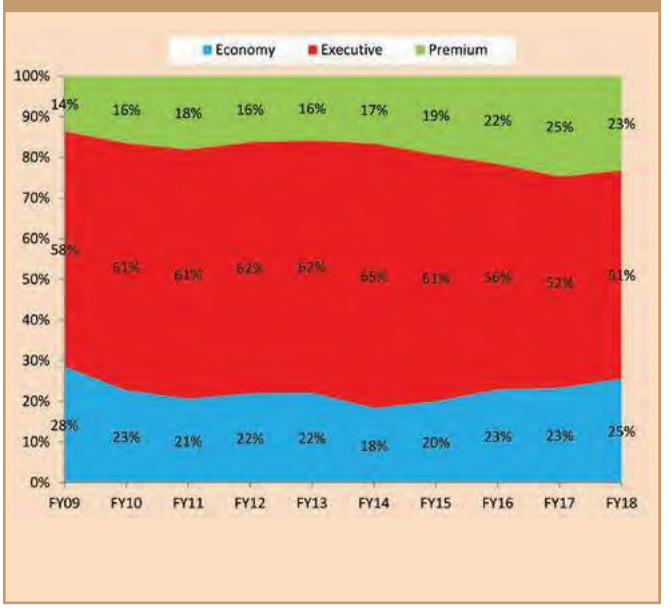
What it means for the two-wheeler industry…

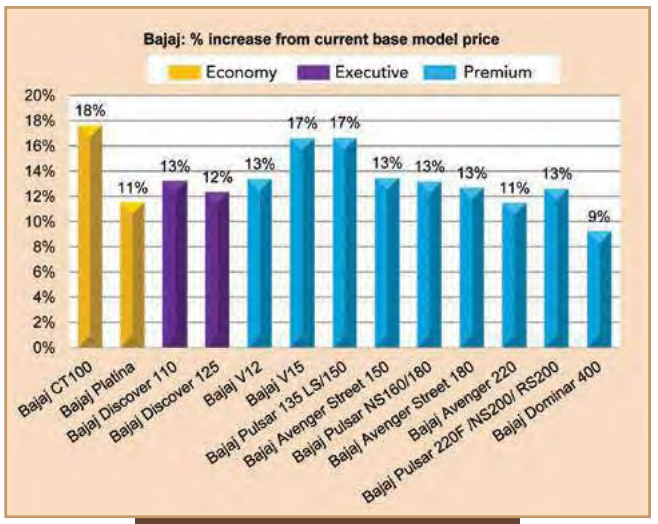
Price hikes could be sharp, Bajaj's strategy might work post BS6

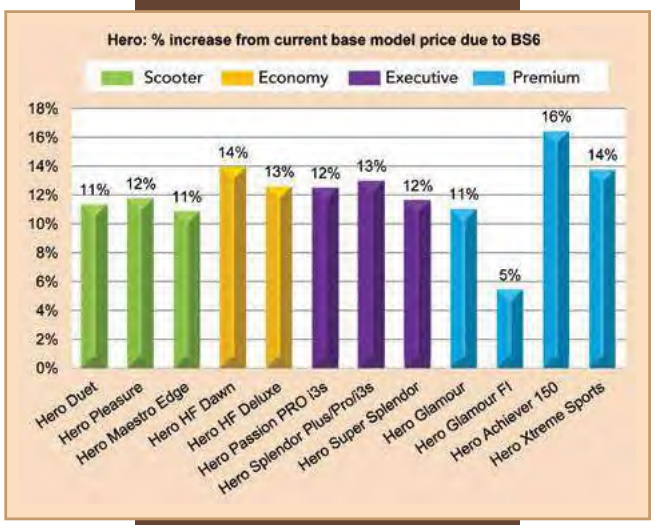
A range of experts believe that scooters/motorcycles would undergo a 10-18% price hikes (including ABS/CBS norms). It seems like Bajaj's price aggression might become logical after shifting to BS-6, as executive segment motorcycles would cost about Rs 8,000 more, which could lead to customers down-trading.

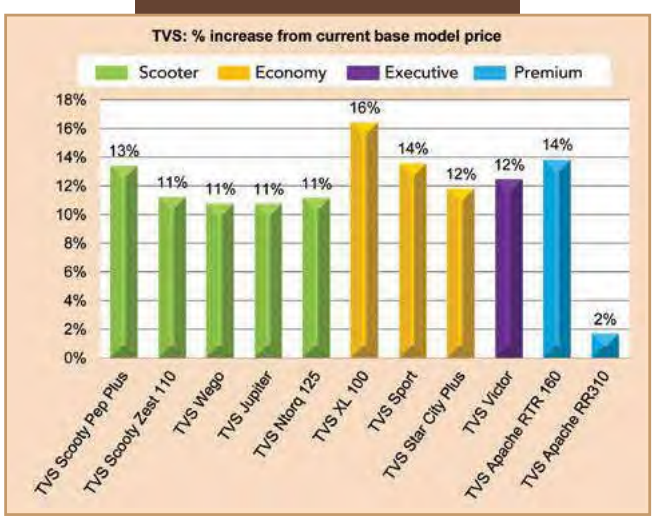
Among the three listed players (Hero, Bajaj, TVS) only five two-wheeler models would be priced under Rs 50,000 (ex-showroom) after BS-6 vs. 15 models currently.

The executive segment has been getting consistently squeezed in favour of economy and premium segments. This will exacerbate with sharp price hikes after BS-6 as customers on a tight budget would prefer economy bikes and customers with more budgets might look at premium motorcycles as a better proposition.





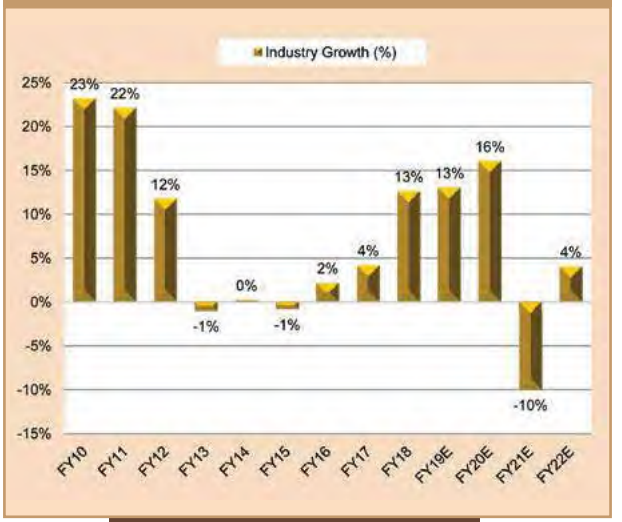




Overall growth could stall for a year or two

The motorcycles segment, which clocked double-digit growth in FY18 after a long period, could see a sharp dip in FY21 as demand is impacted due to a sharp price hike after BS-6 rolls out.

Probable growth trajectory of the motorcycle industry



Four wheeler – greater shift towards petrol after BS-6

While two-wheelers are likely to be more dented due to BS6, things are not so bad for the passenger vehicles segment

Gasoline cars – Minor 'make-up' needed

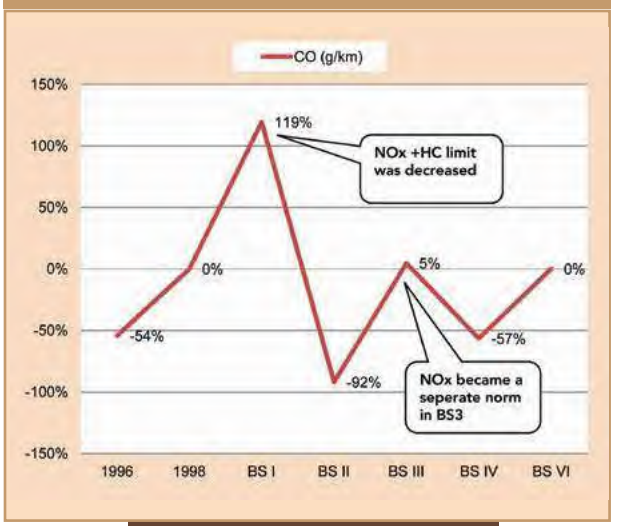
What's changing in gasoline PVs after BS6?

1) Non Methane Hydro Carbon (NMHC) parameter has been introduced for the first time in BS6.
2) Mass of particulate matter has also been introduced for the first time.

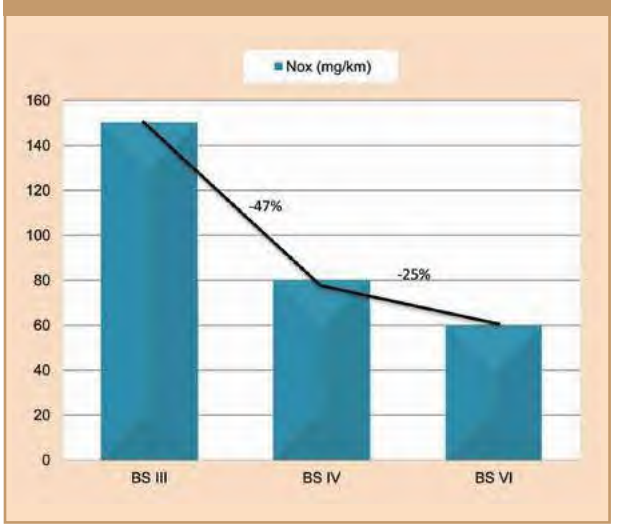
Industry veterans said that gasoline cars would need only mild changes to adhere to BS-6 norms. In the petrol engine, major changes have been made for carbon monoxide (CO), and hydrocarbons (HC) and Non Methane Hydrocarbon is added as separate category. "This is a minor challenge and can be controlled by increasing the thickness of the catalyst coating on the substrata of the honeycomb structure in the three-way muffler," says an R&D expert at a leading OEM.

Palladium group metals (PGM) – namely platinum and palladium – are coated on the muffler to capture excess CO and HC, while rhodium reduces NOx. In BS-6, PGM coating will be increased by 50-100% leading to a cost pressure of c. Rs 12,000-24,000. Mr Matthew Beale, CEO of CDTi Technologies, a USA-based leader in exhaust emission control technologies said that with strict BS-6 norms, the demand of PGMs will increase substantially, making India a very good market for his company. CDTi would supply its advanced material technology to Indian OEMs through its JV with Sud-chemie, he was happy to note.

CO to remain constant

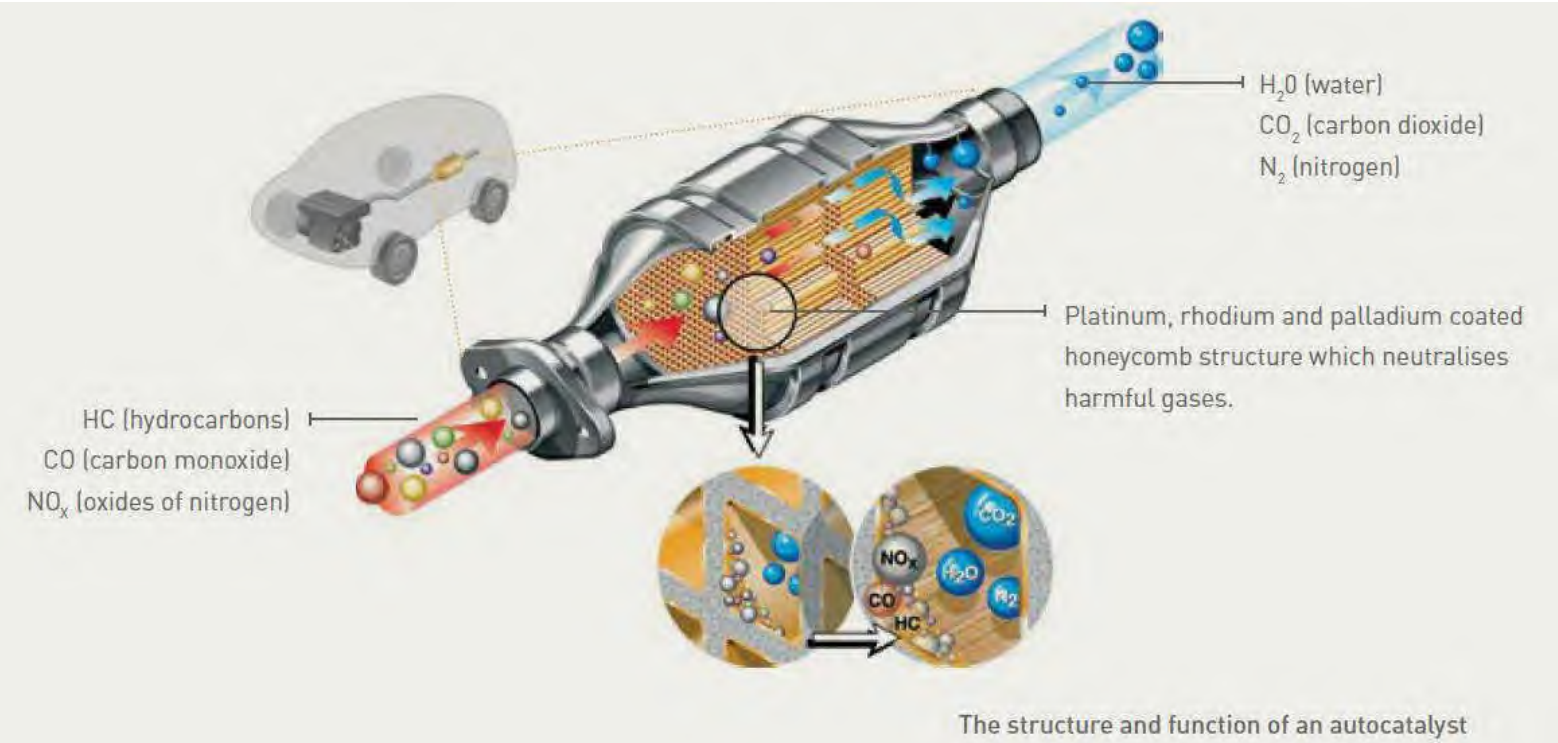


NOx to be contained by 25%



Industry opinion – BS-6 to be a cake walk for petrol cars compared with diesel cars

Palladium group metals (PGM) are coated on the muffler to capture excess CO and HC, while rhodium reduces NOx



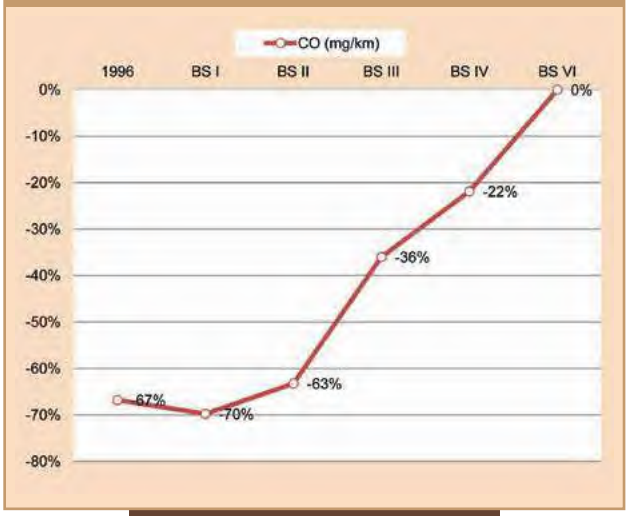
The structure and function of an autocatalyst

NOx limit has to be reduced by 25% only in the case of petrol vehicles. NOx is produced at high combustion temperatures in the engine. Temperature in the petrol engine is relatively lower (vs. diesel) so no additional 'after treatment' is needed for NOx control. Extra sensors would be installed for monitoring the temperature at exhaust and emissions. "Keeping the engine temperature will be one of the key focus areas for gasoline. Overall, the cost impact on gasoline vehicles would be very minimal," said Atul, an R&D person working with an OEM. Turbocharger usage would also increase in petrol cars after BS-6. Turbocharger will help to produce the same BHP with a smaller engine, hence decreased PM emission.

