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What We Are Reading - Volume 2.006

The enclosed 2.006 version contains — interesting articles on India road sector, RBI policy, India's Generational Shift in Consumption and Debt, GST revenues, Economic Conditions Snapshot, House prices, Drug Prices, technology to make pesticides stick to leaves, FAANG stocks and the Great trade war.

- India road sector: Public spending spurring significant revival — Nomura
- India: The RBI hikes but policy remains neutral — Nomura
- India's Generational Shift in Consumption and Debt — Morgan Stanley
- GST: Revenues far from satisfactory — Kotak
- Economic Conditions Snapshot, June 2018 — Mckinsey
- House prices aren't just slipping in the UK, this is global — MoneyWeek
- Trump fails at Lowering Drug Prices as Costs Keep Going up — Bloomberg
- MIT Professor creates technology making pesticides stick to leaves — Scroll
- The FAANGs are all different stocks – but they'll all crash together — MoneyWeek
- The Great Trade War of 2018 — Macquarie

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ANCHOR REPORT

India road sector: Public spending spurring significant revival

Opportunity pool in excess of 15,000km pa in contract awards for next 2-3 years

India's road infrastructure capex is set to witness strong growth with overall spend nearly doubling in FY18-20F over FY15-17, representing INR6.8tn (~USD100bn) of opportunities across the sector. We see this as an opportunity to invest in the road space, but in select companies with low leverage and demonstrated track record of project delivery.

Key themes and analysis in this Anchor Report include:

- Growth will be region-specific, in our view, driven by the electorally crucial Uttar Pradesh state in the north and robust state and central pipelines in Maharashtra/Madhya Pradesh states in the west and the southern states. These account for 60% of the overall estimated capex.
- Companies such as PNC Infratech (PNCL IN, Buy – north), Dilip Buildcon (DBL IN, Buy – west) and KNR Construction (KNRC IN, Buy – south) are prime beneficiaries, in our view.
- These companies are strongest in their respective regions with regard to equipment and manpower mobilisation, highly involved management, security of key materials and strong balance sheet in a debt-stressed sector. We like PNC the most for its strong growth profile and strongest balance sheet in the sector.

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Contents

Road infra spend the next growth driver

Strong road capex driven by UP (north), MP and Maharashtra (west) and southern states

Approaching elections and same dispensation at the centre and states should drive road capex in UP and West India

Uttar Pradesh (UP) is the largest state in terms of population in India, has a disproportionately large impact on electoral outcomes and thus is crucial for the ruling dispensation. With governments both at the central and the state level now under the ruling party, there is likely to be a significant increase in infrastructure capex to tide over potential anti-incumbency ahead of the central parliamentary (Lok Sabha) polls in May 2019. We expect similar trends in Madhya Pradesh (MP) and Maharashtra as well, where elections are due over 2018-19.

- **UP offers INR1.5tn in Central Government projects**, which include 15 greenfield highways and conversion of 72 state roads to national highways. In addition, ring roads are planned for all major cities. Of the state projects, the key one on offer is the Purvanchal Expressway (INR260bn), which is the current chief minister's flagship project. Other expressways planned are Bundelkhand and Yamnotri by the National Highways Authority of India (NHAI).
- **MP offers INR2.0tn in Central roads for 2,021km.** Prominent roads include the Narmada Expressway and the Chambal Expressway, which could present an INR1.0tn opportunity, on our estimates.
- **Maharashtra has the most ambitious state road plans.** The Mumbai-Nagpur Expressway is the flagship project worth INR277bn in contracts. Another 10,000km of state roads are planned, possibly under the new hybrid annuity model (HAM). In addition, tenders have been invited for the Mumbai Trans Harbour Link (MTHL) for INR170bn. However, state orders might take a while to materialise as the government cut capex in FY18 20% to INR280bn to save money, following farm loan waivers and expected compensation to be provided to municipal bodies after implementation of GST (Goods and Services Tax).

Capex in south will be driven by Karnataka, Andhra Pradesh and Telangana

- **Karnataka is planning to construct 1,200km of state roads under a new hybrid annuity model** (75% equity support vs 40% for NHAI). The state has called tenders for INR26bn or 419km of projects in the first phase. NHAI has also invited bids under the HAM model for the Bengaluru-Mysuru Expressway at an estimated cost of INR41.5bn.
- Telangana plans to execute INR210bn in road projects, of which over INR130bn have been sanctioned. Funding remains a concern due to the weaker fiscal standing of this newly created state, but payments have been regular so far.
- Andhra Pradesh's development of infrastructure is associated with development of capital at Amravati could be more than INR1.0tn opportunity in a decade. However, funding is yet to be tied up completely and this still remains an area of concern.

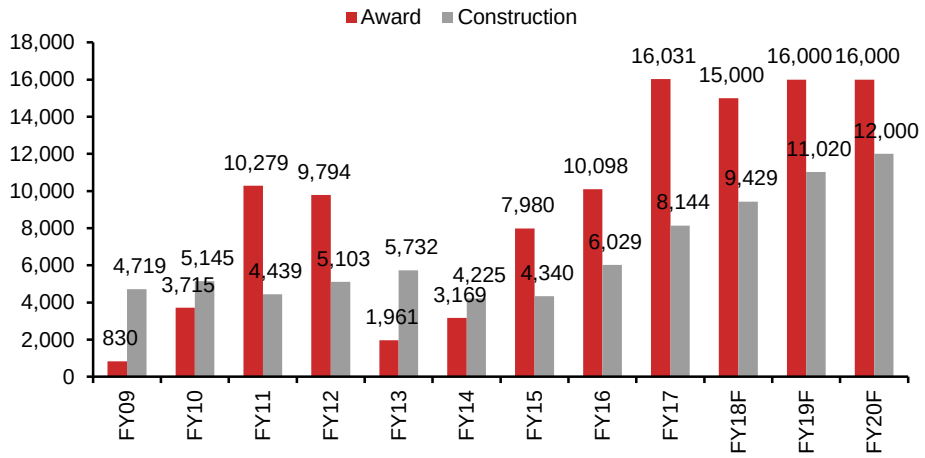
Ordering and construction has picked up pace; maintenance of even present levels provides enough room for growth in the sector

After a severe slowdown from FY11 onwards due to economic downturn and policy paralysis, awarding and construction of national highways has climbed once again to record levels. While the Ministry aims to award 55,000km over FY18/19, we view the targets as overly optimistic and even maintaining the present level of 16,000km in awards would be adequate to sustain growth.

Construction at 8,100km is at record levels and, while the target of 15,000km for FY18 looks optimistic, we estimate that construction could exceed 10,000km in the near term, driven by the fact that work is in progress at 33,000km of highways which were ordered in the past two years, as well as those stalled projects which were revived recently through a recent round of reforms.

Fig. 2: Awards and construction of national highways have increased significantly

km



Source: MoRTH, Nomura estimates

The bulk of the roads awarded of late and those that are to be awarded in the near term will be cement concrete roads. We estimate that, based on capex requirement ranging on an average from INR90-100mn/km of roads, the capex incurred will be around INR3.2tn in the next three years against a capex of INR1.3tn from FY15 to FY17. Thus, in essence, investments will more than double in the next three years on national highways against the previous four years. This growth in national highways execution will be a prime driver for revenue growth of the sector.

Fig. 3: Investments in national highways to jump to INR3.2tn (FY18-20F) against INR1.3tn (FY15-17)

Source: Ministry of Statistics and Programme Implementation (MOSPI), Nomura estimates

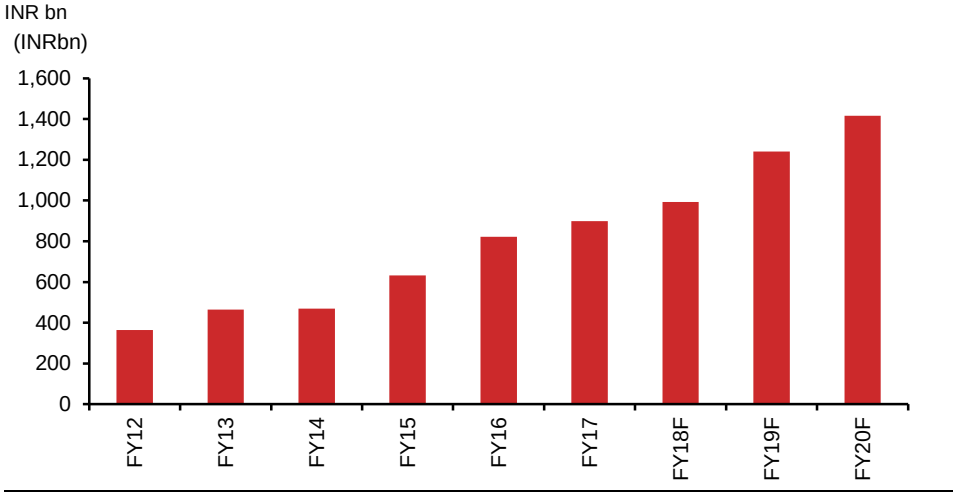
We expect ordering in states to jump to 1.5x to INR3.6tn (FY18-20 vs FY15-17)

The growth in state capex is driven by large plans for expressways in Uttar Pradesh (Purvanchal Expressway) and the Mumbai-Nagpur Expressway, as well as a strong pipeline of state road projects for over 11,000km in Maharashtra and Karnataka alone. In the longer run we expect capital spending on infrastructure for development of Amravati as capital in Andhra Pradesh (AP) and in Telangana as well to drive road capex growth beyond FY20F.

Despite a strong pipeline of state projects, we expect weaker growth than MoRTH projects as some states will face difficulties in arranging financing at reasonable terms post measures like farm loan waivers, which will lead to a temporary increase in state fiscal deficits. As an example, Maharashtra's farm loan waiver could potentially push the debt-to-GDP ratio from 17.2% in FY17 to 18.2% in FY18, on our estimate, which is again at a level similar to that in FY14 and FY15. This can slow capex spend temporarily but

will not have long-term material implications, in our view. In case of fiscally weaker states, such as UP, the debt to GDP may rise to 37% in FY18, on our estimate, compared to 35% in FY16/17, which can lead to capex concerns. However, in UP, the central government has pitched in with central road projects and INR100bn of funds as well. Further, funding for the key Purvanchal project is largely tied up as well, which should provide comfort on long-term capex, though FY18 spend may be impacted.

Fig. 4: Investments in state roads to jump to INR3.6tn (FY18-20F) against INR2.3tn (FY15-17)



Source: RBI State of State Finances, Nomura estimates

The present dynamics favour newer companies, namely Dilip Buildcon, PNC Infratech and KNR Construction

PNC Infratech is our preferred pick for UP (north)

PNC, with its strong track record of execution and security of raw material supplies (ie, aggregates and soil in UP) is our preferred play for the north region. PNC has project clusters with manpower, equipment and materials deployed across the entire state from Agra, Lucknow, Varanasi, Gorakhpur and Jhansi. With one of the strongest balance sheets in the sector, we think PNC is well placed not only to invest into machinery if required but also to arrange for funding of HAM projects on offer.

PNC faces competition from DBL, which has established a foothold in the eastern parts of India but overall the company's position is the strongest in the region based on its strength in sourcing of key materials and deployment of equipment.

Dilip Buildcon is our preferred pick in MP/Maharashtra (west India)

DBL has established a strong presence in MP and recently established clusters in Maharashtra, which positions it favourably with regard to execution and bidding. DBL has the largest manpower and equipment bank in the industry, along with supply security of critical raw materials through ownership of mines in MP. DBL, through its significant presence of manpower and machinery, is the most cost-competitive player in the region/country and stands to gain from ordering growth.

However, DBL faces competition from PNC in expressways, where restrictive qualification norms (eg, in the case of Mumbai Nagpur Expressway) have favoured companies such as PNC, which have experience in construction of expressways coupled with a very strong balance sheet.