Diesel PVs: To undergo significant changes

What's changing in diesel PVs post BS6?

CO remains same



HC+NOx to be contained by 43%

NOx to be contained by 68%

....PM by 82%

There will be significant tightening in the emission norms of diesel passenger vehicles. NOx limit has to be reduced by c.70%, particle matter by 92.5%. In order to comply with these norms, OEMs would need to take quantum leap in technological advancement. Diesel vehicles above 1.5-litres capacity will be impacted the most. An industry expert from a global OEM who is currently working on its fleet conversion to BS-6 said, "Many diesel cars would be a totally new machine in the same body with the same name, with SCR fitting being the biggest challenge."

Many diesel cars would be a 'totally new machine' with the same brand name

These reforms can be divided broadly into two categories

A) Intake system and engine reforms: Control the generation of NOx and particulate matter
B) Improving of exhaust system: Filter the exhaust gases before finally releasing them in the environment

Intake system and engine reforms: Led by changes in fuel injection systems and more sensors

In order to comply with BS-6 norms, two things need to happen – (1) fuel combustion has to increase to the maximum extent in order to decrease the particulate matter, and (2) temperature must be controlled inside the chamber in order to decrease the NOx emissions (NOx is generated at high temperature). This will be done by managing air/fuel ratio in the mixture in combustion cylinder using electronic fuel injectors. "Companies currently using mechanical fuel pumps will now shift to electronic fuel pumps. The quantity of fuel will be controlled by ECU for a particular air fuel ratio in order to maintain the combustion temperature within a particular range, which will minimise NOx emission and maximise fuel combustion to minimise particulate matter generation," said a technical expert. Even fuel injectors will undergo an upgrade. For example, Bosch will upgrade its fuel injectors to the 'KS' series from its 'K' series with the aim of reducing friction by changing the nozzle diameter.

Currently, most engines have just one sensor on top to measure the temperature of the entire engine. Going forward, there will be multiple sensors to measure the temperature of cylinders individually. This is to manage the temperature per cylinder, which will help reduce NOx generation even further. The data from these sensors will work as an input for the electronic fuel injector.

A production manager at a leading global fuel injection company said: "While sophisticated fuel intake systems are already developed in western countries, for India it will be more of a technology transfer. However, it will still need a lot of investment in machinery and validation OEMs. Due to time constraints in developing products locally, initially, import content in the products will be high. But localisation of parts will increase eventually, thereby decreasing costs."

Intake system and engine reforms would mainly imply improving piston rings, engine linings, turbochargers, fuel pumps, and adding more heat and pressure sensors. Cylinder profile in the engine is being improved by using special coating to decrease friction. However, the cost implication of this will be minimal compared to the overall cost. EGR coolers will be introduced to control the air temperature at intake, hence the combustion temperature. Traditional pneumatic turbo chargers will be replaced by electronic turbo chargers in BS-6 diesel passenger vehicles in order to control the intake of air, thus managing the temperature.

Exhaust system reforms: Might lead to the squeezing of sub-4mtr diesel cars

Exhaust gases need to be more filtered (within the prescribed limit) under BS-6, with the aim of causing minimum harm to the environment.

Passenger cars running on diesel will have to undergo a major upgrade in their exhaust system. Currently, lower horsepower cars do not sport a diesel particle filter, but they will have to add this under BS-6 in order to decrease the particulate matter in the exhaust. While the cost implications are small (c. Rs 3,000), DPF might mean an increase in bonnet and car size, thereby losing the excise benefit that a sub-4-mtr car enjoys. OEMs are working hard to customize DPF as per a model's requirement so that they don't have to increase the size of the vehicle. Larger diesel engines (1,600cc+) face big challenges as they would have to adopt SCR, which is expensive, along with additional catalyst coating. Mr Jain, an employee with a leading SUV manufacturer says, "Additional catalyst coating itself would cost us at least Rs 15,000. SCR cost is even higher. We are dealing with a total cost pressure of over Rs 60,000."

While these technological changes seem as simple as 'plug and play' from developed nations, it really isn't that easy. For instance, urea used in SCR technology becomes very dense at colder (sub-zero) temperatures, therefore it comes with a pre-fitted heating system in Europe. However, this is not needed for most Indian geographies. DPF is widely used in diesel cars, but it can't be used straight away in India as most cars sold in the country are less than 4mtrs long. Customisations are not only time consuming, but also entail higher investment and R&D.

Implications for the PVs sector

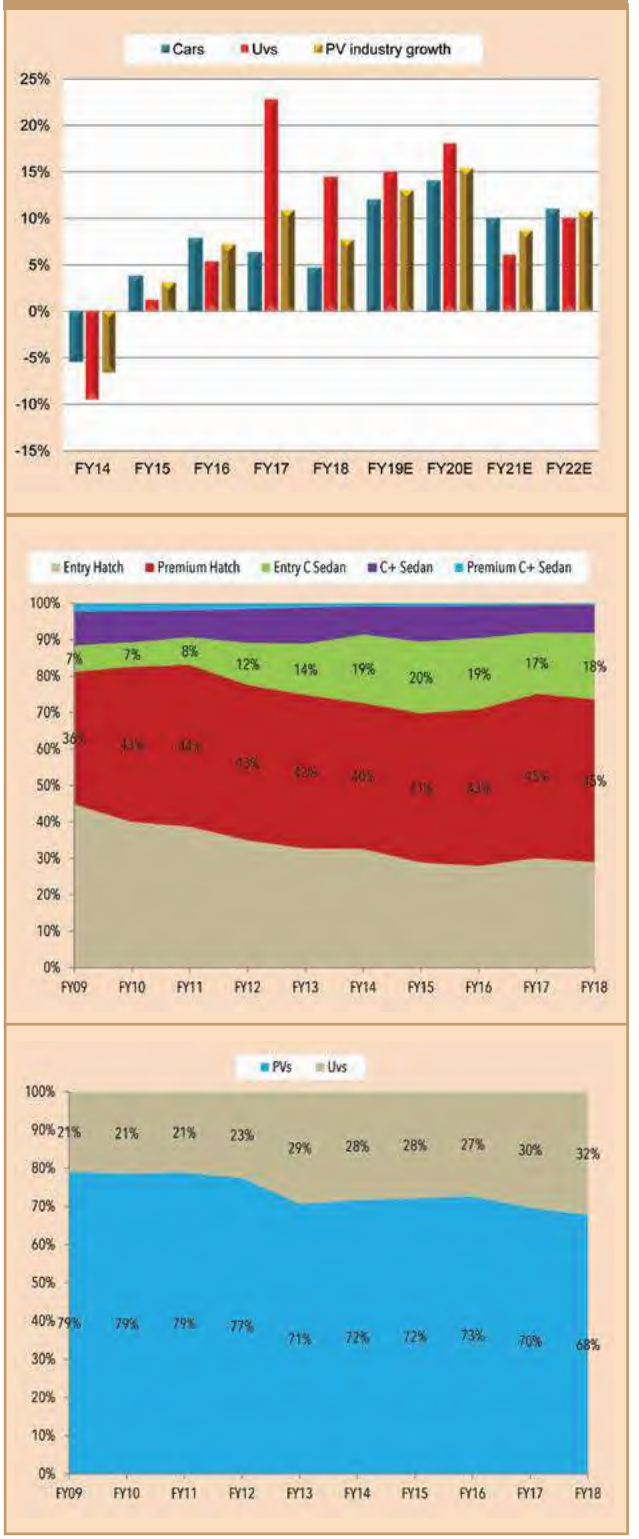
PVs might be the least impacted segment due to the BS-6 transition, but there could still be two major shifts:

(1) The compact sedan segment, which currently forms c.20% of passenger car sales, could see a substantial shift towards petrol, if Indian OEMs are unable to customize DPF and fit it in smaller diesel cars (maintaining the 4mtr length).

(2) SUVs might also see a shift to petrol as diesel SUVs would need to take a Rs 75,000-100,000 price hike, which would further increase the price differential between a gasoline vs. diesel engine SUV. A case in point – the difference between a petrol Hyundai Creta and a diesel one is c. Rs 200,000 currently. This will increase to nearly Rs 300,000 after BS-6, leaving no incentive for a buyer to go for the diesel version.

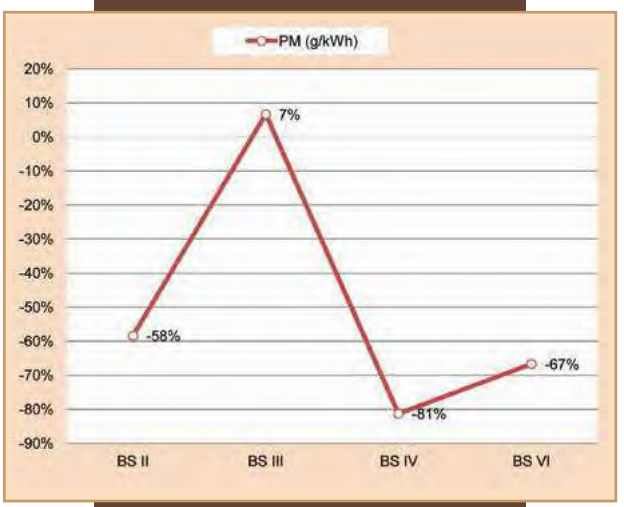
If this is the outcome of BS-6, Maruti, who is the king in gasoline vehicles in India today, could win a big share of the SUV segment. There could also be a pickup in the sales of 'mild' hybrids.

PV industry sales growth might not be impacted after BS-6, but the UV segment might see slower growth for a while



WHAT'S CHANGING IN MHCVs POST BS6?

MHCVs would need to contain significant levels of NOx, HC, and PM



MHCVs – on a tight rope

Rahul, an employee in the R&D department of a leading MHCV manufacturer, said: "The MHCV segment is under tremendous pressure when it comes to adhering with BS-6 norms. All the OEMs are on their toes not only because of emission limits but also because they want to ensure low costs. Currently, it looks like we will have to take at least a 15% price hike as 130HP and above trucks would need to use both EGR and SCR, with changes in the driveline and gearbox." However, the good thing is that fuel efficiency would improve by 10-15% under BS-6, he added, providing these details:

- There is significant tightening in the emission norms of heavy-duty vehicles: NOx limit has to be reduced by c.87% and particle matter by c.67%.

- OEMs Tata motors, Mahindra, Bharat Benz will add EGR technology to their

existing SCR technology. Ashok Leyland will add SCR technology along with its iEGR technology. This major change will be complemented by several other changes in the driveline, gearbox, fuel injection systems, and other technological advancements.

• Globally most MHCV OEMs use a combination of both EGR and SCR, as controlling NOx with standalone technology is almost impossible and also creates engine instability.

Most of the global OEMs use EGR+SCR to comply with Euro 6 norms

Manufacturer	Euro 4	Euro 6
Cummins	SCR	EGR + SCR
Daimler	SCR	EGR + SCR
DAF	SCR	EGR + SCR
Iveco	SCR	SCR
MAN	EGR	EGR + SCR
Scania	EGR / SCR	SCR
Volvo	SCR	EGR + SCR

"Engine modification is a BIG cost to the company, if you need to change anything, now is the time."

- Rahul, R&D department of an MHCV player

Engine and intake system reforms a major overhaul; electrical to replace mechanical systems

Rahul, the MHCV R&D person says that under BS-6, truck engines will go through a major overhaul across segments, with more usage of centrally controlled functions using ECU. Engine and intake reforms would mainly mean reduction in friction level in engines and more controlled combustion, which in turn would improve efficiency and minimize emission. Turbo chargers would be upgraded to electronic (currently pneumatic) this would boost power, minimize heat loss, and PM emission. Further, all the accessories/child parts such as water pump, fuel pump, oil pump, and air compressor would be electrified (they were earlier belt or gear driven). All these changes, along with some changes in the gearbox and driveline, would not only help control emission but also improve fuel efficiency by as much as 8 -12%.

Exhaust system changes – SCR to shake hands with EGR

Here are some of the things that will change:

(1) OEMs would have to use both SCR and EGR technologies. It is very difficult to achieve BS-6 level NOx by only using one of these technologies
(2) Fuel injection systems would be upgraded to ECU controlled from pneumatic
(3) Size and ratio of ad-blue tanks would increase
(4) Exhaust will need to be covered with special insulation
(5) DPF would need special PGM coating, LCVs can control NOx by using LNT (lean NOx trap)
(6) Catalyst quantity in the SCR is increased.

OEMs are worried about both things – smooth implementation of technology as well as cost implications. Currently, it appears as if the shift to BS-6 will lead to a 15% hike in prices in the +130HP categories, but this will be along with a 8-12% improvement in fuel efficiency.

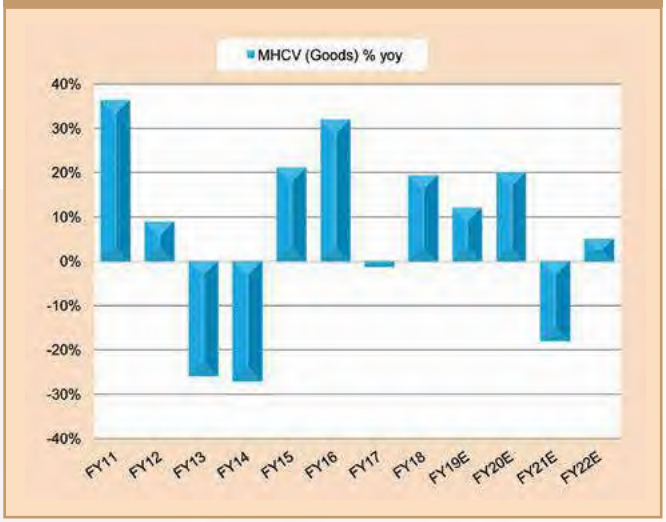
MHCVs: Segment-wise reforms and fuel savings expected

	Description	Fuel Saving
Engine friction reduction	Engine efficiency is affected by friction losses	0.5-1.5%
Combustion Optimisation	Controlled combustion to maximise fuel efficiency and minimize emission	2-3%
Turbocharger improvements	Electronic turbocharger will minimise heat loss and boost power in an optimal way to minimize particulate matter emission	1.0-3.5%
Accessories	Water pump, fuel pump, oil pump, and air compressor are belt or gear driven. Electrification of these accessories will decrease load on the engine	0.5-2.0%
Advance engine controls	ECU controlled fuel injection, time optimisation of other functions such as coolant pumping, exhaust, and turbocharger control will improve efficiency	1-3%
After-treatment systems	It plays a vital role in combustion optimisation by creating back pressure to run the turbocharger	2-3%

Summary of reforms needed in all categories of automobiles to adhere to BS-6 norms

	Intake System	After Treatment system
Common to all	Improvements in engine combustion and calibration for PM control	
Two-wheelers	Carburettors to be replaced by electronic fuel injection system Turbocharger to be introduced in many vehicles	All vehicles will have a three-way catalyst
Passenger vehicles - petrol		Catalyst coating to be increased in the muffler
Passenger vehicles - diesel (up to 1.4 litres)	Conventional turbocharger to be replaced by electronic turbocharger	Catalyst coating to be increased in the muffler
Passenger vehicles - diesel (above 1.4 litres)		SCR system for NOx control
Light commercial vehicles	NOx control: EGR cooled with higher EGR rate	PM control: DOC + DPF NOx: LNT
MHCV	NOx control: EGR cooled with higher EGR rate	NOx control: SCR system (closed loop)
	Electronic turbocharger controlled by ECU rather than air pressure	PM control: DOC + DPF coated with PGM
	Electronic fuel pump in place of mechanical pump	Increased palladium group metal catalysts at hot end by c.100%

MHCV demand should dry up after BS-6 led by pre-buying, a sharp 15% price hike in a sensitive market, and fleet operators awaiting product and new engine platform feedback before making a buying decision



Ashok might lose its edge to competitors, as it will adopt SCR for the first time

Implications for the MHCV sector

The MHCV sector should see a very strong pre-buying in the run up to the BS-6 shift in FY20, after which demand should dry up led by pre-buying, a sharp 15% price hike in a sensitive market, and fleet operators awaiting product and new engine platform feedback before making a buying decision (which generally takes up to 6-12 months). Ashok might be at a losing end vis-à-vis competitors, as it would adopt SCR for the first time. The price impact on Ashok would be much higher due to its shift from iEGR to SCR. Besides, fleet operators have already used SCR-based platforms of competitors who adopted SCR during the shift to BS4.

pjhpix / Alamy Stock Photo

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FICCI

Future of India Real Estate

Deciphering the mid-term perspective

September 2018

Preface

The growth of urbanisation in India demands comprehensive and integrated development of physical, institutional, social and economic infrastructure. The rapid urbanisation is expected to offer significant opportunities for real estate and infrastructure development in Indian cities. Reform measures including implementation of RERA, a push to affordable housing, smart cities mission and the Benami Transactions Act, have made India an investor-friendly destination for the real estate market. Government of India has taken several initiatives to encourage the development in this sector.

This sector has witnessed high growth in recent times with the rise in demand for office as well as residential spaces. It is also important to note that the real estate developers have been instrumental in changing the face of India through building state-of-the-art infrastructure, buildings, townships, shopping malls spread all over the country.

FICCI and JLL have co-created this Report on **'Future of India Real Estate: Deciphering the mid-term perspective'** that portrays a balanced picture of the growth drivers and challenges. The Report presents the trends in office, retail, residential, warehousing and student housing markets and offers some insights into the direction and growth momentum expected over the next 2-3 years.

The release of the Report at the **12th edition of FICCI Real Estate Summit** on 5th September 2018 would set the context and enrich the discussions at the conference. I am confident, the findings of the Report would be most useful not only for realtors, but also for consumers, Government, research & academic institutes and the industry. The ideas and deliberations arising out of this Report would go a long way in addressing the regulatory challenges and reflecting on the way forward.

Sanjay Dutt
Chairman, FICCI Real Estate Committee and
MD & CEO, Tata Housing Development Co. Ltd. &
Tata Realty & Infrastructure Ltd.

Real estate markets are poised to benefit from the government's policy push towards reforms, speedy completion of several infrastructure projects, emphasis on affordable housing, enhanced usage of technology and an over-arching 'can do' spirit riding across private as well as public sector enterprises today.

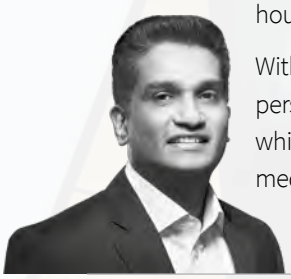
Economic forecasts paint a positive story. The RBI survey of professional forecasters (August 2018) indicates that GDP is likely to grow at 7.4% in 2018-19, up from 6.7% in 2017-18, and is expected to accelerate further by 20 basis points in 2019-20 on the back of support from private consumption and investment. CPI inflation, (which has been a concern in the recent past), is expected to remain at 4.7% in the annual forecast for median inflation (2018-19 and 2019-20).

Apart from the macro-economic indicators, inflection points observed within each category of real estate markets, indicate overall stable growth in the medium term. This paper, titled **Future of India Real Estate Deciphering the mid-term perspective** studies the current scenario in each asset class and analyzes various growth drivers which will govern momentum in the medium term.

Office markets, for instance, will witness increased absorption in the suburbs of key cities and this will be a major contributor to their future growth. Increasing participation from institutional investors, as well as expected REIT listings will also act as drivers. Retail markets will see predictive analytics driving product innovations and facilitating mall management. As per our projections, almost 18 mn sq ft of retail space is about to be absorbed during the next three years, which is nearly 96% of the total supply coming up in that period.

Residential market, the key beneficiary of big bang reforms - RERA and GST - will be driven by increased transparency, consolidation and a huge push to affordable housing. We can see that almost every real estate participant wishes today, to partake of the affordable housing pie, because that is where the future growth story lies. The paper observes that launches within the price range of INR 40 lac were the highest during 2017 and in first half of 2018 across the country.

Other sunrise sectors like student housing and warehousing will also witness healthy traction. The future for the warehousing sector looks bright, with India set to witness investments close to INR 50,000 cr for creation of warehousing facilities across the country between 2018 and 2020. In student housing, the huge unmet demand, will act as a natural growth driver.



With strong growth drivers and on-going reforms, the medium term perspective across asset classes looks healthy. We hope that this paper, which presents a detailed analysis of various asset classes and predicts their medium term growth, is both educative and enjoyable.

Happy reading!

Ramesh Nair
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JLL India
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OFFICE

STEADY GROWTH AND STABLE VACANCY RATE

Indian office markets have shown considerable vibrancy over the past few years and total investments in the asset class have shown an improving trend since 2013. Private equity inflows into commercial and IT for 2014 to date are 150% higher than the previous seven years' inflows combined.

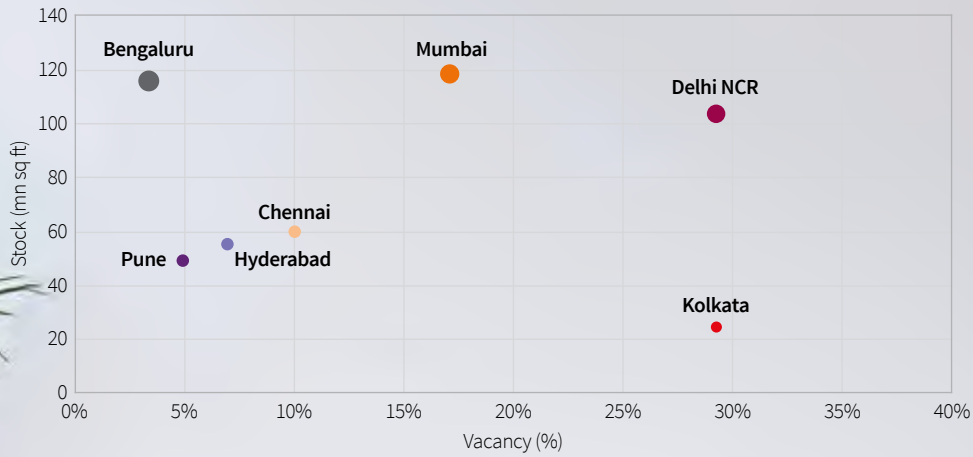
Present Scenario

Huge market size

At present, India's Grade A office real estate stands at a massive 530 mn sq ft and this is likely to surpass 700 mn sq ft by 2022. India's office market is one of the well-organised office markets in the Asia-Pacific region and the upcoming REITs structure is likely to help the sector become even more efficient.

Currently, the pan-India office vacancy rate stands at 14%. This is considered to be a natural vacancy rate level for a vast office market like India. Most Indian cities, such as Bengaluru, Hyderabad, Chennai and Pune, have very negligible vacancy rates (in single digits), while certain precincts of large diversified markets such as Mumbai and Delhi-NCR have vacancy rates in double digits.

Stock/vacancy rate in various cities as of 1H18



Source: Real Estate Intelligence Service, JLL India | 2Q18

Suburban sub-markets playing a bigger role; Contribute more to office activity

Over the years, average rents in Indian office Central Business Districts (CBDs) have been either declining or stabilising. Rents in the Secondary Business Districts (SBDs) are rising slowly, while rents in most of the suburban sub-markets are rising at a faster pace. Faster appreciation in rents in several suburban sub-markets has been driven by demand for superior Grade A assets, quality infrastructure and close proximity to talent pools. It is easier and less expensive to build world-class infrastructure in the suburbs, which will drive more occupiers to these markets, where more relocations and consolidations are expected.

The suburban sub-markets are competing with CBDs and SBDs in several key aspects:

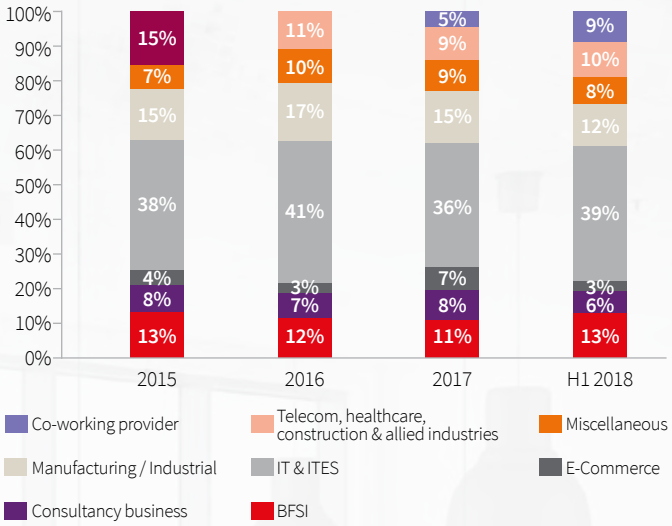
- Non-IT occupiers are gradually going to the suburbs for the newly available quality assets
- New entrants like e-commerce and co-working occupiers are leasing equally in suburbs as SBDs
- Most of the superior lease-only assets taken up by leading global investors are in the suburbs
- Competitive rents and close proximity to talent
- Good existing physical infrastructure and the potential to build more.

During the last five years, i.e. 2013 to 2017, pan-India suburbs rents grew by a healthy 18%, compared to 13% and 0.3% for the SBDs and CBDs, respectively.

IT occupies the maximum office space; Co-working almost doubled in H1 2018 over CY2017

The contribution from IT to office absorption held strong at 39% in H1 2018. Large domestic players like Infosys, TCS and multinationals such as Accenture, Cognigant and IBM continue to expand across cities. However, flexi space is the need of the hour and many companies prefer this business model as against the traditional offices. Hence, the co-working sector is likely to drive the demand in office markets to a large extent, in the medium term. In H1 2018, the co-working sector accounted for 9% of total absorption in office markets compared to 5% for CY 2017.

Occupier industry share in office absorption



Source: Real Estate Intelligence Service, JLL India | 2Q18

Future Outlook

Demand/Vacancy

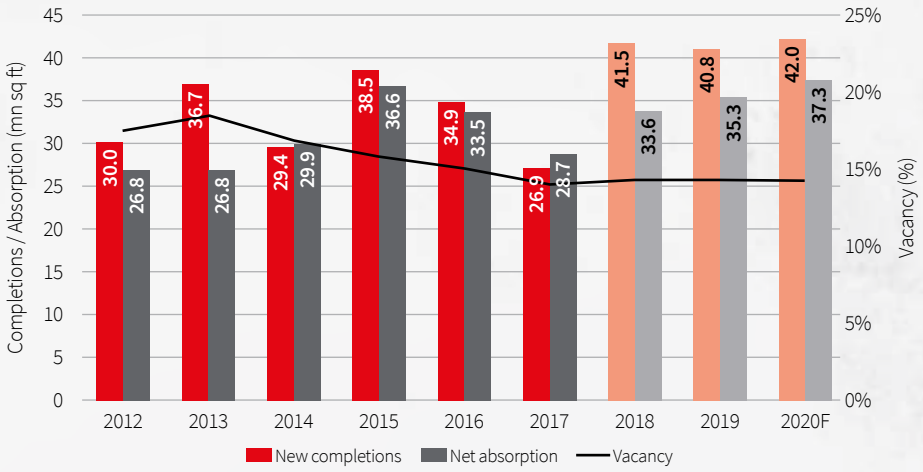
Office absorption is likely to rise steadily in the medium-term on the back of strong economic fundamentals and positive occupier and investor sentiment. This trend is further supported by the healthy pre-commitments of space in under-construction projects during the period 2018-20. Despite the huge supply that is likely to be delivered during 2018-20, the vacancy rate is anticipated to remain below 15% at a pan-India level.

Bengaluru is likely to see the highest absorption during the period 2018-20; Mumbai's absorption is forecast to surpass the supply during the same period

During 2018 to 2020, Bengaluru is likely to lead space take-up with a total of 25 mn sq ft, followed by NCR at 21 mn sq ft, Mumbai at 19 mn sq ft and Hyderabad at 17 mn sq ft. Chennai seems to be improving in terms of absorption due to new project announcements. During 2018-20, Chennai is likely to absorb 8.1 mn sq ft from its expected delivery of projects of 10.5 mn sq ft. However, it is interesting to see that Hyderabad will witness robust absorption, which is similar to the numbers of leading cities like Mumbai or NCR. This indicates a second round of office growth in Hyderabad after Bengaluru, which is gradually becoming saturated and expensive for occupiers. Mumbai and NCR, although similar in market depth to Bengaluru, will continue to see healthy demand, because of their diverse occupier base.

During H1 2018, cities such as Mumbai and Bengaluru have seen a decline in vacancy rates while NCR has remained stable at about 29%. Other smaller cities like Kolkata, Pune or Chennai witnessed a marginal rise in vacancy rates due to a good number of projects being delivered during H1 2018. Although vacancy rates are expected to vary for different sub-markets, the pan-India vacancy rate is anticipated to hover around 14% by end 2020.

Steady absorption projected for the forecast period of 2018 - 2020



Source: Real Estate Intelligence Service, JLL India | 2Q18

Supply

New supply is expected to be robust during 2018-20, with average completion of about 40 mn sq ft each year.

NCR, Bengaluru and Hyderabad will contribute more than 60% to total supply in the coming three years

Future supply is expected to be the highest in the medium-term (2018-20) in NCR. After NCR, Bengaluru and Hyderabad are two other major markets that are likely to see huge completions in the coming three years. From a medium-to-long-term forecast perspective, we see a healthy supply pipeline for Hyderabad, which is clearly justified on the basis of strong demand from occupiers for the market. Better infrastructure, affordable rents and good quality, large floor plates have been the driving factors for many IT and consulting occupiers to have their base in Hyderabad and Pune.