KNR Construction is our preferred pick in the south

KNR is almost entirely south-focused with several project clusters in the region, which enables it to deploy manpower and machinery swiftly and in a cost-effective manner. KNR also has one of the strongest balance sheets in the sector and has demonstrated a history of bidding prudence and strong cash flow generation. This, coupled with a track record of early completion and robust management, places KNR favourably in the south, in our view.

However, of late KNR is facing inroads from PNC in Karnataka and DBL in Andhra Pradesh. That said, the scale of its deployment and access to resources (sand and aggregate quarries) is unmatched in the region.

MoRTH intends to award more projects under hybrid annuity favoring companies with balance sheet strength (PNC, KNR and DBL)

The Ministry of Road Transport and Highways (MoRTH) intends to award at least half of the projects under the HAM model under which 40% of project cost is NHAI grant and rest is to be funded by the developer in form of debt and equity which will be repayable by NHAI/MoRTH in semi-annual annuities over 15 years (project concession period). This should lead to increased competition in EPC projects as the ordering pie shrinks on a relative basis while decreasing competitive intensity in HAM tenders.

Since these projects require equity and debt funding by developers, financial closure is often hard to achieve without a strong balance sheet. This has already limited competition leading to better EBITDA margins and less bidding aggression. Thus this trend is favorable for companies like PNC, KNR and DBL. Also limiting competition is the fact that majors (eg, L&T) *have refrained from such projects that require capital investment.*

Shift to cement concrete roads further favours companies with strong existing banks of latest plant and machinery

MoRTH plans to construct future highways as cement concrete roads to increase durability and cut down imports of bitumen despite higher upfront costs. These roads require equipment like concrete pavers, which are imported from two global manufacturers and are in short supply. Further, lead times for imports can be as high as 6-8 months, often leading to delays in execution. For older cash-strapped companies incurring fresh capex for these projects will be difficult and hiring will be costly and unreliable. Thus even here the newer companies are having a competitive edge over the older, established companies.

Promoter focus, minimal sub-contracting, security of critical raw materials and prudent project selection and management processes drive our choice

A trend common among all these companies is to minimise sub-contracting and keep core activities in-house. With asset ownership and activities in-house there is higher control over project outcomes and lower deployment costs. Further, these companies adopt prudent bidding in the sense that project teams visit sites to see the availability of land and clearances as well as location and availability of key raw materials.

Even after project award the level of promoter push through empowered site management is quite high. Site management interact with Central and local government officials as well as local villagers to facilitate activities such as compensation disbursement, etc, aiding in completion of land acquisition. This is despite the fact that land acquisition is under NHAI scope.

In addition, these companies focus on centralised procurement leading to cost advantages. They also develop and own quarries to ensure raw material security.

We recommend a portfolio approach for investors to hedge region-specific risks

The three companies address 60% of the overall INR6.8tn opportunity in central and state road capex

Capex revival in the road sector is already in progress. We expect momentum in road contracting and road construction to sustain in the near- to medium-term. However, to hedge state-specific and company-specific risks in an arguably risky sector for investment we would prefer a portfolio approach for investors.

- Invest in DBL for capex growth in West Central India (MP, eastern UP and Western Maharashtra).
- PNC for road capex in UP and north India as well as expressway orders in Maharashtra.

- KNR for road capex in the Southern states, driven by Karnataka, Andhra Pradesh and Telangana.

Overall, PNC Infratech should have the strongest growth profile, as its stalled projects of FY17 start showing execution from 2HFY18F, coupled with the fact that UP as a key electoral state will possibly see the highest levels of Central government road capex. PNC also has the strongest balance sheet among its peers and its experience in expressway construction qualifies it for almost the entire range of road projects available.

The overall opportunity set of central orders and state road capex could be as much as INR6.8tn over the next three years. Among these preferred companies we estimate that close to INR4.0tn of opportunity size is addressed among the keys states. Thus an investment in these plays addresses sufficient portion of the opportunity set. (Fig. 5)

Investment risks

- Revival in competition through recent measures initiated to revive financially stressed infrastructure companies: recent government initiatives to revive the infrastructure sector could lead to a revival in balance sheet health for some of the ailing construction companies. With an improvement in their balance sheet, some of these companies may resort to aggressive bidding for projects as in the past, driving down sector returns.
- Further deterioration in working capital and net debt metrics. This can be due to execution related slowdown or aggressive bids in HAM projects which may necessitate more equity investment than required as well as the inability to seek equity partners.
- Slowdown in public spending on infrastructure/road projects.
- Some cement companies are in the initial round of discussions to import or make pavers and supply such equipment on hire. But discussions are in the nascent stages, and we do not expect any near-term impact. However, if this does succeed, it could pose a challenge to the equipment ownership model.

Fig. 5: Opportunity size among key states

INR bn

	FY18-20 order pipeline
Maharashtra	
MORTH road expansion	130
Mumbai Nagpur Expressway	277
State MRIP programme roads	300
MTHL	170
	877
Madhya Pradesh	
NHAI+MORTH (expressways)	**1,156**
Total opportunity is West and Central India	**2,033**
Uttar Pradesh	
NHAI+MORTH (expressways)	867
Purvanchal Expressway	260
Total opportunity is UP	**1,127**
Karnataka	
Bengaluru Mysore Expressway	42
KSHIP HAM projects	96
Telangana	210
NHAI approved	80
Andhra Pradesh (MORTH projects)	400
Total opportunity in South	**828**

Source: MoRTH, various state agencies (MSRDC, UPEIDA, etc), Nomura estimates

Fig. 6: Key investment themes and plays

State/Region	State wide opportunities	Preferred play in Order	Competency of preferred pick	Risk to preferred pick
North India				
Uttar Pradesh	**Central projects**	**PNC Infratech**	Assured supply of aggregates from own mines in nearby states	DBL has started establishing clusters in East UP
	MORTH approved pipeline of INR1.5tn over next 2-3 years	Dilip Buildcon	Pre-existing clusters	DBL's presence can trigger price wars
	- 15 greenfield projects	L&T	Mobilised across East West Axis	Other competitors Gayatri , NCC, L&T
	- 72 State Highways converted to National Highways		Strong execution credentials and strong balance sheet	
	- Ring roads in all major cities namely Kanpur, Gorakhpur, Bareilly, Moradabad and Meerut		BOT assets are self-financing	
	- Bundelkhand Expressway (Delhi-Jhansi)			
	- Delhi Yamnotri Expressway			
	State projects			
	Purvanchal Expressway (INR260bn) tendering expected in September 2017			Funding of State project an issue post farm loan waiver
	The flagship project is a priority of UP Chief Minister			
	Significantly large prospects to limit competition			
West India				
Madhya Pradesh	**Central projects in MP**	**Dilip Buildcon**	Pre-established strong clusters in MP and Maharashtra	Stringent qualification norms in Maharashtra
	MORTH plans INR2.0tn of projects in MP over 2 years	PNC Infratech	Strong execution credentials	Favours PNC in Expressways
	- Narmada Expressway and	L&T	Largest equipment/manpower	
	- Chambal Expressway	KNR Construction	Owns quarries in MP	L&T, KNR, NCC are other competitors
Maharashtra	**Maharashtra state pipeline**			
	- Mumbai Nagpur Expressway (INR276.5bn) 16 packages			Land related agitations by local farmers
	- 10000km under HAM under MRIP (25 packages and 87 contracts)			
	- MTHL project (INR170bn) in 3 packages			
	- MORTH pipeline (INR130bn) for lane expansion			
	Funding is largely in place through multi-lateral funding agencies and possible mortgage of state lands			
Southern States				
Karnataka	**Strong state pipeline**			
	- 1200km of roads under KSHIP under new HAM model	**KNR Construction**	Strong South focus. Excellent execution and early completion record	Limited sub-contracting leads to residual execution risks
	- 419km (INR26bn) is in tender pipeline already	PNC Infratech	Pre-existing strong clusters in all of South	PNC has entered into Karnataka
	- KSHIP HAM offers 75% equity support (vs NHAI HAM of 40%) and lower repayment tenure of 7.5 years	DBL	Significant equipment bank and manpower in the region	DBL is present in some regions of Andhra Pradesh
	Bengaluru-Mysuru HAM (NHAI) for INR41.53bn' - 100% land already acquired		Own aggregate mines and sand burrows across the region	
Andhra Pradesh	Development of Amravati Capital region and cities like Vijayawada provide long term opportunities in excess of INR1.0tn over a decade		Strong balance sheet; Prudent bidding in tenders across cycles	Funding for Amravati is not tied up completely
Telangana	Telangana State to spend INR210bn (INR134 tn sanctioned). MORTH sanctioned further INR80bn of projects			Funding issue is there in Telangana but payments are regular so far

Source: MoRTH, various state agencies (MSRDC, UPEIDA, etc), Nomura estimates

Lessons from Japan for the Indian road infrastructure space

Transportation infrastructure development in Japan

Japan has gone through phases of development starting from the nineteenth century itself. In the pre-war period from 1880 to 1940, high economic growth momentum led to requirement for increased amount of infrastructure services. In the pre-war years, focus of transportation shifted from shipping to railways and, after the war, from railways to roads. (Yoshida, 2000)

After the end of World War II, investment in infrastructure slowed down due to economic hardships. However, from 1955 to 1985, Japan witnessed the highest level of investment allocation to the transport infrastructure space compared to other infrastructure spaces. The spend in infrastructure rose to 5-6% of GDP in this period, of which 3-4% of GDP was in transport infrastructure. This compares to 1-2.5% in the pre-war era.

However, post 1980, capex in infrastructure slowed down as overall economy started slowing as well.

Establishment of Japan Highways and earmarked funding was a key enabler

Japan Highways (JH) was formed in 1956 to construct national highways and collect tolls. At the time of inception Japan had only 23% of its national highways as paved and, since then, substantial progress has been made in construction of national highways and expressways. JH was supported in the form of tax exemptions, power of compulsory land acquisition and financial help in the form of sovereign bonds and guarantees.

Earmarked funds for road improvement were introduced in the mid-1950s, which acted as a major fund-raising channel for road construction. Funding was done largely through debt with the intent that expressways will be made toll-free once the debts are fully paid off. Tolls collected at all routes are pooled into a single fund that is used to repay the entire network. Among key landmark events was the privatisation of expressways in October 2005 and an ambitious debt repayment programme to recover JPY40tn in under 40 years.

Lessons for India from Japan

Japan offers good lessons and parallels for Indian infrastructure development. Some of the key highlights in our opinion are:

- Indian road infrastructure also faced a slowdown in FY12-14 as a result of poor economic growth. This is almost similar to the slowdown witnessed in Japan in the post-war period until 1955.
- Just as in the case of Japan from 1956, India has embarked on a massive infrastructure capex programme since FY15. There, as well, the growth was initially driven by public capex through an implementing agency such as JH. Even in Japan, the projects were debt financed which were recovered over the years.
- The BOT (toll) model in India under PPP faltered often, due to non-materialisation of traffic. In this regard, Japan introduced pooling of tolls that enabled development of tollways across regions. We believe the EPC and HAM models remove traffic risk and upside as well, but since toll collection is centralised under MoRTH/NHAI, resources can be deployed optimally to develop roads in relatively under-developed areas.
- Japan undertook divestment of highways and expressways in 2005. The recent proposals by the NHAI to monetise operating road assets under the toll-operate-transfer model appear remarkably similar.
- Japan maintained a high level of transport infrastructure capex for nearly three decades, supported by strong economic growth. Similarly, the Indian road network (despite its vastness), lacks quality and, hence, demand for infrastructure investment will sustain as long as strong economic growth momentum is maintained. With India emerging as the fastest growing major economy and economic outlook appearing robust, significant infrastructure spend can be sustained for at least a decade or more, in our view.