Bengaluru and NCR are expected to construct higher amount of non-IT office spaces compared to IT and IT-SEZ during 2018-20

Non-IT office developments are on the rise, ahead of sunset clause benefits that are likely to end by 2020. Interestingly, traditional IT cities like Bengaluru, Pune, Hyderabad and NCR are likely to deliver a healthy amount of non-IT commercial office space during 2018-20.

Rents

Rents are predicted to rise faster in the suburbs and select SBDs. JLL India observes that rents in the CBD (prime) dominated markets are stable, SBD (off prime) dominated markets are stabilising and Peripheral Business District (PBD) (suburban) dominated markets are rising. It is interesting to note that Bengaluru, Chennai, Pune and Hyderabad have already crossed their rent peak of Q3 2008, while Noida and Gurgaon are coming closer to their respective peaks. During Q2 2018, Hyderabad crossed its rent peak of Q3 2008. Low vacancy rates and sustained demand in the established office corridors of Bengaluru, Gurgaon, Hyderabad and Pune will see higher rent appreciation compared to other markets in the forecast period.

Future drivers of office real estate

- Innovation and technology adaption in real estate
- Increasing participation of Institutional Investors; REIT listings
- Growing Transparency in real estate
- Proactive Reforms like RERA & GST; Sustainability and Green buildings
- Large scale on-going infrastructure - metro, road links at cities
- Demand from Co-Working, Fintech start ups, IT and BFSI companies
- Resilient Economy with Strong Fundamentals

Source: Real Estate Intelligence Service, JLL India | 2Q18

RETAIL

PREDICTIVE ANALYTICS TO AID FUTURE GROWTH

Retail markets in India are growing as increasing urbanisation and consumerism continue to act as key drivers. Quality mall space is witnessing healthy absorption and we expect that the adoption of analytical tools that analyse consumer behaviour will ensure higher footfall for malls in the future.

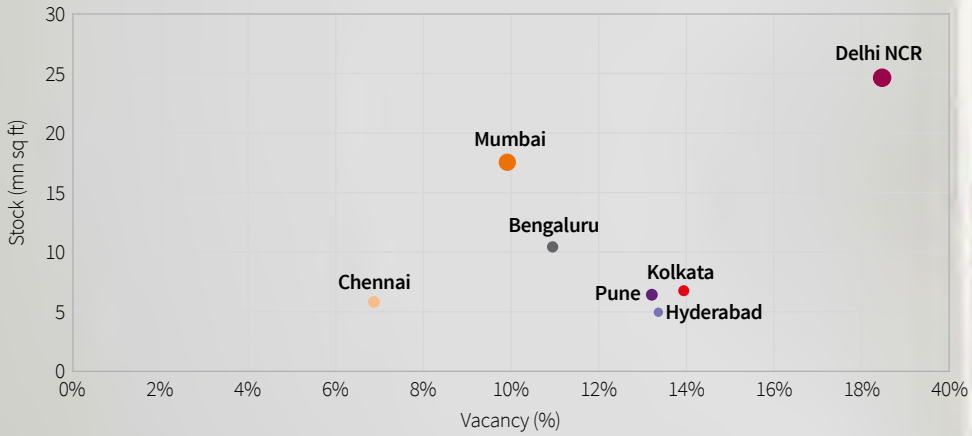
Present Scenario

Increasing Grade A retail stock

As of 1H18, India's Grade A retail completed stock stood at 77 million sq ft, and it is expected to grow 34% by 2022 to reach nearly 103 million sq ft. Delhi-NCR accounts for almost 32% of total retail space in India, followed by Mumbai at 23% and Bengaluru at 14%. Delhi-NCR has a Grade A retail stock of 24.6 million sq ft, while Mumbai has Grade A stock of 17.6 million sq ft and Bengaluru has completed stock of 10.5 million sq ft.

Currently, the Pan-India retail vacancy rate stands at 13.4%. With increased leasing activity in recently completed malls in Chennai, Delhi-NCR and Mumbai, the overall vacancy rate dropped from 15.0% in 3Q17 to 13.4% in 2Q18. Delhi-NCR is witnessing the highest vacancy rate, followed by Kolkata, Hyderabad and Pune, mainly because of higher vacancy rates in malls, which are located on the outskirts of the city. Only Chennai and Mumbai are seeing single-digit vacancy rates.

Stock/vacancy rate in various cities as of 1H18



Source: Real Estate Intelligence Service, JLL India | 2Q18

On a half-yearly basis, net absorption in 1H18 for retail space has seen a rise of over 75% y-o-y, recording total absorption of 1.9 million sq ft, with a majority of it being good quality. During the same time, new completions declined about 25% y-o-y with total completion of new mall space recorded at approximately 2.1 million sq ft in 1H18 over 2.8 million sq ft in 1H17.

Future Outlook

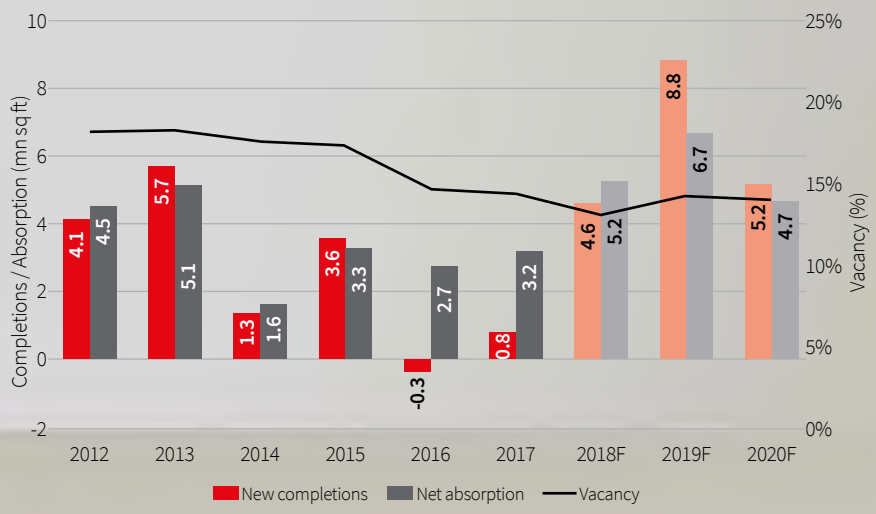
Demand/Vacancy

Net absorption of retail space is projected to increase notably in the near-to-medium-term, i.e. during 2018-20, on the back of good quality supply, which is coming up across various cities. These cities are also witnessing healthy pre-commitments of space in projects that are slated to complete during the forecast period of 2018-20. As per JLL REIS projections, nearly 18 mn sq ft of retail space will likely be absorbed during the next three years, which is nearly 96% of total supply coming up in the same period. With increased supply and demand in the forecast period, the pan-India vacancy rate will hover around 14% during 2018-20

Delhi NCR is likely to witness the highest absorption during the period 2018-20 closely followed by Hyderabad; Mumbai and Kolkata's absorption level to surpass the supply during the same period

During the 2018-20 Delhi-NCR is expected to absorb nearly 4.5 mn sq ft, which is 25%, of overall absorption across all seven cities, followed by Hyderabad at 4.1 mn sq ft, Mumbai at 3.2 mn sq ft and Bengaluru at 17 mn sq ft. Chennai is likely to absorb 1.9 mn sq ft from its expected delivery of projects spread across 2.1 mn sq ft. Pune and Kolkata are expected to witness absorption of 0.8 mn sq ft and 0.7 mn sq ft, respectively.

Rising new supply and absorption projected for the forecast period of 2018-20



Source: Real Estate Intelligence Service, JLL India | 2Q18

Supply

Hyderabad will witness the maximum supply in the near-to-medium-term (2018-20), with a contribution of nearly 29% to overall supply in the period. Delhi-NCR will follow Hyderabad in terms of new supply with a share of 28% of overall supply in the next three years, followed by Bengaluru with 15% of overall supply. We expect the under-construction projects coming up in the medium-term to witness healthy demand, resulting in a stabilised vacancy rate for the forecast period.

Rents

Rents are expected to rise marginally across all cities with Mumbai leading the charts

During the last year, Chennai, Pune and Mumbai have witnessed maximum rent growth due to quality completions that are fetching higher rents compared to overall rents for the sub-markets. We expect decent rent growth to continue in the medium-term, with positive consumer sentiment, rising demand for space from global and domestic retailers, and an influx of quality supply over the forecast period.

During the forecast period, rent growth is likely to be marginal across all top seven cities. Mumbai is expected to witness the highest rent growth in the medium-term on the back of the quality supply coming up, which will attract higher rents. Pune and Kolkata will follow Mumbai in terms of rent growth.

Analytics to drive strategy in the retail sector in the future

Quality malls are consistently clocking occupancy levels of over 90%, steady rent growth and a steady increase in trading densities. To sustain this momentum, they are now moving past the ordinary methods of just improving the tenant mix or ad hoc brand refresh. There is now a strong school of thought that is looking at consumer analytics as an important tool that allows them to customise their mall strategies to enhance the customer experience.

Predictive analysis is holding sway, as analysing consumer buying behaviour and mall circulation patterns are determining brand recall. It is also being used to enhance customer experience, which plays an important role in determining footfall. Analytics aids retailer brands in understanding consumer patterns without any arduous and aimless consumer surveys.

In the age of big data, some of the popular technological tools that quality malls are either using or are planning to make use of are beacons, visitor tracking programmes and analytics through mobile apps, and loyalty programmes. Consumer feedback through such technological tools is also finding greater traction with retailers, as they use this feedback to improve in-store merchandise as well as the overall buyer browsing movement.

Already, some prominent retailers, such as Aditya Birla Fashion and Retail Limited, Shoppers Stop and Big Bazaar, are focusing on optimising the experience of the consumer through data and analytics. Similarly, video analytics can help in better merchandise placement, offering greater visibility for popular brands by putting them in mall areas that are considered the most active based on a heat map analysis of the mall itself.

Going forward, the emphasis on technology-driven analytics is bound to increase in malls. With advances in artificial intelligence and the Internet of Things, malls could offer an enhanced experience for consumers, predicting their needs before the consumers themselves realise it. Rigorous analytics will act as a moat against future threats to the concept of shopping centres.

RESIDENTIAL

AFFORDABLE HOUSING HOLDS THE KEY

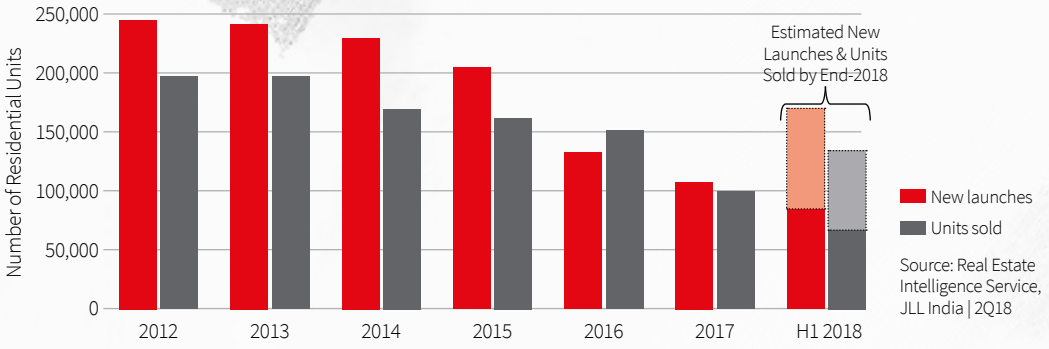
The residential markets are slowly witnessing a revival, post the slowdown witnessed last year. This has been on account of the uncertainty regarding implications of the Real Estate (Regulation and Development) Act 2016 (RERA) and the Goods & Services Tax (GST) gradually settling. The government's policy push to affordable housing is helping this segment gain traction and developers across the country are showing a keen interest in participating in this sector's growth story.

Present Scenario

Key trends

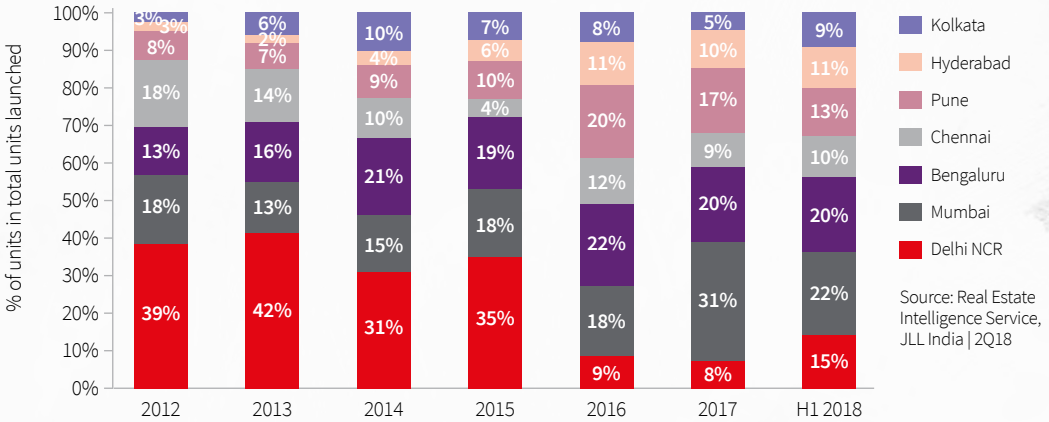
- **Residential launches up:** The number of new launches crossed the 40,000 unit mark after eight quarters in Q2 2018. Bengaluru and Mumbai remain the major contributors to new residential launches. Bengaluru contributed 20-22% to total new launches over the past 2-3 years, while Mumbai was the largest supplier in 2017 (31%).
- **Increased sales momentum:** Apart from launches, residential sales were up with over 64,000 units sold in H1 2018, compared with CY 2017 sales of approximately 96,000 units.
- **Weighted average capital values rose marginally in select cities:** While prices remained under pressure, average capital values in Q22018, rose marginally in Delhi-NCR, Hyderabad, Mumbai, Chennai and Bengaluru in the range of 0.1-1.2% q-o-q.
- **Price sensitivity witnessed:** Launches within the price range of INR 40 lac were the highest during 2017 and in H1 2018 across the country. Developers continued to offer compact size homes in order to meet the budget of homebuyers.
- **All-inclusive or box pricing trend:** RERA has changed the dynamics of the residential market, with developers making offers on an all-inclusive basis. This box pricing is making it easier for buyers to evaluate the total cost of the house and whether it fits within their budget.
- **Greater traction for completed projects:** Completed projects witnessed higher traction due to the non-applicability of GST on completed inventory, which made the overall purchase cost more attractive. However, under-construction or newer projects by well-known players also found tangible interest.
- **Developers were offering indirect discounts:** Developers were seen offering schemes like paying just 5% upfront and the balance on possession, which helped push sales. These schemes were also seen for ready to move into properties and these along with easier bank funding helped sales.

Supply and Absorption of Residential Units (2012-1H2018)



Source: Real Estate Intelligence Service, JLL India | 2Q18

Market share of residential launches (2012 - H1 2018)



Source: Real Estate Intelligence Service, JLL India | 2Q18

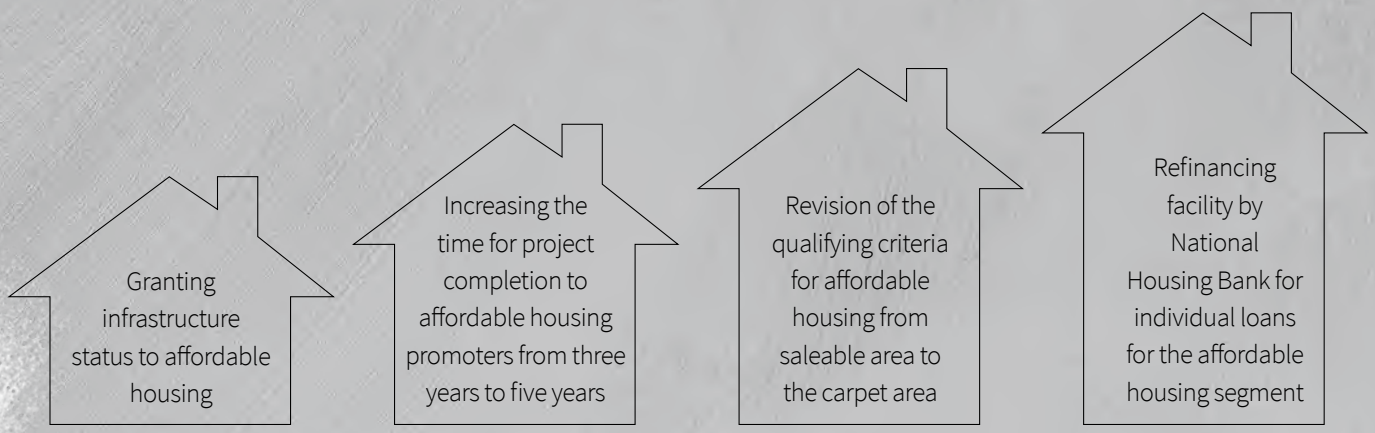
Affordable housing trends

Increased interest in affordable housing is being witnessed due to the Central Government's policy push, innovative technology as well as increased participation from the private sector. Easier availability of land in the extended suburban sub-markets, along with improved infrastructure connectivity, is also helping drive this housing segment.

The policy push

The Pradhan Mantri Awas Yojana (PMAY-Urban) aims at "Housing for All", which has to be achieved by 2022. A housing shortage of 20 mn is envisaged to be addressed through the PMAY-U.

The Union Budget 2017-18 announced a number of measures to boost affordable housing:



Technological advancements

The endeavour towards the creation of affordable housing requires the adoption of durable, environment-friendly, strong, ecologically appropriate, energy efficient and yet cost-effective materials and appropriate technology in the field of construction. The use of precast technology, where precast reinforced concrete (RC) planks supported over partially precast joists, has been adopted in several affordable housing projects. Reinforced concrete (RCC) door frames and window frames have been used as a substitute for wood, as it is cheaper than wooden door frames. The use of prefab technology has also been seen in several affordable housing projects. The manufacture of construction material utilising alternative products that are available locally has helped bring down the high costs associated with standard building materials. Going forward, the success of affordable housing will largely depend upon innovations in alternative technology, which will help achieve cost-efficient mass production at a faster pace.

The Public Private Partnership (PPP) initiative

The new PPP policy for affordable housing, introduced in September 2017, allows extending central assistance of up to INR 2.50 lac per house to be built by private developers even on private land, besides opening up the immense potential for private investments in affordable housing projects on government land in urban areas. The other PPP model introduced, extends central assistance of about INR 2.50 lac per house as interest subsidy on bank loans as upfront payment under the Credit-Linked Subsidy Component of the PMAY-U.

Future Outlook

We see affordable housing as being a key growth driver for residential markets in the near future. Apart from this, we are set to witness:

- Continuous consolidation in the markets
- Accelerated transparency
- Steady sales momentum across most cities
- The emergence of new sectors like senior living and student housing
- Increased private equity investments

Affordable housing: The big opportunity

We see affordable housing as a sector that will continue to be a key driver for residential markets and provide a big opportunity for both developers as well as investors in the coming few years.

Key drivers for affordable housing:

- As per the 2011 census, over 30% of India's population lives in urban areas and by 2030, this number is expected to grow to 40% of the country's population.
- Affordable housing finance is estimated to be an INR 6 lac crore business opportunity by 2022, by when the government seeks to achieve housing for all citizens.
- The Ministry of Housing estimated a housing shortage of 18.78 mn houses during the 12th plan period, with 99% in the economically weaker section and lower income groups. The country's total urban housing shortage is projected to be about 30 mn by 2022.
- Nearly 1 mn households are living in non-serviceable kutcha houses, while over half a million households are homeless.

Large-scale budget housing projects are, without a doubt, the need of the day to address the shortfall in the housing sector.

- **Continuous consolidation in the markets:** As the policy push sees increased weeding out of non-compliant developers, we will continue to witness consolidation in the markets. The fittest will be those who adhere to the norms, follow ethical practices and quickly adopt corporate governance principles.
- **Accelerated transparency:** JLL's biennial survey, the Global Real Estate Transparency Index (GRETI) 2018, ranked India at the 35th position. This is an improvement of five positions since 2014. Improved market fundamentals, policy reforms (LARR Act, Liberalisation of FDI into the realty sector) and the strengthening of information in the public domain contributed to accelerated transparency. We see further improvements in transparency in the future for real estate markets.
- **Steady sales momentum across most cities:** Seeing the trend of sales and supply additions across cities, we expect similar sales momentum to continue. In fact, as reforms pave the way for increased transparency, investors may find their way back to the residential markets.
- **New sectors will gain momentum:** New sectors like student housing and senior living will gain momentum. The unmet demand for student housing is very high in India. The ten leading states in terms of the number of students in the higher education space experience an unmet demand of 30-60%, as per official statistics. While currently the market is small and unorganised, cities like Hyderabad, Indore and Kota look attractive for this asset class. Here, land prices are reasonable and unmet demand from students is high. Senior Living will also see increased activity, as the estimated senior population is 98 mn in India and is expected to touch 240 mn by 2050.
- **Increased private equity investments:** Currently, debt structures dominate the fund inflows in residential markets. Most developers are over-leveraged, but with RERA, a conducive environment for the return of equity participation has been created. We expect the return of equity to residential markets in the future.

LOGISTICS & WAREHOUSING

THE EVOLUTIONARY LEAP FORWARD

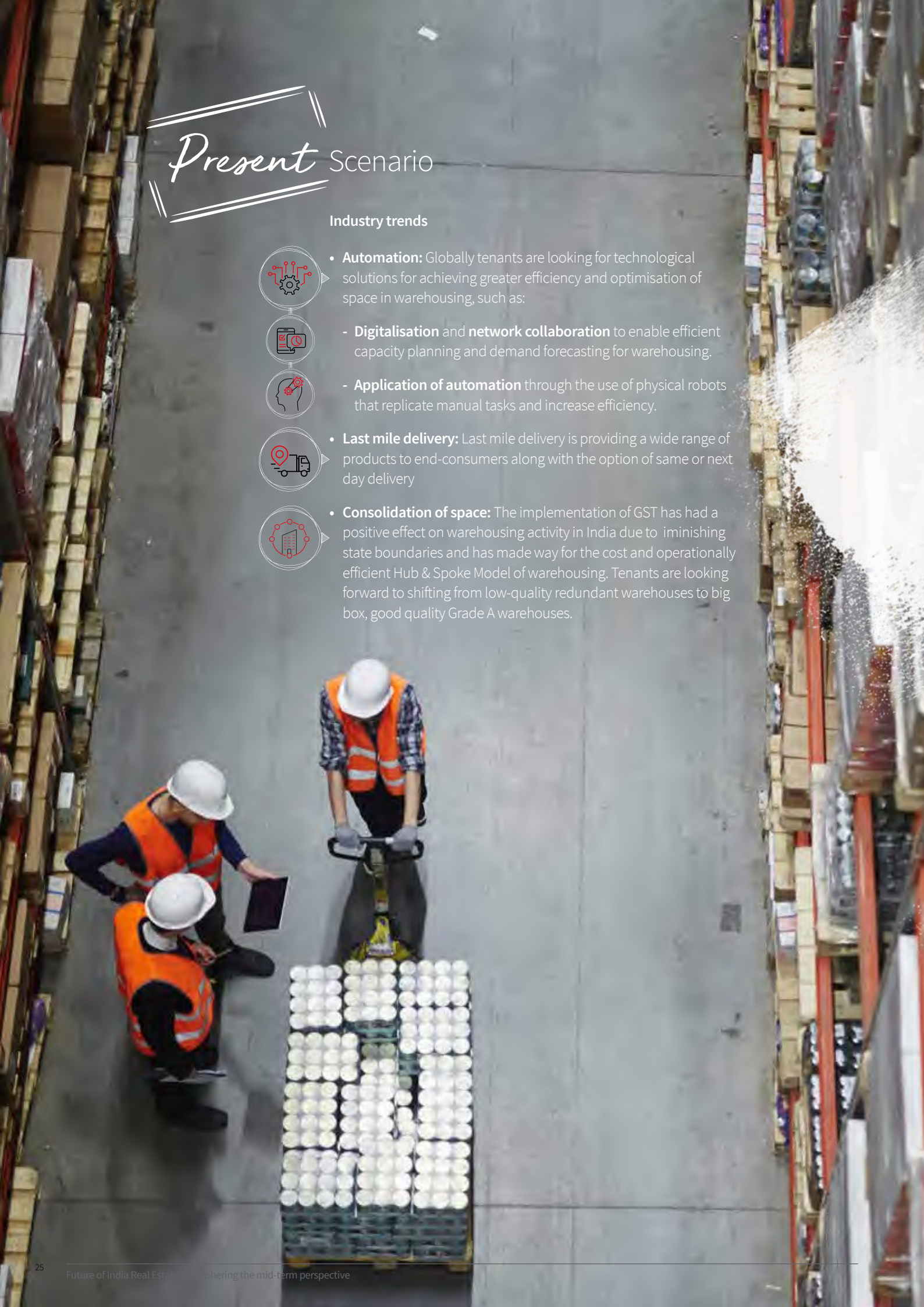
India's logistics and warehousing sectors are rapidly transitioning through a revolutionary phase. Multiple initiatives associated with large investments (both domestic and international) within this segment, clearly underscore the upcoming trend.

INR 15,000 cr in private equity investments in warehousing space has been witnessed since 2014. While this made up around 10% of total private equity investment in 2017, the share is now expected to grow further.

Present Scenario

Industry trends

- **Automation:** Globally tenants are looking for technological solutions for achieving greater efficiency and optimisation of space in warehousing, such as:
  - **Digitalisation** and **network collaboration** to enable efficient capacity planning and demand forecasting for warehousing.
  - **Application of automation** through the use of physical robots that replicate manual tasks and increase efficiency.
- **Last mile delivery:** Last mile delivery is providing a wide range of products to end-consumers along with the option of same or next day delivery
- **Consolidation of space:** The implementation of GST has had a positive effect on warehousing activity in India due to iminishing state boundaries and has made way for the cost and operationally efficient Hub & Spoke Model of warehousing. Tenants are looking forward to shifting from low-quality redundant warehouses to big box, good quality Grade A warehouses.



Future Outlook

Large infrastructure projects like DFC, DMIC, Sagarmala and Bharatmala would impact growth by offering better connectivity and accessibility across the country.

With warehousing being granted infrastructure status, the availability of longer tenure financing facilities at a reduced cost of debt will support the development of much-needed, large-scale logistics parks in the country.

Stock

- Total cumulative stock of 138.5 mn sq ft was recorded in 2017 for Grade A and Grade B for eight primary locations.
- Going forward, in the medium-term we expect the stock to nearly double over the next three years. Interestingly, Grade A stock would grow by more than two times its existing 2017 level.

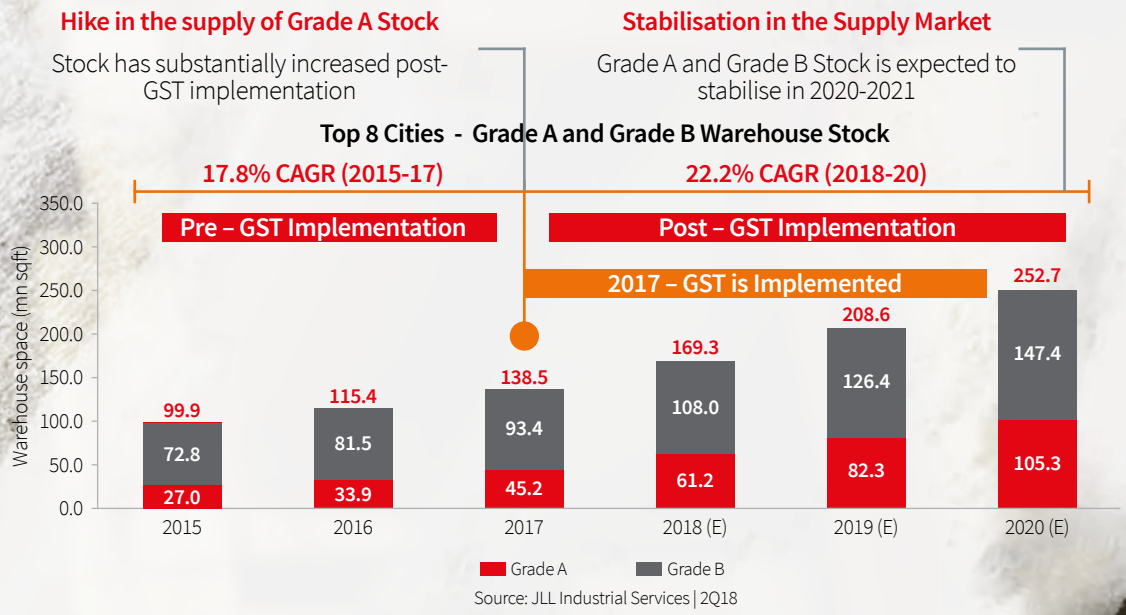
Absorption

- The overall warehouse absorption has gone up by more than 35% since 2016 to reach 19.5 mn sq ft in 2017.
- While third-party logistics players have remained the major contributors, there has been a significant demand from e-commerce followed by automobile, electronic & engineering, retail & Fast Moving Consumer Goods (FMCG).
- We expect absorption to remain buoyant in the medium-term, supported by multiple factors such as the expansion requirements of tenants, large-scale consolidation in top warehousing stock and infrastructure developments across the country, with better accessibility to most of the locations.

Rents

- Supported by the rapidly growing demand for space, rents will likely move upwards in most of the markets.
- However, in a few select corridors, growth may be moderate on the back of the large upcoming supply.

The future for the warehousing sector looks bright, with India set to witness investments close to INR 50,000 cr for the creation of warehousing facilities across the country between 2018 and 2020.



Source: JLL Industrial Services | 2Q18

STUDENT HOUSING

AN EMERGING SECTOR

Student housing, the new bright star on the alternatives sector horizon, is set to shine brighter in the future. The 2011 census data reveals that approximately 8 mn students in India are migrants who require student accommodation in close proximity to their university campuses. A large part of this population currently lives in sub-optimal housing and this underlines the huge unmet demand in this sector.