India's road sector

Poor quality of road infrastructure and growing vehicle ownership should drive sustained demand for more highways

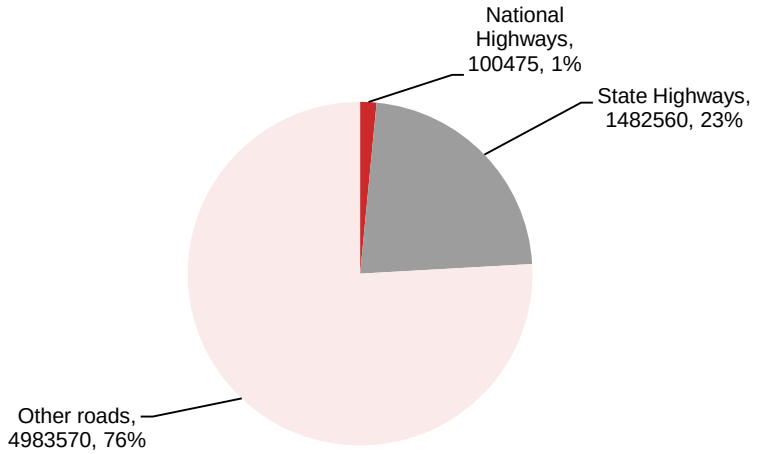
Poor roads lead to disproportionately high traffic on highways

India has one of the most extensive road networks in the world, at 5.23mn km according to figures published by the Ministry of Road Transport and Highways (MoRTH), which is the second-largest road network in the world. However, of the entire road network, national and state highways comprise less than 5% of its length, but account for 80% of the traffic (Fig. 7).

The roads network overall is of quite poor standard, with ~61% of the roads paved as of FY15, although this is an improvement on the levels of ~48-49% in FY07.

Fig. 7: Road network in India (Dec-15)- Total road length (approximately 5.23mn km)

Other roads- include rural roads and district roads



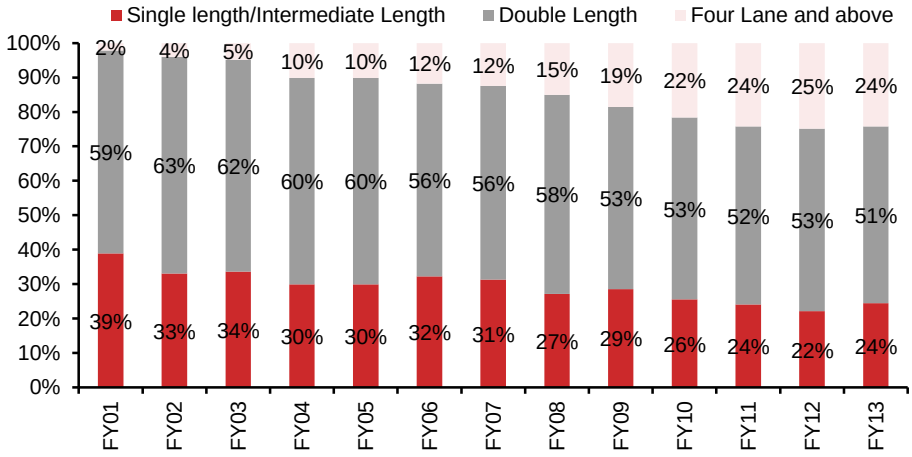
Source: Annual Report 2015-16 of MoRTH

Even most national and state highways are at or below double lanes, highlighting scope for major road expansion activities

Of the ~100,475km of national highways (in FY16), more than 50% are either single- or double-lane. Further, more than 90% of the state highways are at or below double-lane standards. This demands significant improvement in India's highways networks, especially in the form of expansion (multi-laning) of existing roads, in our view.

Fig. 8: Lane-wise breakdown of national highways as of end-FY13

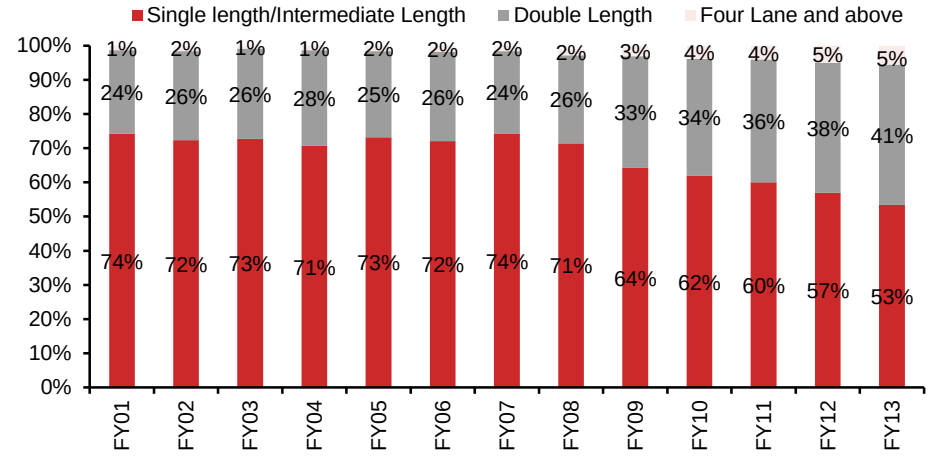
Total length of 79,116 km



Source: MOSPI Statistics Book 2016

Fig. 9: Lane-wise breakdown of national highways as of end-FY13

Total length of 162,950 km



Source: MOSPI Statistics Book 2016

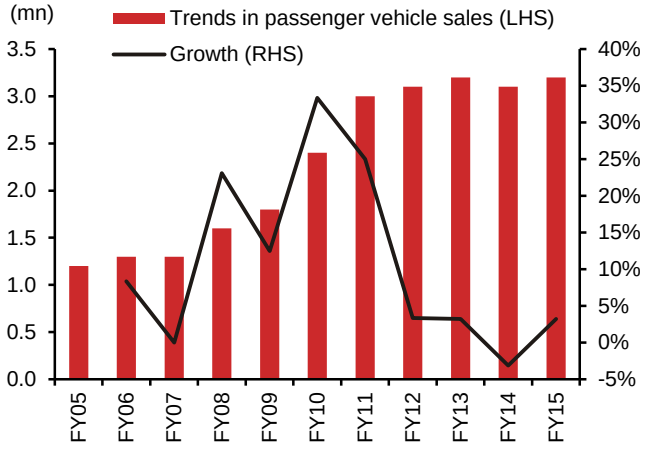
Growth in vehicle sales has further added to the increased traffic

The number of passenger vehicles saw CAGR of 10.3% over FY05-15, while commercial vehicles had CAGR of 4.2% over FY10-15, according to data from SIAM. Rising per-capita income and growing middle class income coupled with easier access to finance have boosted vehicle sales.

In addition, with increased economic activity we expect more car penetration and urbanisation, which should lead to further congestion. Consequently, demand for quality roads should continue to rise.

Fig. 10: Passenger vehicle sales growth

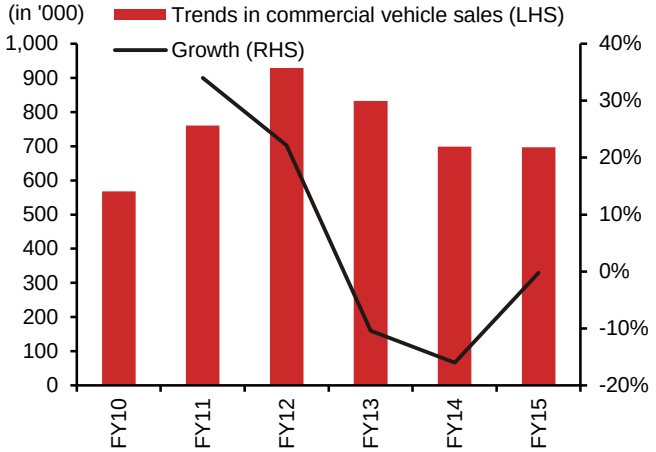
CAGR of 10%+ over FY05-15



Source: SIAM

Fig. 11: Commercial vehicle sales growth

CAGR of 4%+ over Fy10-15



Source: SIAM

The Planning Commission, in its 2014 report "India Transport Report: Moving India to 2032", projected growth in road freight at 9% pa and passenger traffic at 17% pa over FY12 to FY32 (Fig. 12). This increase in road traffic should necessitate further investments in road infrastructure over the long run.

Fig. 12: Projected growth in road traffic to FY32

	Road Freight traffic (bnNTkm)	Passenger traffic (bnNTkm)
FY12	1,385	9,329
FY17	1,987	17,272
FY22	2,949	35,043
FY27	4,321	74,079
FY32	6,559	163,109

Source: National Transport Development Policy Committee, India Transport Report: Moving India to 2032

Underinvestment in alternative means like the railways leads to disproportionate congestion on the roads

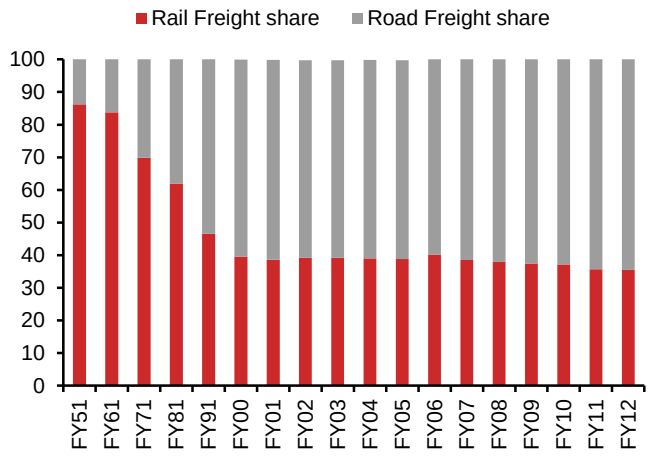
In India, railways and roads are the dominant means of transport, carrying more than 95% of the total generated traffic in the country (source: National Transport Development Policy Committee). Since India's independence, railways have been the major means of transportation, but this has now reversed due to the prolonged period of under-investment in railway infrastructure. Since India's independence, the railway's track length has only grown at an average rate of ~0.6% pa. Between 2002-15, the increase in railway track length was at an average of 0.8% as compared with ~3.0% increase in the length of national highways.

In contrast, the level of growth for roadways has been far higher. Since the 9th Five Year Plan, the length of national highways added has increased significantly. While just 179km were added during the 3rd Five Year Plan, over 36,000km are expected to be added by the end of the 12th Five Year Plan.

Consequently, the share of road traffic has increased at the expense of railways

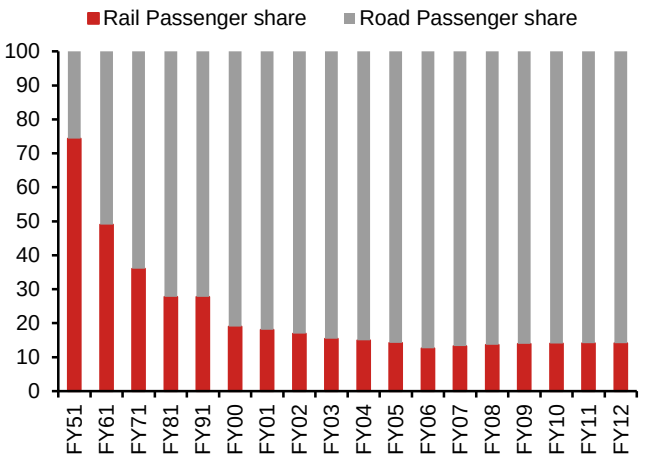
The slow expansion of the railway network has led to a gradual shift in passenger as well as freight traffic towards roads, as congestion on key railway links has increased. This was aided by the expansion of the road network which enabled quicker transportation, enough to justify the higher cost of road transport. As of FY12, nearly 64% and 86% of freight and passenger traffic were carried by roads, respectively (Fig. 13 and Fig. 14), according to statistics available from the Ministry of Statistics and Programme Implementation (MOSPI). We believe these ratios have not changed materially since FY12 as the investment in railways has continued to remain low.