The evolution of student housing in India

Sector initiation

The first set of student housing operators enter

Operators: Bright Youth & Aarusha

Business potential realization

This period was good for alternative asset classes such as student housing, as core real estate (office, retail, residential) did not show concrete signs of recovery.

Many current large players were established during this period.

Operators: Yoho, Wudstay, StudentAcco and Co-Live

Source: JLL India

Business sustainability & continuity

None of the organised top-15 student housing operators were founded during this period.

Period was also marked by a slowdown in economic activity and 2014 pre-election uncertainty.

Operators: NA

Business growth & investor realisation

Serious players exhibit good growth in past 3-4 years, attract attention of investors. Quite a few players raise funds for business expansion. Large investors such as Goldman Sachs, Mangrove Capital, Prestellar Ventures and others make forays into student housing.

Operators: Placio, Zolostays, Yourspace, Coho Dorm, CampusVille, Indecampus, Stanza Living, Youthville and Care Infra Student Housing

Ongoing phase: Business growth & investor realisation

The business growth & investor realisation phase began in 2016, by which time, student housing had earned a reputation of being an asset class that is not only counter-cyclical to the core real estate asset classes, but also a somewhat recession-proof and high-yielding emerging asset. A plethora of student housing operators entered in this phase from diverse fields and backgrounds - management, entrepreneurs, investment banking, hospitality, etc. From merely restricting itself to a few large cities such as Bangalore, Pune, Chennai and Mumbai, organised student housing started spreading to cities such as Delhi NCR, Kota, Manipal, Indore and Dehradun. Newer models of operation, ranging from ownership, aggregator and lease-only models, came into being. Investor interest is currently high and operators who demonstrate clarity of vision, have a professional background with experience of successfully running a project, and have sound market knowledge are in a position to attract investments.

Present Scenario

Existing capacity and focus cities

The student housing market continues to remain a nascent one with the top 15 players (which includes tech-based aggregators) dominating the organised space, and together they operate around 84,500 beds (this includes count of beds operated by tech-based aggregators). On average, if we assume INR 150,000 annual fees charged to students per bed (average fees for mid-premium accommodation and most operators currently operate in this space), it would equate to an annual income potential of about INR 1267 crs (USD 183 mn). Besides, the core commercial sector's market yield expectations remain range-bound between 7 and 10%; against that, the student housing sector has the potential to earn much higher (>12%) yields.

Existing demand and supply situation

According to University Grant Commission (UGC) data, there are 789 universities in India affiliated with nearly 50,000 colleges and institutes. Together, these institutes have an enrolment of 34 mn students in the higher education segment. An extrapolation from the 2011 census data reveals that approximately 8 mn students are migrants who would require student accommodation facilities in proximity to the university campus. As of 2017-18, total occupancy recorded in hostels within college campuses across India was only 3.6 mn students. That means the remaining demand from 4.4 mn students is currently served by the private / unorganised sector - PG accommodation and rental houses, etc. The gap between demand and supply in India is equivalent to double the total number of higher education students in the UK.

Future Outlook

Lack of regulation of accommodation standards: Currently, while there is so much discussion going on to incorporate standards into affordable homes in India with respect to area provision and policies, similar measures can be laid out for student housing. As a result, student housing will be treated with importance and can also be segregated from other types of residential asset classes for incentivising purposes. Also, several accommodation facilities that currently do not follow basic standards of safety, hygiene and liveability will be compelled to fall in line with the standards. Currently, such standards exist only for women's hostels in India.

Taxation and utilities charged at commercial rates: Currently, the student housing operators are treated as private operators and charged with commercial rates for taxation and utilities such as electricity and water charges. However, there is a need to treat this sector as a facilitator for the education sector. A draft policy by the name of National Urban Rental Housing Policy has taken up the issue of considering such accommodation on a par with residential premises. While this draft policy is yet to be implemented, once enacted, it could reduce the utility cost applicable to the student housing operators by around 40%.

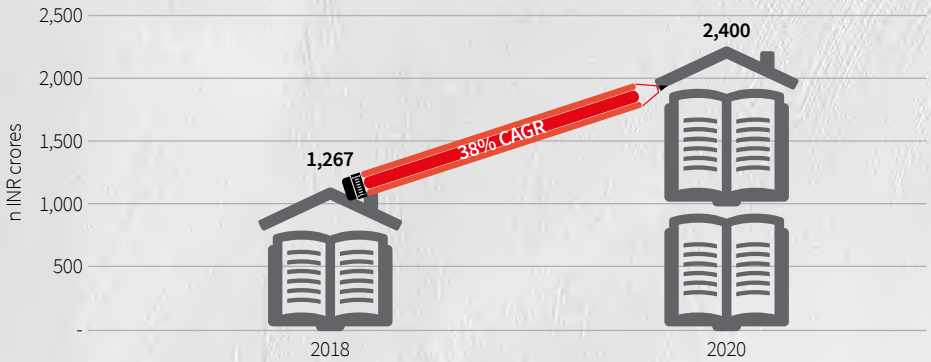
Industry size estimate: The current demand-supply gap is only expected to widen if we take into consideration the target set by the Ministry of Education to raise the *gross enrolment ratio** to 30% by 2020 from the latest reported enrolment ratio of 25.2% (2016-17). With this, the student population in the higher education space is poised to increase by another 5 mn, to 40 mn students, by 2020.

Given that the demand is high and rising, along with the fact that there is a clear need for professionally managed entities to operate in this sector, the space looks quite appealing. The top 15 student housing operators that JLL spoke with clearly reflect this sentiment, as each operator aspires to increase supply to well over double the existing capacity in the next three years.

In a survey of the top 15 student housing operators conducted by JLL, we understand that the current capacity of all operators combined is 84,500 beds, with a majority of them operating in the mid-premium category. Assuming a fee of INR 150,000 per annum, the current market size of leading organised players stands at INR 1267 crs (USD 183 mn). Further, taking into account the expansion plans of each operator, we foresee a combined supply of 160,000 beds from the same players by 2020. Therefore, with a conservative estimate by keeping the fee constant, market size is expected to increase at a whopping 38% CAGR until 2020, to INR 2,400 crs (USD 348 mn).

And numbers speak sufficiently of the opportunity this asset class presents in the future.

Estimated market size likely to double



Source: JLL survey, June 2018

*Gross Enrolment Ratio: The total enrolment within a country, at a specific level of education, expressed as a percentage of the population corresponding to this level of education.

CONCLUSION

India's recovery from the effects of demonetization and GST is reflected in its clocking an impressive 7.7 per cent GDP growth in the March quarter 2018. Robust performance by manufacturing, construction and service sectors and good farm output pushed GDP growth to this seven-quarter high, helping it retain the fastest growing major economy tag.

Backed by this growth engine, the sun will shine bright for the real estate sector in the medium term. The real estate numbers are all indicative of real demand - whether it be office, retail, residential, student housing or warehousing. New users of office spaces (Non-IT players and co-working) will gain strength. Affordable Housing will be key in residential markets and Retail markets will see PropTech as a major driver.

Stray clouds in the form of slow implementation of RERA by states, lack of regulatory framework for Student housing, the challenge of slow equity investments in residential markets remain. We hope however, that as the sector matures towards greater regulation and transparency, each sector will meet these challenges successfully and attain new heights.

About FICCI

Established in 1927, FICCI is the largest and oldest apex business organisation in India. Its history is closely interwoven with India's struggle for independence, its industrialisation, and its emergence as one of the most rapidly growing global economies. A not-for-profit organisation, FICCI is the voice of India's business and industry. From influencing policy to encouraging debate, engaging with policy makers and civil society, FICCI articulates the views and concerns of industry. It serves its members from the Indian private and public corporate sectors and multinational companies, drawing its strength from diverse regional chambers of commerce and industry across states, reaching out to over 250,000 companies. FICCI provides a platform for networking and consensus building within and across sectors and is the first port of call for Indian industry, policy makers and the international business community.

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About JLL India

JLL is India's premier and largest professional services firm specializing in real estate. With unaudited revenues at INR 3,400 crores for FY 2017-18, the Firm has grown from strength to strength over the last 20 years in the country. JLL India has an extensive geographic footprint across 10 major cities (Ahmedabad, Delhi, Mumbai, Bengaluru, Pune, Chennai, Hyderabad, Kolkata, Kochi and Coimbatore), presence in over 130 tier 2 &3 locations with cumulative strength of over 10,000 staff. It provides investors, developers, local corporates and multinational companies with a comprehensive range of services. This includes research, strategic advisory & consultancy, capital markets, transaction management, project & development services, integrated facilities management and property & asset management. These services cover various asset classes such as commercial, residential, industrial, retail, warehouse and logistics, hospitality, healthcare, senior living and education.

JLL India won the Five-Star Award for Best Property Consultancyat the International Property Awards Asia Pacific 2018 -19. The Firm is also recognised amongst the Top 100 Best Places to Work in India for two consecutive years in 2017 & 2018 in the annual survey of 'India's Best Companies to Work For' - a joint study conducted by Great Place to Work® and The Economic Times. It has also been acknowledged as 'Property Consultant of the Decade' at the 10th CNBC-Awaaz Real Estate Awards 2015. For further information, please visit **www.jll.co.in**

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20 years of Achieving Ambitions in India

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AURUM CAPITAL

SEPTEMBER 3, 2018 BY AURUM CAPITAL

Picking Stocks: These 7 Examples Show Why Operating Cash Flow Is More Important than Net Profit

Operating cash flow (OCF) is the key to understanding how well a company is doing. It defines whether, and how much of, the revenues are getting converted to cash. However, most investors lean towards net profit (NP) as the primary metric of a company's performance. Why?

One of the main reasons is that OCF numbers are provided once in a year while the net profit numbers are provided at the end of every quarter. This gives an opportunity to the media and so-called experts to discuss NP at least four times a year and, accordingly, be more worried—or excited—about growth.

Also, many small investors find it difficult to read these numbers in the annual reports primarily because of fear of the unknown. How does one arrive at OCF and how is it different from NP? Let's first define NP and OCF, before we proceed to explore the importance of each of the terms.

NP comes from the profit and loss (P&L) statement, while OCF comes from cash flow statement.

Net Profit: Net of revenue or sales after minusing all operating expenses, depreciation, interest and taxes, including any other income and taking into account exceptional items.

Operating Cash Flows (OCF): The net cash generated from operations.

Investing Cash Flows (CFI): The net result of capital expenditure, investments, acquisitions, etc.

Financing Cash Flows (CFF): The net result of raising cash to fund the other flows or repaying debt.

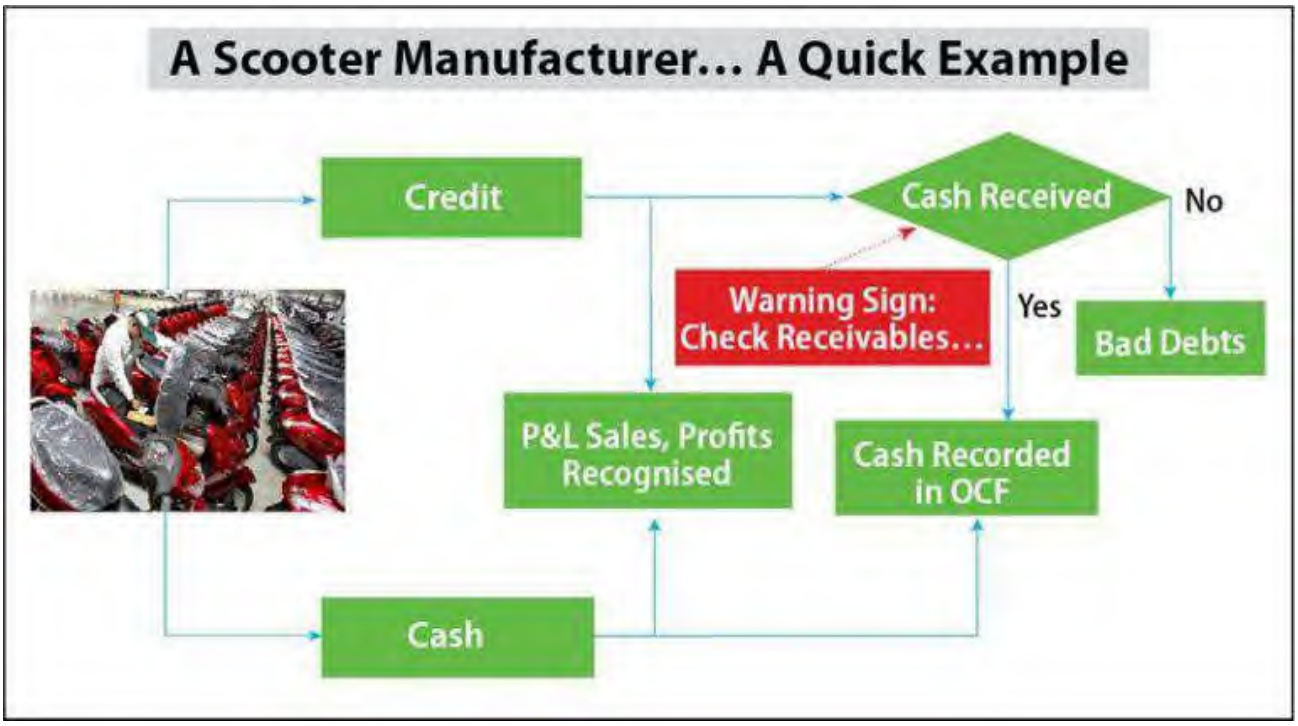
Why OCF and not NP: OCF is a better metric of a company's financial health for two main reasons. First, cash flow is harder to manipulate than net income. Second, 'cash is king' and a company that does not generate cash over the long term is heading towards getting wiped out. OCF gives you the picture of the cash received in the organisation. Without cash, the company may not be able to fulfill its promise to make payments to suppliers, employees and financial institutions on a sustainable basis.

Accrual Accounting System *vs* Cash Flows: To generate NP, a company may be required to just make a sale. This sale could be either in cash or on credit. If it is a cash sale, it gets recognised in OCF also.

However, business reality is a bit more complex. Most companies provide credit facilities. This could provide an opportunity to manipulate the net profit numbers. Imagine a company that makes a credit sale and, based on it, immediately recognises the sales in the P&L and, accordingly, arrives at the NP number. However, the cash is not received and, hence, OCF does not go up.

What happens if the customer delays the payment or returns the goods or if the sale was bogus? This results in a build-up of receivables in the balance-sheet. But the real OCF has never happened. The company may continue to do so but not indefinitely. It

will have to face the reality at some point in time. The receivables numbers then will turn bad debts and result in pain.



Seven Examples

There have been several examples where companies were not generating cash flows but continued to show profits through various means. These companies faced the grim reality at some point in time and their stocks collapsed. Also, if the promoters' holding is poor or there is a continued equity dilution along with poor OCF, it becomes a deadly cocktail.

There are hundreds of examples. I have chosen seven examples to highlight how following NP and OCF can mislead us. Why these examples? Well, these are some high-flying cases in which many media-savvy analysts, institutional investors, and retail investors have invested or have talked about them. I have discussed these companies with many friends and relatives in the past due to our mutual interest in stocks. I have taken the data only up to the point where I have analysed it last when faced with such queries.