Fig. 13: Split of freight traffic carried on roads vs rail (%)



Source: MOSPI

Fig. 14: Split of passenger traffic carried on roads vs rail (%)



Source: MOSPI

However, progress on key projects like the Dedicated Freight Corridor (DFC) highlights railways' attempt to regain market share

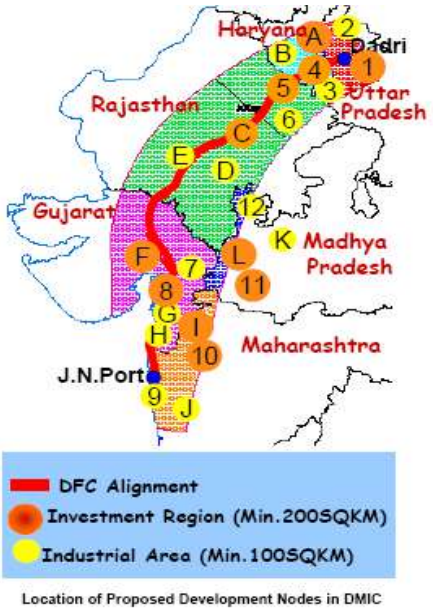
The Delhi-Mumbai and Delhi-Kolkata routes are among India's busiest railway networks, handling a bulk of the country's freight and passenger traffic. As preference is given to passenger trains in terms of network access, freight trains are often delayed resulting in loss of business. To address the issue, the Dedicated Freight Corridor (DFC) project was proposed in 2005, but with not much visible progress. However, of late, there has been significant progress on both the Western and Eastern DFC in terms of project awards as well as execution. Based on the latest available award and commissioning timeline, the Ministry of Railways expects the DFC to be ready by December 2019.

Nevertheless, DFC may still stimulate road traffic

While railways and roadways are generally perceived as competing modes of transport, the DFC may, on the contrary, stimulate further road traffic through the development of industrial corridors along the route. The Delhi Mumbai Industrial Corridor (DMIC) is the prime example where investments of USD100bn are expected to be used to develop six large industrial corridors and smaller industrial areas along the Western DFC (Fig. 15). Once DMIC is commissioned, the government expects the industrial output to triple in five years coupled with a 400% rise in exports from the region over the same timeline. This should lead to further growth in road traffic in the states through which the DMIC traverses.

Thus lack of adequate road infrastructure, inability of railways to achieve rapid network expansion and increased car penetration will support sustained demand for road infrastructure for decades to come.

Fig. 15: DMIC traverses states adjoining the Western DFC



Source: DMIC

GoI plans for significant road capex, with focus on highways

Central government has spent INR2.0tn on national highway development since inception of the NHDP programme

The Central government had implemented the National Highway Development Programme (NHDP) in phases and is one the largest plans globally. So far the NHDP had led to 75% growth in length of national highways since FY01. This growth was achieved through higher investments in roads which have evolved from being publicly funded to those based on the PPP model at present. Until FY15, INR2.0tn was invested as expenditure on development (Fig. 16).

Fig. 16: Central government expenditure on the national highway programme

	Length of National Highways (kms)	Development (INRbn)	Maintenance (INRbn)
FY01	57,737.0	12.1	0.6
FY02	58,112.0	16.1	0.7
FY03	58,112.0	51.4	6.3
FY04	65,569.0	51.9	7.3
FY05	65,569.0	49.6	6.8
FY06	66,590.0	87.5	8.4
FY07	66,590.0	139.4	7.8
FY08	66,754.0	123.4	9.8
FY09	70,548.0	146.7	9.7
FY10	70,934.0	146.6	10.5
FY11	70,934.0	168.7	14.9
FY12	76,818.0	252.9	10.8
FY13	79,116.0	163.2	14.6
FY14	92,468.2	280.9	18.0
FY15	97,958.1	268.4	24.9

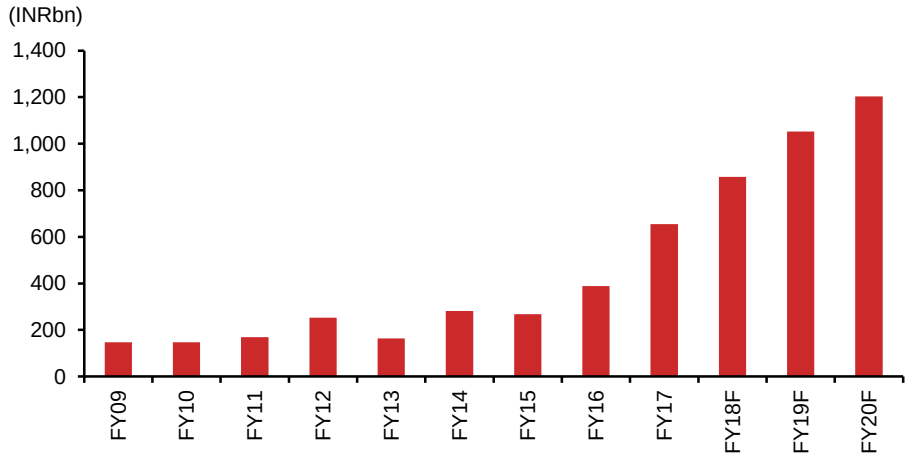
Source: MOSPI

Investments in national highways are set to more than double

Against an investment of INR1.3tn over FY15-17, we estimate INR3.2tn of investments in the development of national highways over FY18-20F (Fig. 17). This will largely be funded by the government of India (GoI), which will account for over 50% of the investments as compared with 44% in the past five years.

Even the pace of road construction of 10,000km annually will be able to add 40mn man days of employment and thus should be a priority area for the Centre ahead of elections in an environment of anaemic job growth. If the GoI is actually able to achieve 55,000km of road construction in two years as targeted the employment and investment growth opportunity is significantly higher (almost 3x).

Fig. 17: Investments in national highways to jump to INR3.2tn (FY18-20F) against INR1.3tn (FY15-17)



Source: Ministry of Statistics and Programme Implementation (MOSPI), Nomura estimates

GoI plans to spend INR7.0tn on expanding highways over next five years; INR5.0tn of spend targeted in the next 2-3 years

55,000km of National Highways planned for award in next two years

GoI plans to spend INR7.0tn on expanding highways and expressways across the country over the next five years and envisages addition of at least 40,000km of highways till FY22 (including 24,800km in the Bharatmala programme).

MoRTH has set a steep target of construction of 15,000km of roadways in FY18 and is aiming for awards of 25,000km in FY18 and 30,000km in FY19 (total of 55,000km in the next two years).

Funding through fuel cess, toll, asset monetisation and bond issuance

Further, of the total planned spend, MoRTH plans to spend INR5.0tn in the next 2-3 years. The funding will be largely by the Centre (85%) with rest as private investments. The Centre intends to raise funds for highway construction from cess on fuel, toll income from operating projects, monetisation of 101 road projects which can fetch INR1.45tn (NHAI estimates) as well as through raising bonds both in domestic and global markets.

Recently, South Korea has agreed to provide USD10bn in assistance for infrastructure development in India, including for Smart Cities. Of this, USD9bn will be in the form of concessional credit and USD1bn will be Official Development Assistance (ODA). This will be helpful in addressing funding concerns for the significant project pipeline.

Already financing plans for Bharatmala projects have been approved for the next five years. Bharatmala Phase I will involve 20,000km of national highways at a cost of INR3.85tn.

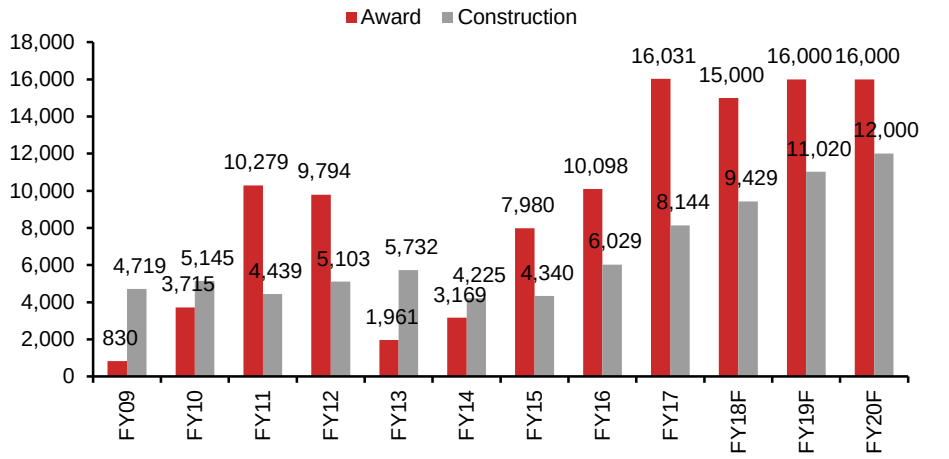
Award and construction has gathered momentum in past two years

The awarding and construction momentum has gathered steam with FY17 being a record year in terms of award and construction. This is despite a significant portion of the construction industry remaining under high levels of debt. The emergence of new firms as well as pro-active measures and reforms undertaken by the GoI leads us to believe that a recurrence of slowdown seen during FY12 to FY14 is unlikely (Fig. 18).

Recent reforms by the Central Government also reduce the risks of projects getting stalled or stuck as was happening earlier. To this end, the GoI has decided to award road construction projects only when 80% or more of the land has been acquired and regulatory and environmental clearances are in place. Further, relaxation of exit clauses for road asset owners and the decision to release 75% of amounts awarded through arbitration against provision of adequate bank guarantees are some of the steps that will likely lead to ease doing business for the sector.

Fig. 18: Awards and construction of national highways have increased significantly

Km



Source: MoRTH

We estimate 10,000-12,000km of annual construction; annual awards of >15,000km should be adequate to support sector orderbook

We view the government's target of awarding of 55,000km of roads in the next two-three years as highly optimistic. This is considering the fact that land acquisition and clearances for projects are still quite time consuming and slow processes despite significant improvements after reforms. Even maintenance of contract award levels of 15,000km would be adequate to support growth of order books for the industry in general.

While a FY18 construction target of 15,000km looks aggressive, we expect the construction pace to increase at ~10,000-12,000km in the near term. This is driven by the fact that several stalled projects have been revived and work is in progress on ~33,000km of road projects awarded over the past couple of years, as well as projects that have been revived. With an average execution cycle of 30 months, we estimate that annual progress of 10,000-12,000km is achievable in the near term (for the next 2-3 years).

New initiatives/reforms provide confidence that the age of policy paralysis is behind us

Aggressive awarding and the availability of financing led to increased private participation

In the NHDP's initial years, private participation in road projects was limited as most projects were funded by government finances. Until March 2005, less than 1,500km of road length was awarded on a BOT basis compared with a total award of ~7,000km of road length. Weak government financing and the NHDP's slow progress made private participation vital for the program to achieve its objective. Between 2005-08, the award of road projects picked up momentum with higher private participation. NHAI awarded close to ~7,600km of road projects during that period, of which >50% of projects were awarded on a toll basis (PPP model). To an extent, this was possible as there was easy availability of equity capital during the period. In 2009, during the global financial crisis, the road awards by NHAI hit a temporary road block as private developers found it difficult to arrange for funding due to the tight liquidity environment, and even the funding cost rose, impacting on road developers' internal rate of return (IRR).

In 2009, India received a new stable government. The new government set aggressive targets of building ~20km/day (or ~7,300 km/year) of national highways compared to average road awards of ~1,900km/year in the past five years (2004-09). The GoI also brought out reforms addressing issues related to the request for qualification, tolling, clauses in concession agreement, etc, that were being faced by private developers.

Helped by: 1) reforms; 2) good IRRs made by private developers on projects awarded during 2005-07; 3) easy availability of equity capital; along with 4) awards of road projects with high traffic density, participation from private developers intensified. During FY10-12, NHAI made a giant leap in awarding ~15,000km of road projects with the majority being awarded on a toll basis. During this phase of the awards, there was irrational exuberance among private developers and some of the stretches were bid out with a high negative grant or higher revenue share percentage for the GoI. Since all projects were being awarded on a BOT basis, EPC opportunities in the road sector almost dried up. This resulted in EPC contractors also bidding for projects on a BOT basis.

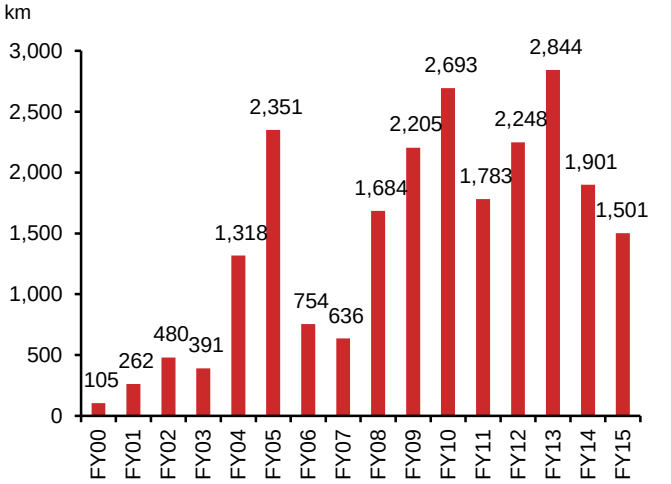
But issues related to land acquisitions, regulatory clearances and policy paralysis led to a complete standstill of the road sector

The award activity hit a road block as execution of infrastructure projects including roads was marred by issues related to land acquisition, environment & forest clearances as the government went into policy paralysis. These delays had a snowball effect on the economy's overall growth. Developers who had bid aggressively found it difficult to achieve financial closure of the projects, as their viability was questionable (hit by delays and falling traffic due to a weak economy). Lenders also tightened lending norms as the health of balance sheets of private developers/EPC contractors began to deteriorate with rising debtor levels (due to execution delays). Many lenders introduced stringent

conditions such as 100% right of way, clearance and significant contributions from promoters before the sanction/disbursement of the loan.

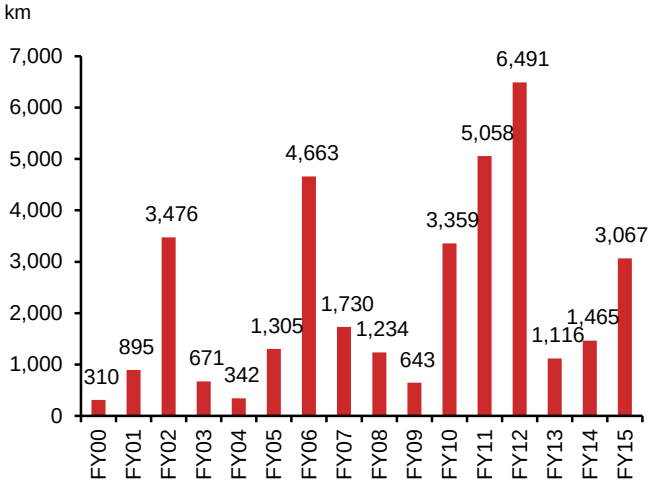
Conditions of developers/EPC contractors worsened because of sticky inflation, which kept the cost of debt high, and eventually weighed on the highly leveraged balance sheet of EPC contractors/developers. Poor balance sheets (Fig. 23), along with falling traffic growth (due to a weak economy), lowered the appetite significantly for road projects which brought awarding activity almost to a standstill. In FY14 and FY15, NHAI was only able to award projects of road length of ~1,100km and 479km respectively (Fig. 20 to Fig. 22).

Fig. 19: Number of projects awarded (km) by NHAI



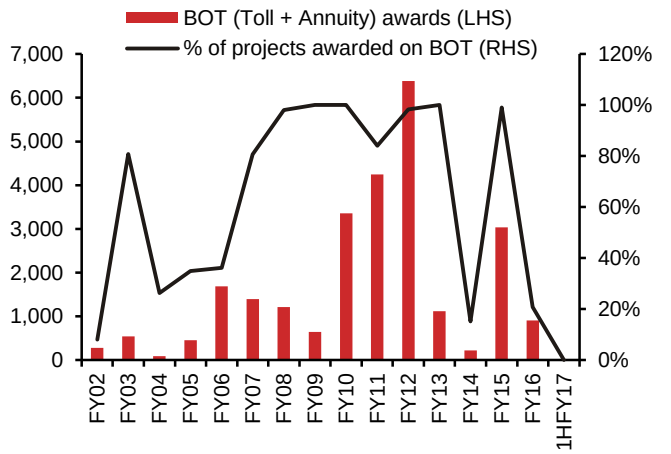
Source: NHAI

Fig. 20: Lane construction (km)



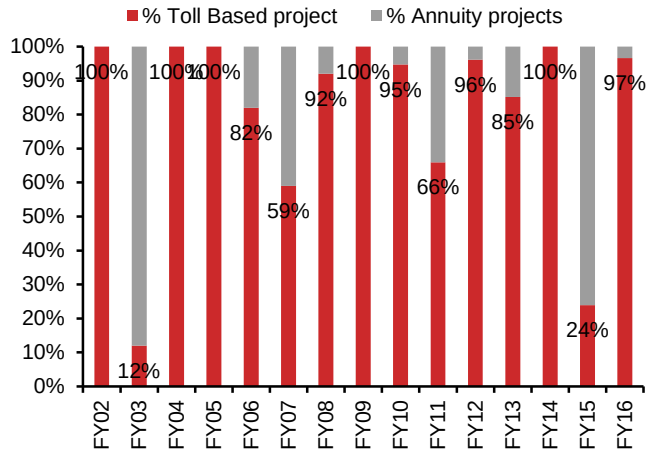
Source: NHAI

Fig. 21: Trend of award of road projects on a BOT basis



Source: NHAI

Fig. 22: Split between BOT road projects



Source: NHAI

GoI has now taken steps to put the house in order

To revive the road sector, the GoI has attempted to resolve issues pertaining to the sector. Below we highlight some positive steps taken by the GoI to revive the sector:

- **Delinking of forest and environment clearance:** In Mar-13, the Supreme Court passed an order to delink forest clearance from environment clearance for linear projects. Since mid-2011, the Ministry of Environment linked forest and environment clearances that prevented developers from starting work on projects until both were in place. In effect, work on highways could not start even if there was a small stretch on which forest clearance was required. With this order, developers could commence construction of projects without getting the forest clearance.

- **Projects to be awarded only when 80% of Right of Way had been secured:** Earlier projects were stalled due to lack of various clearances and land acquisition hurdles. In this regard, the Cabinet Committee on Economic Affairs (CCEA) ruled that projects would be awarded only when at least 80% of the Right of Way was secured.
- **Relaxation of the exit clause for developers:** The GoI announced that cash-strapped developers unable to complete projects will now be allowed to exit the projects, i.e., substitution with another developer, subject to the approvals from NHAI and the lender. Earlier, there were different rules regarding the exit of road developers from their projects, depending on the year in which they were awarded the projects. For the projects awarded after 2009, developers are allowed to fully exit projects after two years of operation, and for projects awarded prior to 2009, developers could sell a 74% stake after the commissioning of the project. This led to INR120bn of projects being sold over FY15-17 against just INR70bn over the preceding 50 months. Some major deals in roads space are highlighted in Fig. 24.
- **Classifying debts for BOT projects as secured loans**: The Reserve Bank of India is allowed, subject to certain conditions, to offer loans to PPP road projects to be treated as secured loans. This means debt will come at a lower cost for developers.
- **Restructuring of projects by rescheduling the premium**: Aggressive bids from private companies became messy, with the government's own unpreparedness in meeting its obligations, such as acquiring land on time. These delays have added to the cost and, for over a year now, the GoI has been trying to renegotiate stressed projects. Very recently, the GoI allowed premium rescheduling of stressed road projects that will be evaluated on a case-by-case basis. According to the recommendations, developers can defer premium payment only if they are left with not enough funds to pay the premium, after undertaking debt servicing and operation and maintenance costs, from toll revenues.
- **Amended Arbitration Act allows for recovery of 75% of award amounts**: The CCEA has recommended that government agencies release 75% of the award amount against margin-free bank guarantee in cases where an arbitration award has been challenged. This move is expected to benefit contractors that have payments stuck under arbitration. MoRTH has estimated that INR700bn worth of claims are tied up in arbitration at present.
- **One-time fund infusion for projects that are at least 50% complete:** Projects that were at least 50% complete as on 1 November 2014, but are stuck due to financial constraints, will receive a one-time cash infusion from NHAI. This fund infusion is applicable only to BOT projects. The assistance will be provided subject to the constraint that interest at bank rate plus 2% will be recovered from annuities payable (in the case of BOT annuity projects).
- **NHAI intends to provide risk cover to foreign investors for investing into projects NHAI will offer under the Toll-Operate-Toll (TOT) model.** The risk cover includes unforeseen risks like engineering faults associated with projects and loss of traffic. Investors will thus manage the project on a TOT basis for 25 years against upfront payments. International pension funds including CPDQ, Brookfield, Ontario Teachers and ADIA (all unlisted) have evinced interest in investing in these projects. NHAI plans to bundle various projects for investors based on regional proximity, and the entire portfolio would thus be bid out.

Efforts by the Central Government are already bearing fruit

Proportion of stalled road projects starting to decline

The GoI's efforts are slowly but gradually bearing fruit. The number of delayed infrastructure projects at present is ~25% of the 1,201 projects and valued at INR16.9tn (Jan'17) down from 43% two years ago. At present 329 projects are facing time overrun, 293 have cost overruns while 95 have both time and cost overruns. Cost overruns have also come down to 11% from 20% in FY15. As the government implemented initiatives such as the delegation of decision-making power, setting deadlines and reforming contract rules, the stalled public projects stared moving. According to the Ministry officials bulk of the projects are delayed (80%+) due to land related issues.

Relaxation of exit norms led to pick up in deal flows which leads to lowered financial stress and freeing of locked-up capital

Relaxation of exit policy norms has led to monetisation of nearly 20 road assets worth INR123.27bn in the past two years compared to just INR70bn in the preceding 50 months. Of these 20 projects 3 are state roads while the rest are national highways. 16 of these 17 projects were awarded before 2009 and are direct beneficiaries of the policy decision on relaxation of exit policy for projects awarded before 2009 (decision in May 2015). In May 2015 CCEA has agreed to relax exit policy for projects awarded before 2009, allowing 100% equity divestment against 74% allowed earlier.

The sector has seen active participation by private equities that have mopped up projects from debt-stressed developers at below equity invested (almost in a third of the cases). Key buyers of projects are Brookfield Asset Management of Canada, Canadian Pension Funds, Macquarie Australia, I Squared Capital of the US (Cube Highways), Abertis Infraestructuras of Spain, Essel Infraprojects and IDFC Alternatives.

Fig. 23: Deteriorated balance sheets of developers & contractors

(x)

Net debt to equity	FY13	FY14	FY15	FY16
Developers				
IRB Infrastructure	2.5	2.9	2.5	2.8
GMR Infrastructure	3.5	3.9	4.6	6.0
Sadbhav Engineering	3.3	3.6	3.9	3.8
Reliance Infrastructure	0.7	0.7	0.8	0.8
Ashoka Buildcon	1.7	1.8	2.2	1.7
GVK Power & Infrastructure	2.5	3.4	5.4	8.2
Average	**2.4**	**2.7**	**3.2**	**3.9**
Contractors				
Simplex Infrastructure	2.0	2.0	2.2	2.0
NCC	1.3	1.0	0.6	0.7
HCC	10.9	13.8	15.0	7.4
J Kumar Infraprojects	0.3	1.0	0.6	0.2
Punj Lloyd	2.0	2.9	7.2	NA
L&T	1.4	1.7	1.7	1.7
Average	**3.0**	**3.7**	**4.6**	**2.4**

Source: Bloomberg

Some issues still prevail, which NHAI is addressing.