I found a common element in companies with poor OCF. These companies are, often, backed by very strong growth stories and are widely traded in the stock market with lots of hope. These companies were the cynosure of the eyes of stock market players. In these seven cases, too, the stocks were running high with growth stories being spread by analysts and large investors. Eventually, these companies' stocks, and those

of several such companies, which were unable to generate OCF, just crashed by as much as 95% from their peak price.

Opto Circuits: Lost All the Circuits (Rs Crore)

Year Ended	Mar-08	Mar-09	Mar-10	Mar-11	Mar-12
Net Profit	131	209	260	368	573
OCF	40	115	178	130	126
Signal					

Year Ended	Mar-08	Mar-09	Mar-10	Mar-11	Mar-12
Share Capital	94	161	183	186	242
Borrowing	101	538	233	900	1,172
Signal					

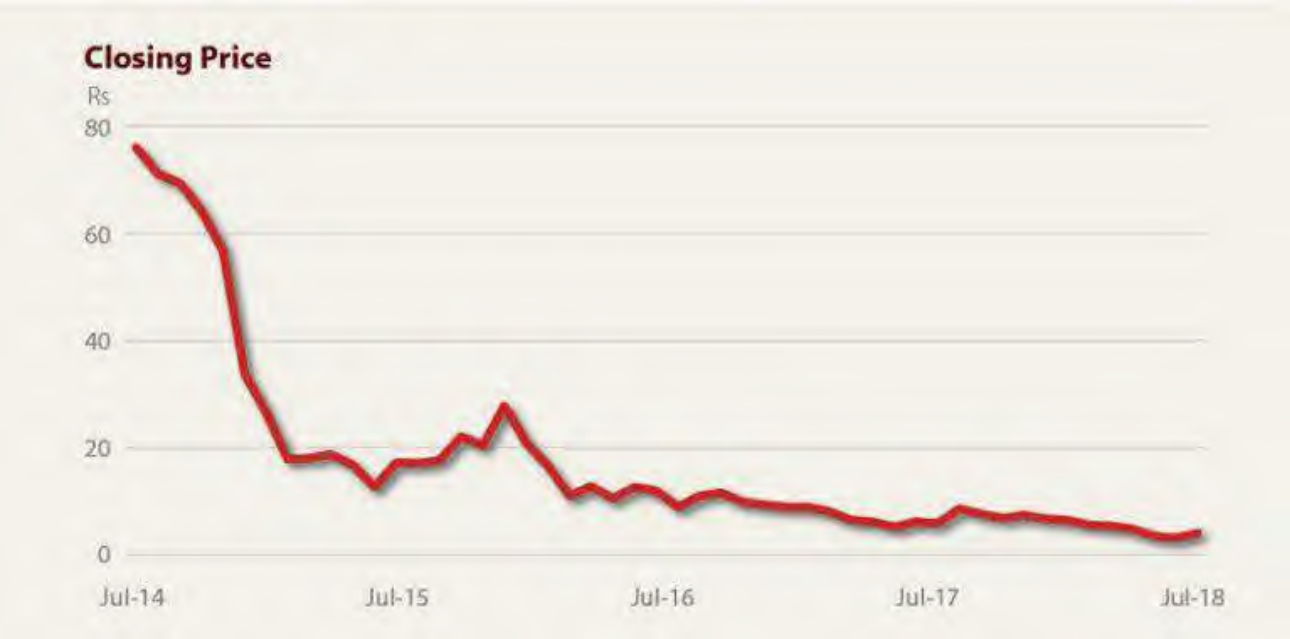
- Mismatch between net profit and OCF over several years
- Cash guzzler: Increasing debt + Consistent equity dilution
- Acquisition led growth
- Poor shareholding pattern
- High receivables

Sharon Bio: No Biological Connection with Good Management (Rs Crore)

Year Ended	Jun-08	Jun-09	Jun-10	Jun-11	Jun-12	Jun-13
Net Profit	27	19	22	33	43	54
OCF	-40	-52	-28	-36	-53	-70
Signal						

Year Ended	Jun-08	Jun-09	Jun-10	Jun-11	Jun-12	Jun-13
Borrowing	214	262	343	344	508	644
Signal						

- Mismatch between net profit and OCF over several years
- Increasing debt
- Poor shareholding pattern
- Analysts/research house giving aggressive targets
- Several stories around the company

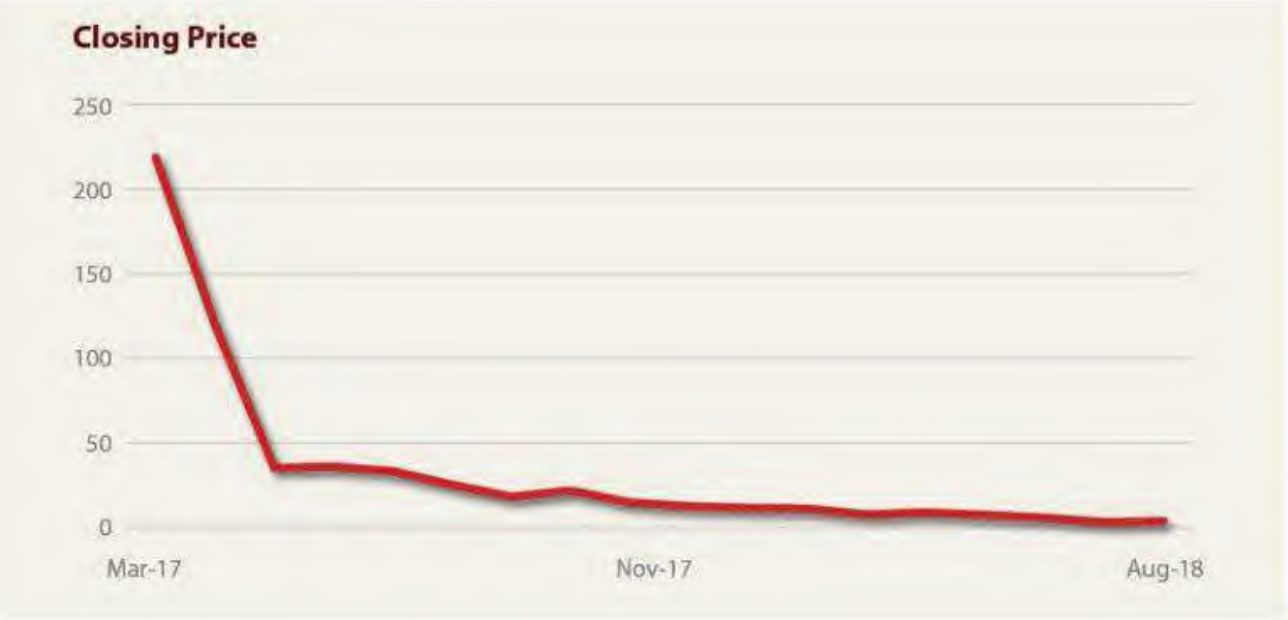


Shilpi Cable: The Cable with the Reality Got Cut Long before the Actual Downfall (Rs Crore)

Year Ended	Mar-10	Mar-11	Mar-12	Mar-13	Mar-14	Mar-15	Mar-16
Net Profit	170	231	460	654	985	1,406	1,905
OCF	10	5	-11	22	26	25	66
Signal							

Year Ended	Mar-10	Mar-11	Mar-12	Mar-13	Mar-14	Mar-15	Mar-16
Share Capital	24	24	32	38	49	103	111
Borrowing	82	93	105	124	146	204	242
Signal							

- Mismatch between net profit and OCF over several years
- Increasing debt
- Promoters' holding 100% pledged
- High recievables
- High double-digit growth in profit and sales
- High 20s RoE and RoCE numbers

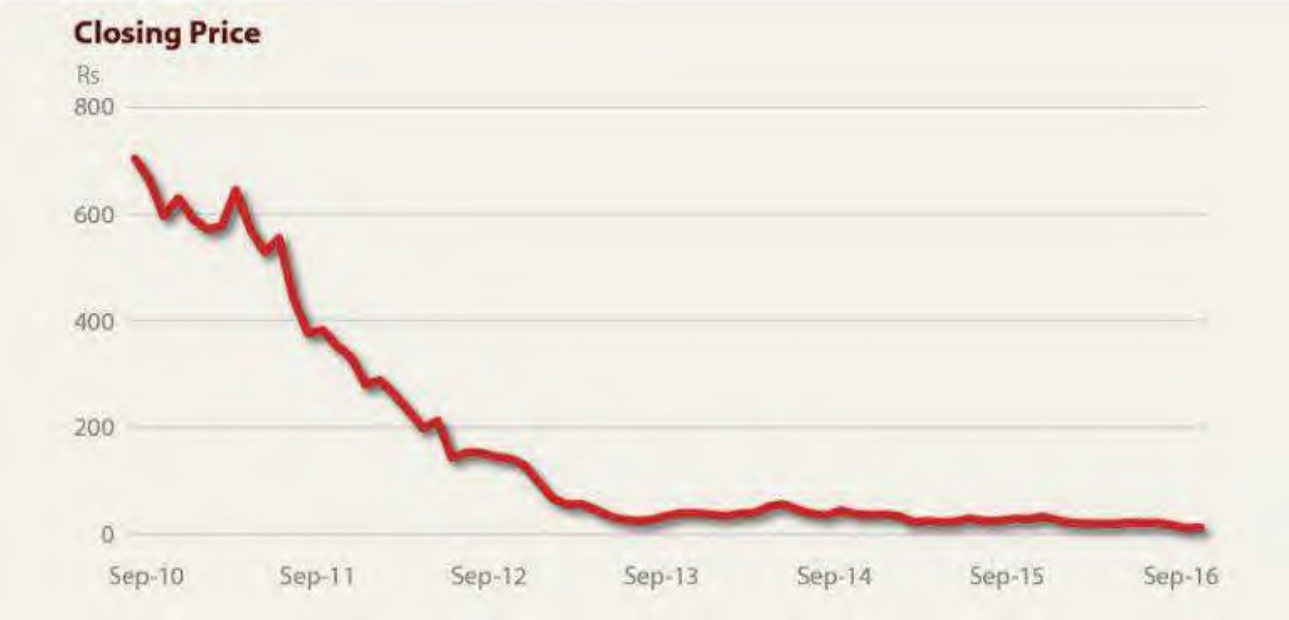


Everonn: Served as a Good Education for Investors (Rs Crore)

Year Ended	Mar-08	Mar-09	Mar-10	Mar-11
Net Profit	14	24	43	73
OCF	14	-14	29	47
Signal				

Year Ended	Mar-08	Mar-09	Mar-10	Mar-11
Share Capital	14	15	15	19
Borrowing	46	48	84	208
Signal				

- Mismatch between net profit and OCF over several years
- Increasing debt, equity dilution
- Promoters unpledged holding 8.4%
- Several stories around the business model
- FII holding close to 28% to now almost nil
- Some promonent name on the board could also not save it
- CBI caugh tone of the directors of the company in a bribery case
- High recieavbles

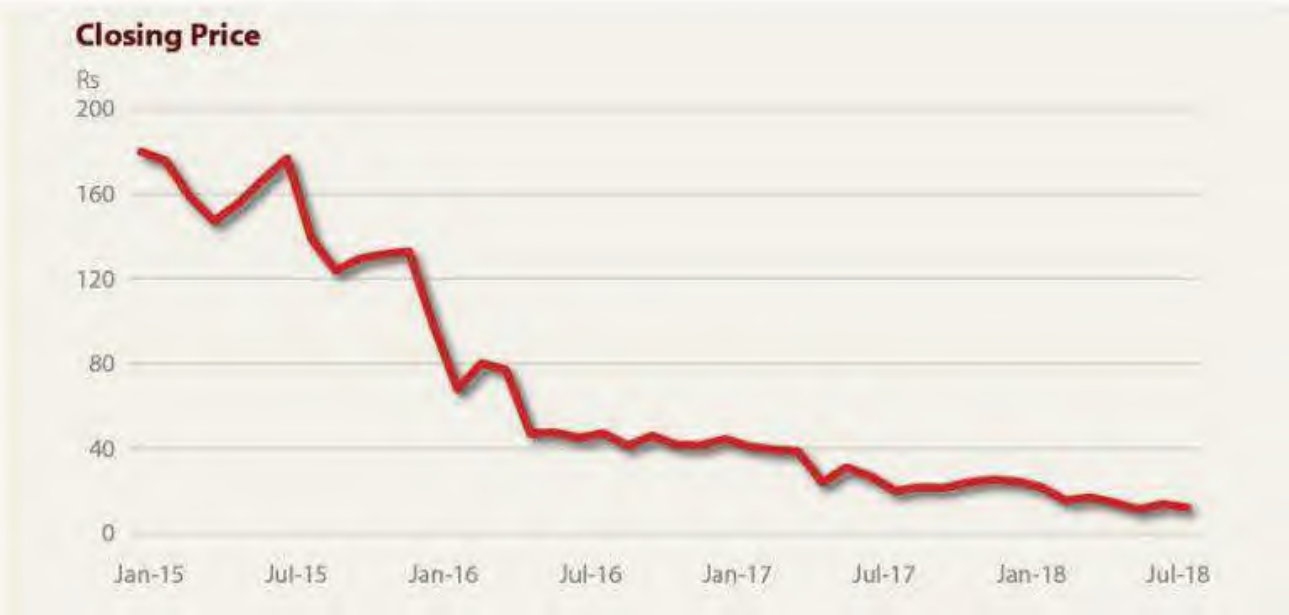


Zicom: A Security Company, Whose Cameras Captured Its Investors Napping (Rs Crore)

Year Ended	Mar-08	Mar-09	Mar-10	Mar-11	Mar-12	Mar-13	Mar-14	Mar-15
Net Profit	1.45	19.36	15.03	44.46	16.84	30.32	41.94	50.59
OCF	-9.02	-40.41	0.46	-114.28	-15.53	-42.34	2.87	-51.66
Signal								

Year Ended	Mar-08	Mar-09	Mar-10	Mar-11	Mar-12	Mar-13	Mar-14	Mar-15
Share Capital	13	13	13	13	13	17	18	20
Borrowing	65	166	224	135	160	318	437	556
Signal								

- Mismatch between net profit and OCF over several years, increasing debt
- Equity dilution
- Promoters unpledged holding 8.4%
- High receivables