- **NHAI's actual land acquired and on ground land availability sometimes varies**: NHAI usually awards projects when at least 80% of the land and clearances has been acquired. It has been sometimes observed that NHAI may not have actual physical possession of land which could be due to many reasons, eg, delay in disbursement of compensation to project affected people by the district officials, disputed classification of land, etc. Land acquisition in Uttarakhand state is in effect stalled on alleged corruption regarding classification of land.
- **Revision of circle rates by the state government after acquisition can cause problems.** Typical examples are some new projects in Bihar, where land acquisition was by and large complete and handed over to civil contractors. This was followed by revision in circle rates by the Bihar government, which led to demands by project-affected people for revised and higher compensation based on the new (revised) circle rates. This led to delays as NHAI required permissions from the Ministry to pay the higher rates and is often a time-consuming, bureaucratic process.

Fig. 24: Some of the recent deals in India's toll roads

Date	Acquirer	Seller	Project name	States	Equity Stake (%)	Amount (INRbn)
Aug-16	Goldman Sachs	Essel Highways	NA	NA	NA	15.0
Aug-16	BIF India (Brookfield Asset Mgmt consortium)	Gammon Infraprojects	6 road and 3 power assets	Various	100%	5.65+Debt
Jan-16	I Squared Capital	Various	Madhucon Agra Jaipur Expressways	Rajasthan/UP	74%	5.0
			Western UP Tollway Ltd	Uttar Pradesh	100%	
			Jaipur Mahua Tollways Pvt. Ltd	Rajasthan	74%	
Jan-16	PSP Investments	Isolux Corsan	Maharashtra-Gujarat border to Hazira (133km)	Gujarat	100%	>151
			Panipat to Jalandhar (291km)	Haryana	100%	
			Kishangarh to Beawar (94km)	Rajasthan	100%	
			Varanasi to Aurangabad (192km)	UP/Bihar	100%	
FY15-FY16	CPPB Canada	L&T IDPL	Operational road assets	Various	5%	20.0
FY15	Tata Opportunties Fund	Tata Projects	Various infra assets	Various	NA	3.7

Source: The Hindu Business line, Economic Times, VC Circle

Public Private Partnership (PPP) models for roadways

India has awarded INR1.97tn worth of PPP projects until FY15. Another USD31bn worth of PPPs are expected to be executed for national highways over the next five years. Key models for PPP awards include:

BOT (toll)
On BOT (toll) projects, construction, operation, maintenance and tolling responsibility rest with the concessionaire during the entire concession period, which is typically, between 20 and 30 years.

For projects undertaken by NHAI which are offered on a BOT basis, bidders bid on a two-stage basis. Stage-one is the pre-qualification stage whereby NHAI assesses a bidder's technical and financial expertise and its track records on similar projects. In stage two, NHAI publicises to attract pre-qualified bidders to submit bids for such projects.

To boost the interest in PPP projects, companies can enjoy 100.0% tax exemption in road projects for five years and have 30.0% tax relief over the next five years which may be availed of within 20 years.

BOT (annuity)
On BOT (annuity) projects, while construction, operation and maintenance also rest with the concessionaire during the concession period, toll is collected by the relevant authority through a bidding process with the concessionaire receiving annuity payments through the concession period. Tax exemptions and bidding procedure are similar to BOT (toll).

EPC (Engineering Procurement and Construction)
Projects that are not viable under the BOT (toll) model, such as projects in remote regions, are also carried out by executing EPC contracts. The model EPC contract agreement assigns the responsibility for investigations, design and construction to a contractor for a lump-sum price determined through a competitive bidding process. The model EPC agreement provides a contractual framework that specifies the allocation of risks and rewards, equity of obligations between the government of India and the contractor, predictability of costs, force majeure, termination and dispute resolution.

Hybrid annuity model (HAM)

This is a variant of PPP and may be adopted for projects not viable for the BOT (toll) mode. Under the model, 40.0% of the project cost is to be provided by the government of India as "construction support" (which is disbursed in five equal instalments of 8.0% each and the timing of each such payment is linked to the percentage of the project cost spent by the private developer) to the private developer during the construction period and the balance 60.0% of the project cost will be recovered by the concessionaire as annuity payments over the concession period along with the interest on the outstanding amount to the concessionaire. There is a separate provision for operation and maintenance payments by the government of India to the concessionaire. The private developer does not bear traffic risk and inflation risk as the projects are inflation-indexed.

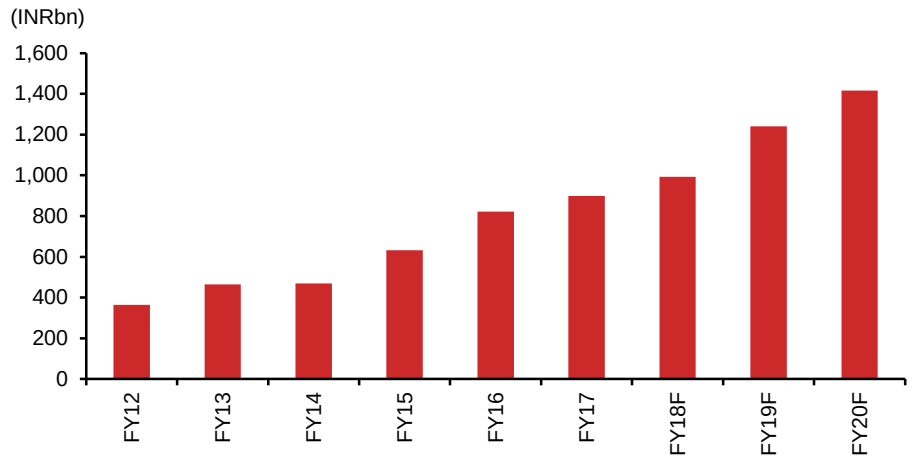
States are also following with a significant road expansion programme

State road expenditure is estimated by us to be ~1.5x over three years compared to the preceding three years

State governments have invested through the PPP model, often utilising the VGF programme. Under VGF, funding will be in the form of a capital grant which should not exceed 20% of the total project cost. This grant will be provided during the construction stage of the project. In such PPP awards, the bidding parameter is the lowest bid for capital subsidy or grant.

We expect road capex by states to be ~1.5x of FY15 to FY17 at INR3.6tn over FY18-20F (Fig. 25) in investment increase in state roads propelled by higher budgetary allocations by state governments.

Fig. 25: State roads: Investments



Source: RBI State of State Finances, Nomura estimates

We expect significant push from several state governments for the construction of state highways and expressways. In particular, we see significant momentum in Uttar Pradesh where we expect significant movement ahead of elections in 2019 for the Central Government, in Madhya Pradesh, Maharashtra and Southern States. In the South Karnataka, Telangana and Andhra Pradesh are the states that have ambitious infrastructure plans. The bifurcation of the erstwhile Andhra Pradesh into Telangana and Andhra Pradesh (remaining parts of the State) will add momentum to infrastructure as Andhra Pradesh develops its new capital region at Amravati and in Telangana as well where infrastructure is relatively under-developed.

Overall the central and state capex opportunity is ~INR6.8tn over three years

Combining Central and State opportunities of INR3.2tn and INR3.6tn respectively the gross opportunity across the sector are INR6.8tn over FY18-20F. Of these ~INR4.0tn is accounted for by key states like UP, MP, Maharashtra, Karnataka, AP and Telangana.

We analyse the prospects across some of the key states.

Uttar Pradesh plans for Purvanchal Expressway (INR260bn opportunity)
Uttar Pradesh (UP) is the largest state in India in terms of population, and is often seen as gateway to power at the Centre. The State governments have in general been quite active in promoting significant flagship projects (Lucknow Agra Expressway, Lucknow Metro in the previous regime and the Delhi-Agra-Yamuna Expressway by the earlier regime). The newly elected regime has also chosen to focus on road projects with particular emphasis on development of the relatively neglected Eastern regions of the State.

The State Government is targeting to award **Purvanchal Expressway** project in September 2017 and land acquisition is in full swing (40% land acquired so far). The project will be at a cost of INR260bn (including land cost of INR35bn) of which LIC has agreed to fund INR50-60bn. This will be a six-lane project to be awarded by UPEIDA and can be expanded to 8 lanes. Funding is also expected from HUDCO and the Central Government. The project has been extended further to include Gorakhpur and Ayodhya (Faizabad) as well. The state will likely seek INR35bn in loans from state financial institutions, according to state government officials

The Purvanchal Expressway was awarded by the previous regime ahead of State elections; however, those tenders have now been cancelled. The firms that were awarded contracts in the previous round were NCC, Ashoka Buildcon, PNC, Gayatri Projects, Afcons and L&T. The state government will re-tender the project once 90% of the land acquisition has been completed.

Funding concerns after farm loan waivers may be exaggerated
The State has already tied up INR50-60bn in funding from LIC and could also be supported by Central Government grants. Further, according to State officials the State will be able to mobilise INR100bn of Central funds previously committed to the state but lying unutilised in the Central Road Fund (CRF). Based on statements made by the Deputy Chief Minister on 09 July 2017 the state has already received this money and will be utilised completely by October 2018.Thus, though some funding concerns may be there after significant farm loan waivers, we believe that unutilised central funds as well as funds tied up otherwise will be able to support the project financially.

Centre has ambitious plans for the state as well worth INR1.5tn
MoRTH, as recently as June 2017, has approved INR1.5tn of projects for UP, and a DPR (Detailed Project Report) for these will be prepared shortly, according to government officials. The pipeline will include conversion of over 100 state Highways into national highways and 15 greenfield projects. Further ring roads are planned for all major cities of UP, namely Kanpur, Gorakhpur, Bareilly, Moradabad and Meerut. In fact the CCEA (Cabinet Committee on Economic Affairs) has cleared INR37bn worth of project for six laning of Chakeri-Allahabad section of NH-2 in June 2017 itself (145 km) under the HAM model and is planning for an inner ring road in Allahabad for INR37bn.

Budelkhand Expressway is also planned, which will connect Jhansi and Delhi and its link to the Agra-Lucknow Expressway. UPEIDA was originally supposed to award the INR100bn six-lane project but due to paucity of funds this project will now be offered through NHAI. Other key projects in the pipeline offered through NHAI could be the **Delhi Yamnotri Expressway** for INR50bn

With significant opportunities present in the state both from UPEIDA projects and NHAI, we expect PNC Infratech and Dilip Buildcon to be prime beneficiaries in the region.

Madhya Pradesh (MP) is planning two major expressways covering over 1,500km
The State is planning for two mega access controlled expressways – **Chambal Expressway** and **Narmada Expressway** under the EPC model. Narmada Expressway will begin from Amarkantak and connect the state with Chhattisgarh and Gujarat and Chambal Expressway will connect the state with Rajasthan and Uttar Pradesh.

Of these roads, Chambal Expressway will be a 300km 6-laned concrete road, and will require 2,500 ha of land acquisition. Land acquisition is unlikely to be a major hurdle, as 50% of the land is already owned by the State government. Details on the cost of the

project are not available so far. Narmada Expressway will be an 8-laned concrete road and will cover 1,265km.

Centre has planned 2,021km of roadways at INR2.0tn for the state

MoRTH has already promised INR2.0tn to MP over the next two years to develop 2,021km of roadways (seven different roads). While the extent of awards may seem very optimistic, we note that translation of even a proportion of these prospects can be a huge opportunity for companies such as Dilip Buildcon, L&T and PNC Infratech.

Maharashtra has probably the most ambitious infrastructure plans in India

Mumbai- Nagpur Expressway offers INR276.5bn of opportunities

The most prominent among the opportunities emanate from the significant **Mumbai Nagpur Expressway** which is estimated by the MSRDC (Maharashtra State Roads Development Corporation) to cost INR460bn and will provide INR276.5bn in contracts split into 16 packages. While the project does face some issues related to land acquisition, especially around Mumbai, the government has been able to acquire 30% of the land required so far. The funding is also largely tied up with SBI Capital funding INR139bn and ADB expected to fund INR137.5bn (in advanced stages of discussion). The project had called for bids and 27 bids were received for the project however due to restrictive clauses such as: a) a consortium partner or individual player must have constructed access-controlled expressways worth INR5.0-13.0bn over the last five years; and b) the company should not be under CDR/SDR (Corporate Debt Restructuring/Strategic Debt Restructuring) and only three parties were qualified, as listed below, and some major companies were only “provisionally qualified” (Fig. 26).