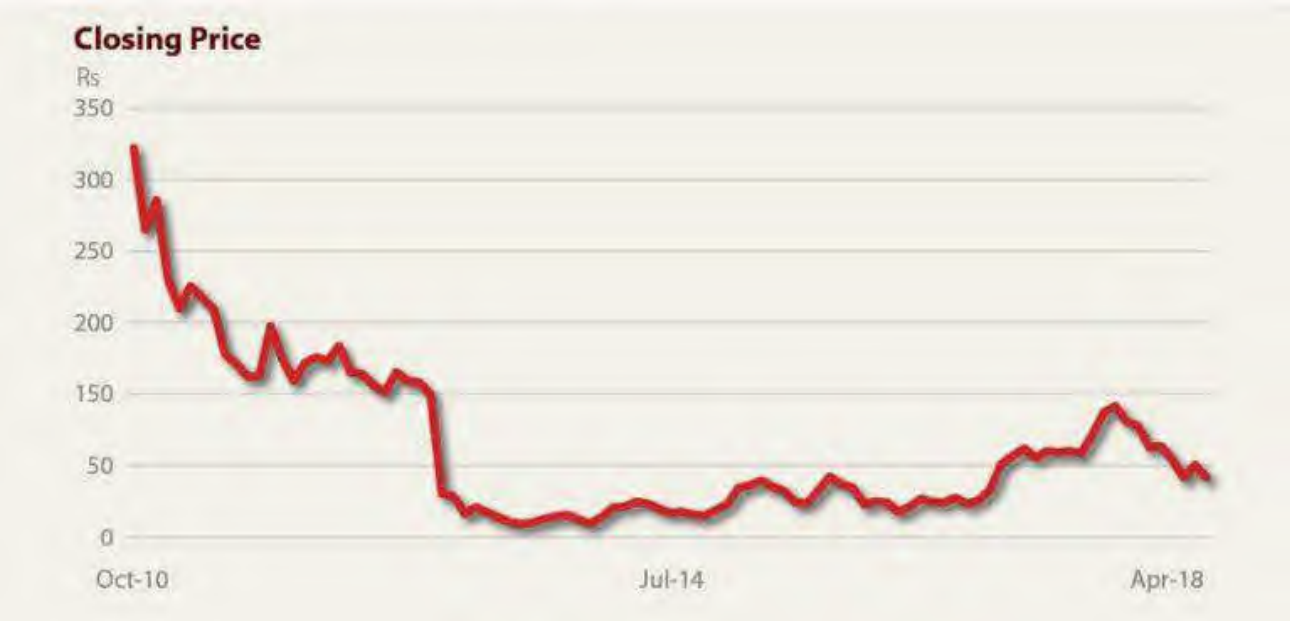
Arshiya International: Not only *Desi* but International Analysts also Caught on the Wrong Foot (Rs Crore)

Year Ended	Mar-08	Mar-09	Mar-10	Mar-11	Mar-12
Net Profit	18	45	66	98	82
OCF	-16	6	33	21	239
Signal					

Year Ended	Mar-08	Mar-09	Mar-10	Mar-11	Mar-12
Borrowing	2	130	572	1,442	2,289
Signal					

Year Ended	Mar-08	Mar-09	Mar-10	Mar-11	Mar-12
Promoters Unpledged Holding	32	25.73	25.26	17.87	19.36
Signal					

- Mismatch between net profit and OCF over several years
- Increasing debt
- Poor shareholding pattern
- High recieavbles
- Fancy business model and chased by celebrity analysts/Fis

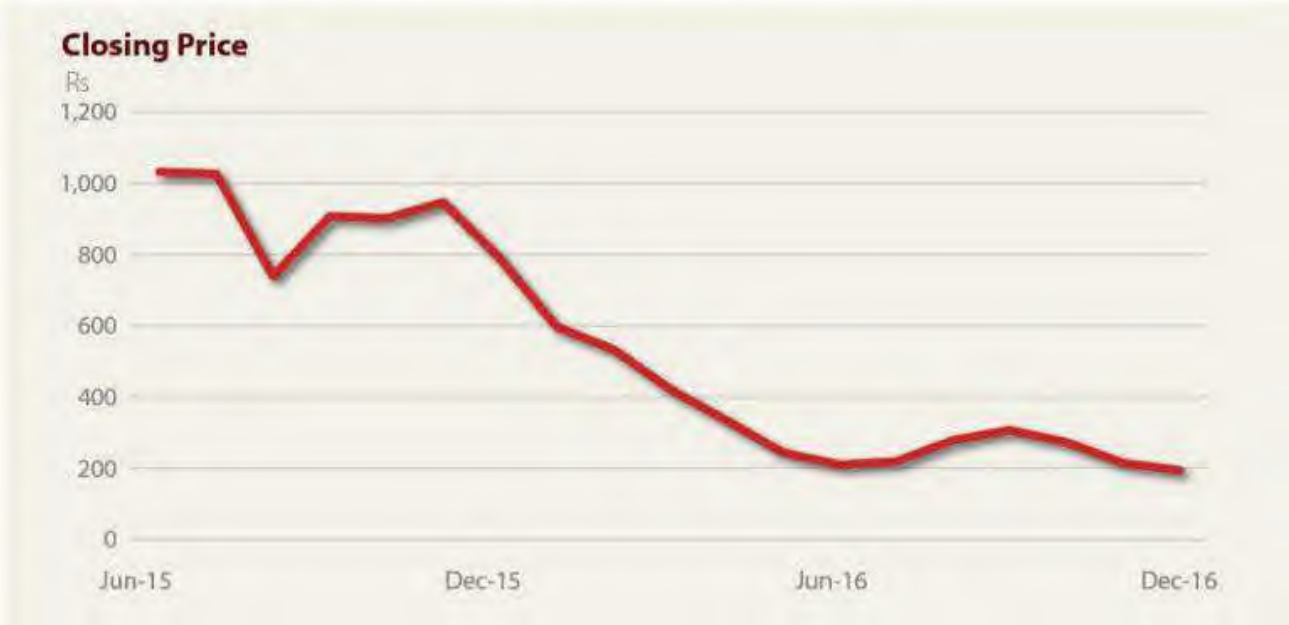


Ricoh: A Japanese Copier Company that Did Not Copy the Practices of Other MNCs (Rs Crore)

Year Ended	Mar-11	Mar-12	Mar-13	Mar-14	Mar-15
Net Profit	16	-3	-1	17	34
OCF	-9	-63	-97	-59	-222
Signal					

Year Ended	Mar-11	Mar-12	Mar-13	Mar-14	Mar-15
Borrowing	0	115	254	337	702
Signal					

- Mismatch between net profit and OCF over several years
- Increasing debt
- High recieavbles
- 3D Printers story when the company was supplying just dot matrix printers to Indian Post



Ideal Situation: How do we know what the NP should be? In an ideal situation, the ideal OCF *vs*NP ratio should be close to one. The higher the OCF, the better it is. However, there could be a year or two where OCF is down due to market conditions or specific circumstances. But it cannot be for an indefinite period; otherwise, the survival of the company will be in question.

OCF Can Be Fixed Too: One more word of caution. Companies can manipulate OCF also. That's where a glance at the balance-sheet can catch any discrepancy. Positive OCF can be generated by decreasing the non-cash working capital. Decreasing non-cash working capital means liquidating items like inventory, receivables (you are supposed to get this money from your customers and not by selling it off in the market at a discount) or increasing payables (you are supposed to pay your suppliers and which you don't).

Are these steps, like liquidating receivables, inventories or increasing payables sustainable? Not at all! Inventories and receivables cannot fall below zero and creditors

will not extend credit indefinitely, unless payments are made when due.

One must go through the balance-sheet numbers to see if there are any marked changes in receivables, payables, or working capital numbers from the previous year's numbers. If so, you know where the problem is.

Exception: There are some exceptions to the rule of OCF, especially with respect to companies that deal only with cash—that is, banks and finance companies. The OCF rule is not applicable in such cases or it needs to be tweaked extensively.

Other Helpful Parameters along with OCF

In addition to OCF, if we also consider the following parameters, it would further help us in our analysis.

- Interest paid *vs*net profit: a ratio of more than 0.4/0.5 is risky
- Equity dilution on an ongoing basis
- Promoters' unpledged holding in the company
- Trends in receivables
- Investing and financial cash flows

Final word: NP without OCF is like a body without oxygen and if it is coming with low promoter shareholding, equity dilution and high debt, it is a sure death warrant for the investor.

Reference: http://www.investopedia.com for definitions

Author and disclosure:

Niteen is one of the founders of Aurum Capital, a SEBI-registered investment adviser. Stocks mentioned in the article does not constitute personal recommendations. The analyst does not hold any of the stocks mentioned in the article above.

Note:
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KNOWLEDGE SERIES

Cryptocurrencies

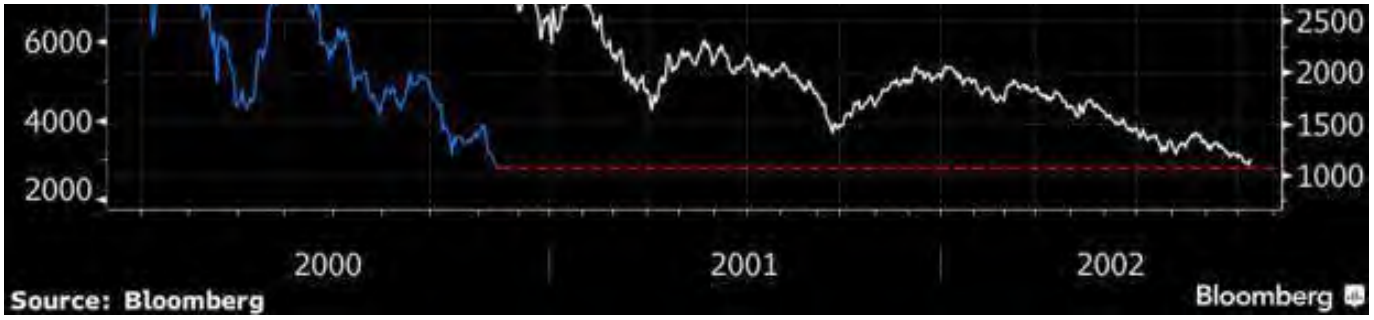
Crypto's 80% Plunge Is Now Worse Than the Dot-Com Crash

By Michael Patterson
September 12, 2018, 12:59 PM GMT+5:30
Updated on September 12, 2018, 5:22 PM GMT+5:30

- Selloff is now deeper than the early 2000s rout in tech stocks
- Ether leads losses on Wednesday, extending a brutal September

The Great Crypto Crash of 2018 looks more and more like one for the record books.

As virtual currencies plumbed new depths on Wednesday, the MVIS CryptoCompare Digital Assets 10 Index extended its collapse from a January high to 80 percent. The tumble has now surpassed the Nasdaq Composite Index's 78 percent peak-to-trough decline after the dot-com bubble burst in 2000.



Like their predecessors during the Internet-stock boom almost two decades ago, cryptocurrency investors who bet big on a seemingly revolutionary technology are suffering a painful reality check, particularly those in many secondary tokens, so-called alt-coins.

"It just shows what a massive, speculative bubble the whole crypto thing was -- as many of us at the time warned," said Neil Wilson, chief market analyst in London for Markets.com, a foreign-exchange trading platform. "It's a very likely a winner takes all market -- Bitcoin currently most likely."

Wednesday's losses were led by Ether, the second-largest virtual currency. It fell 6 percent to $171.15 at 7:50 a.m. in New York, extending this month's retreat to 40 percent. Bitcoin was little changed, while the MVIS CryptoCompare index fell 3.8 percent. The value of all virtual currencies tracked by CoinMarketCap.com sank to $187 billion, a 10-month low.

Digital Gold

The virtual-currency mania of 2017 -- fueled by hopes that Bitcoin would become "digital gold" and that blockchain-powered tokens would reshape industries from finance to food -- has quickly given way to concerns about excessive hype, security flaws, market manipulation, tighter regulation and slower-than-anticipated adoption by Wall Street.

Crypto bulls dismiss negative comparisons to the dot-com era by pointing to the Nasdaq Composite's recovery to fresh highs 15 years later, and to the internet's enormous impact on society. They also note

that Bitcoin has rebounded from past crashes of similar magnitude.

But even if the optimists prove right and cryptocurrencies eventually transform the world, this year's selloff has underscored that progress is unlikely to be smooth.

Read more: A QuickTake on cryptocurrrencies

One silver lining of the crypto slump is that ramifications for the global economy are likely to be minimal. While the market has lost more than $640 billion of value since peaking in January, that's a far cry from the trillions erased from Nasdaq Composite stocks during the dot-com bust.

The crypto industry's links with the traditional financial system also remain weak. That's been a disappointment for bulls, but it's good news for everyone else at a time when digital assets are tumbling.

"Until you can pay your taxes in cryptos, it's just a pointless investment vehicle," said Markets.com's Wilson. "Some people will make loads of money but most won't."

For more cryptocurrency coverage:
Crypto Exchanges Embrace Controversial Practices as Demand Eases
Judge Applies Securities Law to Initial Coin Offering Case
Bitcoin Bulls Are Sweating Latest Test of Key Resistance Level
Matt Levine's Money Stuff: Keep Your Bitcoins in the Bank
Crypto Wipeout Deepens to $640 Billion as Ether Leads Declines
How Bitcoin's Crash Compares to History's Biggest Bubbles

– With assistance by Matt Turner, and Todd White

(Adds analyst comment in the fourth paragraph.)

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ABB unveils fast-charging system to power a car in 8 mins for 200 km

The company said that it was helping India to achieve its ambitious goals of moving towards a stronger, smarter and greener grid

PTI | September 07, 2018, 17:11 IST

ABB chief Ulrich Spiesshofer addresses at the 'Move: Global Mobility Summit', in New Delhi

New Delhi: Power major ABB on Friday unveiled its fast-charging system, which can power batteries of a car in flat 8 minutes to run up to 200 km at Move Global Mobility Summit in the capital.

"For the first time in India, ABB showcased the Terra HP fast-charging system, which can power up a car for 200 km in just a single charge in just 8 mins. It is ideally suited for highway rest stops and petrol stations, where the highest power is required to minimize charging time," an ABB statement said.

According to the statement, ABB CEO Ulrich Spiesshofer was present here at the MOVE Global Mobility Summit 2018 at Vigyan Bhavan. He was one of the key industry leaders to deliver his views at the inaugural session in the presence of Prime Minister Narendra Modi.

In his address, Ulrich commended the Indian government for its

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He said that the ABB's presence in India dates back over a century, and the company has been manufacturing here for 60 years.

The ABB is helping India to achieve its ambitious goals of moving towards a stronger, smarter and greener grid; advancing industrial development through the "Make in India" initiative; and shifting towards a low-carbon, sustainable transport system, the statement said.

"ABB is extremely proud and privileged to be partnering with the Indian government and Niti Aayog, as well as customers and technical institutes to support India's development. In India, we are working with partners, including OEMs and Niti Aayog on EV charging models," Ulrich said.

Today, ABB has the largest installed base of fast-chargers worldwide - 8,000 stations in 68 countries.

"A few months ago, at the Hanover industry fair in Germany, the ABB launched a new record-breaking, new Terra High Power EV charger, which is able to deliver enough charge in just eight minutes to power an electric car for 200 kilometers. The company has brought one of these fast-chargers to this event.

"We are a technology leader in e-mobility for buses: our revolutionary flash-charging TOSA system keeps buses running all day with 20-second bursts at selected stops," he added.

In his closing remarks, Ulrich said that India can leapfrog other nations by embracing e-mobility now, and become a world leader in sustainable transport, while reducing emissions and dependence on imported fossil fuels. At the same time, India can use e-mobility as a lever to move its industry up the value chain and to drive economic growth.


companies to NCLT


The second tender for 10,000 electric cars will be floated soon: Saurabh Kumar, MD, EESL


India rolls out world's largest UPS project based on lithium-ion battery