We expect the qualification criteria to be relaxed through fresh RFQs to promote competition and, additionally, associations of contractors – namely National Highway Builders Federation (NHBF) and the Construction Federation of India (CFI) – have already taken up the matter with the PMO (Prime Minister’s Office).

Fig. 26: Mumbai Nagpur Expressway: Qualified consortiums (June 2017)

Restrictive qualification criteria led to rejection of vast majority of the 27 bidders

Qualified	Provisionally qualified
PNC	L&T
AFCONS	Tata Projects
NCC + Megha JV	IL&FS
	Reliance Infrastructure
	Navayuga Engineering
	China Construction Fifth Engineering Division Corporation
	China Guangdong Provincial Changda Highway Engineering Co. Ltd

Source: Media reports, Nomura research

State is planning for 10,000km of roads under MRIP programme and MTHL project is another INR170bn opportunity

The state at present is evaluating technical bids worth INR77.8bn and tendering is underway for INR52.4bn worth of projects. In all, 267km of roads are planned which are split into 25 packages. 13 more packages for 701km will be tendered. MSRDC also plans to spend INR130bn through MoRTH to upgrade highways in Maharashtra over the next two years (two lanes to four lanes). These works will be split into 38 packages of which the prominent are Jalna-Parbhani, Aurangabad-Shirdi, Wakan-Pali-Khopoli, Satara-Pandharpur, Pune-Mulshi-Mangaon-Dighi Port, Satara-Akluj-Latur, Miraj-Manmad, Khamgaon-Barshi-Sangola.

Further, 10,000km of state roads are planned under the Maharashtra Road Improvement Programme (MRIP) covering various districts and spread over 25 packages. These projects, if found financially viable by the State, will be bid under the HAM model. There are restrictions of a maximum of six packages by a bidder and hence there should be adequate room for all companies involved. The terms propose 10% mobilisation advance which will attract 10% pa interest compounded which will be recovered in five stages, the performance security has been lowered to 5% (unlike 10% for other projects). There is a

proposal to break up the packages into 87 contracts with project sizes ranging from INR1.5-8.0bn but average size will be around INR4.0-5.0bn

There are other major initiatives as well like the proposed coastal road and **the Mumbai Trans Harbour Link (MTHL)** as well for which tenders will be invited. MMRDA has invited 29 contractors to bud for the MTHL project which will be offered under three packages. The total cost is estimated by MMRDA at INR170bn, and will be likely funded by soft loans from JICA. MMRDA has shortlisted seven contractors each for two packages and 15 for the third one.

State government is arranging financing from multi-lateral agencies and through mortgaging of excess lands owned by government departments

Maharashtra is taking innovative steps for financing of infrastructure projects. The state government has asked various departments to identify lands owned by them which could be mortgaged with banks and financial institutions to lower interest rates. Top government officials estimate that properties worth INR500-700bn can be provided as security. An SPV called Mahainfra is planned to be set up which will aggregate these lands and expects to raise INR1.0tn which the state expects to spend on infrastructure projects over the next five years.

However, we may see slower ordering in FY18 as the state government has slashed capital expenditure by 20% to INR280bn due to fund outflows from farm loan waivers and compensation to be paid to municipal bodies for their tax revenue losses after GST.

Companies with strong balance sheets and experience in expressway construction, such as PNC Infratech, will be the prime beneficiaries. However, for the remaining opportunities in national and state highways, we see Dilip Buildcon, KNR Construction and L&T as well placed to capitalise on the same.

Karnataka plans to offer HAM projects with higher grants for 1,200km

New HAM model with grant provision of 75% for KSHIP projects

Karnataka will initially offer INR26bn for 419km of projects split in three packages under HAM model. However unlike NHAI the grant will be higher at 75% (calculated on lower of bid project cost or the state-estimated project cost) against 40% for NHAI. The grant will be paid in five instalments at progress milestones of 20%, 40%, 60%, 75% and 90%. The project also has provision for early completion bonus at 0.5% of bid project cost for each month of early completion. Bid project cost less the grant (with interest rate of Bank Rate +300bps) shall be repaid in 14 semi-annual instalments commencing from 180 days after COD thus all the payments will be completed by 7.5 years from COD unlike 15 years for NHAI projects

Fig. 27: Karnataka projects offered under HAM model by the State Government

Bid submissions on 28 June 2017

Project names	Cost (INRmn)	Length (kms)
KSHIP3-ADB II-CW-ITB-Package 1 Chintamani to AP Border (SH-82)	8,950.0	114.4
KSHIP3-ADB II-CW-ITB-Package 2 Magadi to Near Somwarpeth (SH-85)	9,980.0	166.0
KSHIP3-ADB II-CW-ITB-Package 3 Gadag to Honnalli (SH-57 and SH-26)	8,050.0	138.2

Source: KSHIP

NHAI will come up with Bangalore-Mysore Expressway under HAM model

Also NHAI has decided to re-tender the six-lane Bengaluru-Mysuru Expressway as a HAM project after efforts to tender it as a BOT project proved unsuccessful. The contract will be awarded in two packages, namely 56.2km (Bengaluru-Nidagatta) and 61.1km (Nidagatta-Mysuru), with a total NHAI estimated cost of INR41.53bn. The land acquisition of the project has already been completed. Once construction starts, it is estimated to take two years for completion.

In our view, KNR Construction and PNC Infratech will be the beneficiaries in this space as a majority of the projects will be offered under HAM, a space that construction giants such as L&T are avoiding for now. These two companies are already mobilised in the

state as well and this is applicable more so for KNR Construction since this is within its core territory.

Other large opportunities

Besides these states, there are other significant opportunities, such as plans to build a new "super expressway" between Delhi and Jaipur which would reduce the distance by ~40km. The road will be six-laned and access-controlled. The cost of the expressway is estimated by NHAI at INR65.3bn and would necessitate the acquisition of 1,756ha of land (mostly private land with Government land at 361ha).

There is also a plan to develop a Brahmaputra Expressway in Assam by NHAI for an estimated investment of INR400bn (NHAI). DPR preparation is under progress and, once awarded, the project (1,300km) is expected to be completed in three years. The project aims to use sand to be obtained by the dredging of the Brahmaputra River. MoRTH plans to invest INR1.5tn in the Northeast for roads, as part of its overall national target of INR5.0tn for the next 2-3 years. Towards this end, a new company is being formed for construction of roads in the north-east.

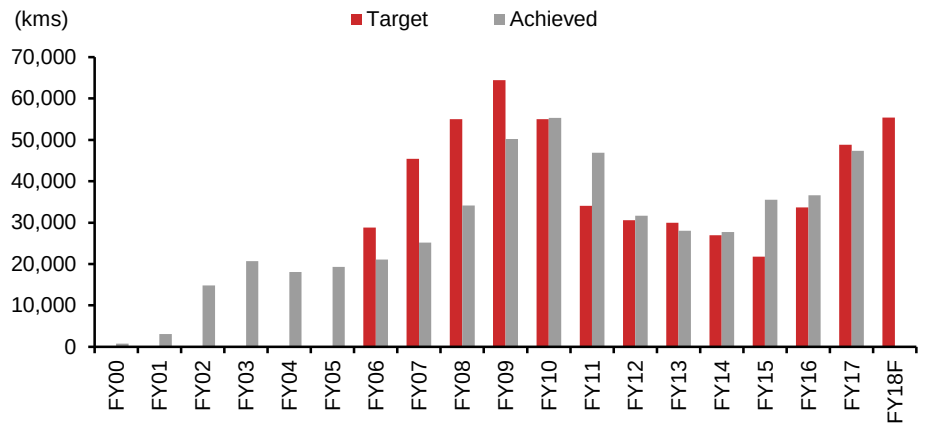
Other significant opportunities are from infrastructure projects in Andhra Pradesh, due to the development of Amravati as the new capital region. However, the industry is in general cautious as funding is yet to be completely secured. The Telangana state government is also pushing for significant expansion programmes with spending envisaged at INR210bn, of which INR133.6bn worth of projects has already been sanctioned so far. The Central Government has also sanctioned INR80bn of projects for the state recently. However, the industry is cautious regarding the state's ability to fund all projects, though such concerns have been allayed so far with timely disbursements of payments for ongoing projects.

Significant pick-up has been witnessed in construction of village roads as well

The construction of paved rural roads which serve to connect villages to main highways and commercial centres had witnessed a slowdown over FY12-14, as in the case of highway projects. However, even in this segment, we have witnessed revival of awards and construction to multi-year highs. In fact, in 1QFY18, 10,566km of PMGSY (Pradhan Mantri Gram Sadak Yojana) roads have already been completed out of the target for 57,000km (Fig. 28).

While this is not a segment addressed by companies in our listed space, construction of such roads is of importance to smaller EPC-focused companies. This will lead to development of sub-contractor capabilities and reduce aggressiveness in bidding for smaller projects (less than INR2.5bn) offered by NHAI or state PWDs.

Fig. 28: Pace of rural road construction has increased



Source: PMGSY, Nomura research

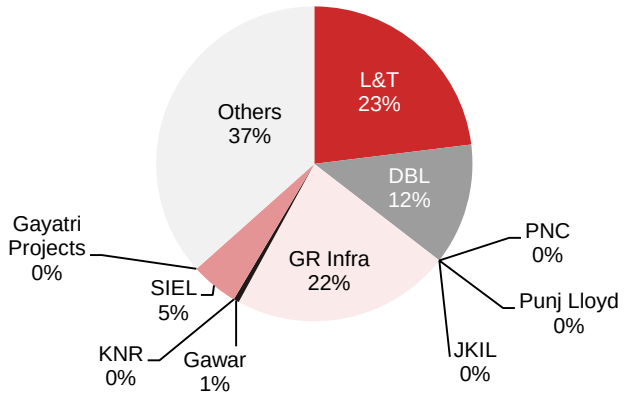
Recent project awards trends for NHAI

EPC contracts have seen market share gains by relatively newer companies

With BOT (toll) projects falling out of favour with the industry, the focus of companies has shifted to EPC (Engineering, Procurement and Construction) contracts. With elevated debt levels within the sector, companies no longer have the appetite or the ability to finance equity investments for BOT. Even companies with strong balance sheets do not have the appetite for BOT projects, due to a string of costly failures in the past. With increased preference for EPC projects, newer companies such as Dilip Buildcon, PNC Infratech, Gawar and GR Infraprojects, among others, have started gaining market share compared to more established companies such as L&T and Punj Lloyd, which used to dominate the road space (Fig. 29 and Fig. 30).

Fig. 29: Share of EPC orders in FY15 by company

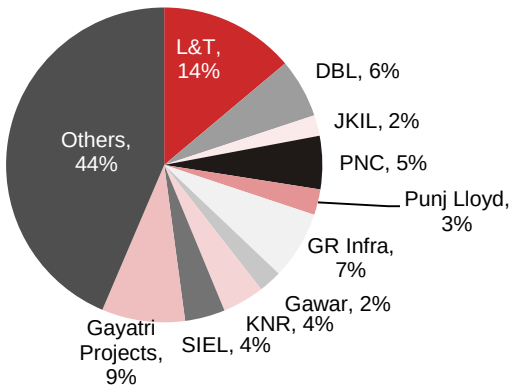
L&T had strong market share in FY15 and earlier



Source: NHAI, company data

Fig. 30: Share of EPC orders over FY15-17

L&T's share is declining while newer companies continue to gain



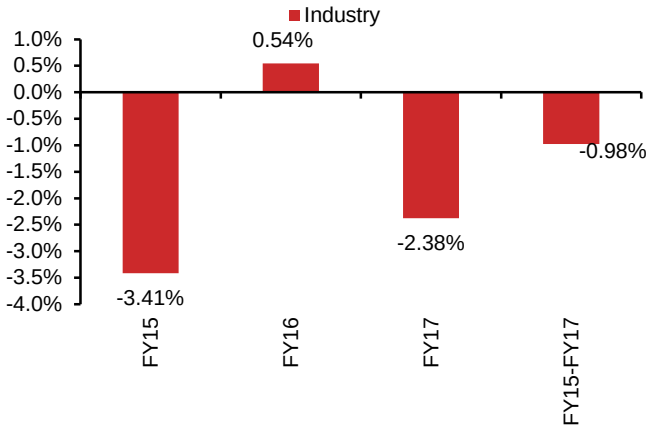
Source: NHAI, company data

Competition has increased but increased opportunities in EPC has prevented increase in bidding aggressiveness

The advent of newer companies has made the market more fragmented and, as a result, competition was expected to increase. However, we believe that due to significant improvement in the opportunities available to the bidders, bidding aggression has actually moderated. This is evident from the fact that, while in FY15 the projects bids were ~3.4% lower than NHAI's estimated cost, the same has improved to ~1% over FY15-17 (Fig. 31). (FY17 has been an aberration due to aggressive bids by Dilip Buildcon in some projects.) Adjusting for Dilip Buildcon's low bids in FY17, EPC contracts are barely at a discount to NHAI cost estimates at present compared with ~3.6% discount in FY15 (Fig. 32).

Fig. 31: Average discount to NHAI cost estimate in EPC

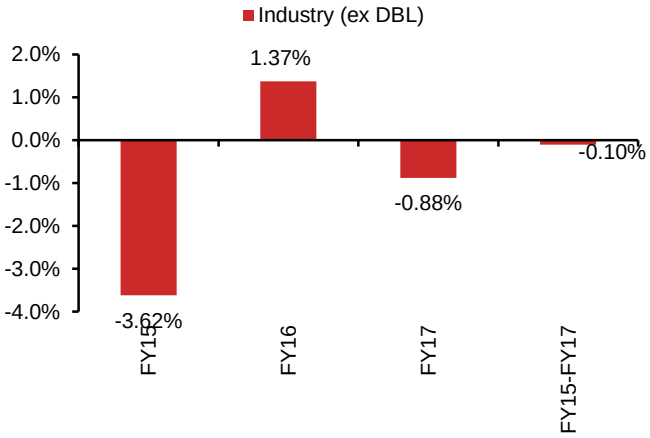
Discounts are narrowing, suggesting lower aggressiveness



Source: NHAI, company data

Fig. 32: Average discount (Ex DBL) to NHAI cost estimate

Discounts are narrowing, suggesting lower aggressiveness



Source: NHAI, company data

High mobilisation advances for EPC is supportive of working capital but the advances had its caveats

NHAI is offering mobilisation advances which can be drawn in two instalments for upto 10% of the project cost after the Appointed Date for the project. This advance is interest free for a period of one year and, in some case, two years. This has helped address working capital issues in the initial stages of the project but it had the effect of luring in financially weak companies as well. However, it must be highlighted that, after one year, 18% compound interest is charged on outstanding balance if not repaid within a year. This high cost of interest can be potentially disastrous for companies with limited execution capacity and high levels of pre-existing financial stress.

But companies with strong balance sheets and lines of credit, such as L&T, DBL, PNC or KNR, can delay drawing advances and can easily repay them given their demonstrated ability to execute projects ahead of or within time. Significant progress in billing (since 30-35% of a typical 30-month road contract can be completed in the first full year of execution) ensures that the amount is repaid within a year with no stress on working capital.

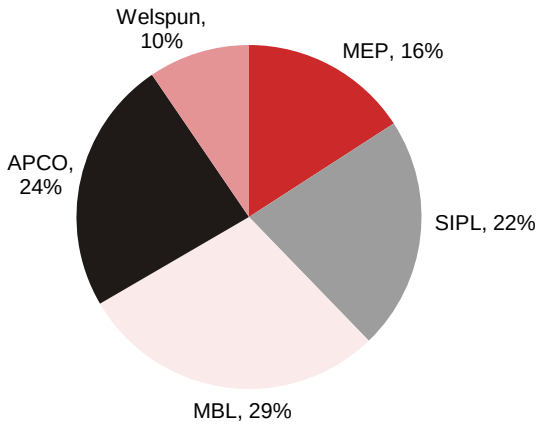
Introduction of HAM projects has opened fresh avenues for companies with balance sheet strength

NHAI has recently introduced Hybrid Annuity Model (HAM) for tendering of national highway projects. Unlike pure EPC projects where 100% of the cost is borne by NHAI, under this scheme NHAI will provide a construction support of 40% of the project cost payable in five instalments. The remaining 60% will be paid back as annuities with effective interest rate of Bank Rate plus 300bps (~10% at prevailing rates) over a concession period of 15 years.

Since the project involves 60% of the funds to be arranged by the developer in the form of debt and equity balance sheet strength and the ability to recycle capital becomes essential. Thus the field is less crowded as weaker companies who were active in FY16 (Fig. 33) has largely exited the market due to their inability to arrange equity and inability to attain financial closure for their projects. Thus, in FY17, only reputed companies with strong balance sheets have been active in the field and have been able to achieve financial closure (Fig. 34).

Fig. 33: Contractor share in HAM in FY16

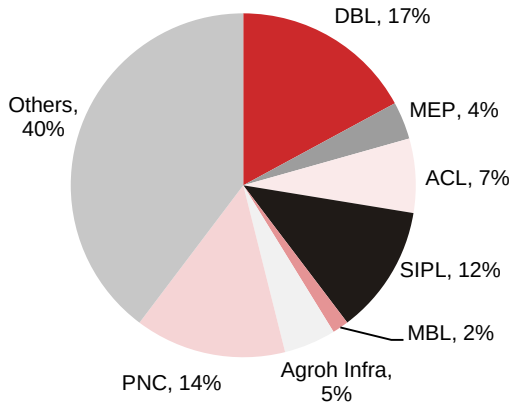
Smaller companies were initially active in this field



Source: NHAI, company data

Fig. 34: Contractor share in HAM in FY17

Players with strong balance sheets have persisted while weak have exited



Source: NHAI, company data

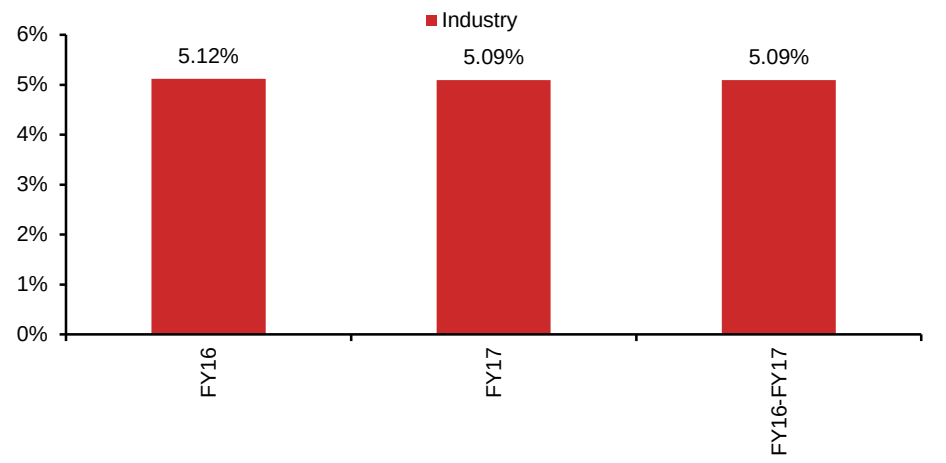
Banks are granting financial closure but only to financially sound companies
NHAI has awarded 43 HAM projects so far and though there were initial hiccups in financing by banks the concerns seem to have eased. Till FY17, 22 of the 43 projects had achieved financial closure while another 15 are awaiting financial closure (most of them awarded in February and March 2017). PNC has been able to achieve financial closure for its Dausa Lalsot (Rajasthan) project at debt funding of 85% of the 60% cost to be financed (after deducting NHAI grant for 40%) and that too at low interest rates of 8.85%. Similarly, other strong companies such as Dilip Buildcon and Sadbhav have been successful in achieving financial closure.

The same is not true for other contractors such as MBL Infra, which has seen one its three contracts terminated and re-bid while two are yet to achieve financial closure (promoters have pledged 80% of their shares). DR Agarwal Infracon (unlisted) has been unable to arrange equity and so far has not achieved financial closure for its project.

So far, private banks such as HDFC Bank, IIFCL, Yes Bank and ICICI Bank have been financing the projects and now SBI has also started to step in (it financed one project in Gujarat). The cash flow risk after project completion is the lowest since these are secured by annuities payable by the Central Government (NHAI) and hence are virtually risk free in nature.

This has led to limited competition and higher margins
The requirement of strong balance sheet and strong execution history easily excludes large portions of the industry. Among the remaining stronger companies, key companies such as L&T have chosen to abstain from the HAM model due to their recent policy of not committing any equity for road projects. This has led to limited competition and, as a result, projects are being bid out on an average at 5% premium to NHAI cost estimates. This, in our view, should translate into higher EPC margins (100-200bps higher) (Fig. 35).

Fig. 35: Project cost premium/(discount) to NHAI cost estimates



Source: NHAI, company data

Share of HAM projects to increase to at least 50% benefiting stronger companies
Since the introduction of the HAM model in FY16, around 31% of all projects in FY16 and FY17 have been awarded under the HAM model while EPC has been 54% and rest 15% are under the BOT model. MoRTH has expressed its intention to award at least 50% of the projects under the HAM model from here on. The preference is to award a project under the HAM model and then under the EPC model as its saves the government 60% of the initial cash flow against a full EPC project.

With shift in contracting to HAM model and the possibility that PSU banks will start financing such projects in addition to the private banks we expect companies with strong balance sheet and track record of project delivery to be benefited the most.

Expect bid premium from NHAI cost estimate to rise

With increase in opportunity set and with most companies executing closer to their execution capacity in the HAM space, we expect premium to NHAI-estimated cost to increase further from 5% levels as long as the current level of ordering is maintained. This can in fact lead to better EBITDA margins on the EPC front for future active participants.

Competition in EPC can increase if ordering pie does not expand rapidly

With shifting of orders from EPC to the HAM model, we expect competition to increase further in the absence of growth of orders. This may be offset partially by focus of stronger companies on HAM orders which can release opportunities for the other companies.

However, if overall ordering remains strong or at least at present levels for EPC, we do not expect competition to increase further and expect discounts to NHAI-estimated costs to remain at current levels.

Companies are being incentivised further for early completion (bonuses as high as 10%), positive for DBL, PNC and KNR

NHAI has proposed to offer early completion bonus as high as 10% for EPC contracts if projects are delivered at least a year ahead of schedule. This new norm will be first applied to the construction of Zojila Tunnel in the Ladakh region of J&K, where scheduled completion time is seven years. Under the new scheme slabs for early completion bonus will range from 3-10%. Such measures will be significantly beneficial for DBL, PNC and KNR, who have strong track record of early execution and their higher-than-industry margins are partially attributed to early completion bonus. With this increase in bonus levels, EBITDA margins for these companies can increase even further as and when these norms are implemented.

This move makes sense for the Central Government as well since early completion saves project cost by at least 5% (accounting for inflation) as well as leads to early collection of tolls. More importantly, time overruns earlier were resulting in cost overruns as well, which led to ~10% higher-than-estimated costs on an average in any case.

Execution, profitability focus, promoter drive and balance sheet the key strengths for a successful road company

Strong track record of execution including ability to complete early is a core competency

The ability to complete projects within or ahead of time on a consistent basis is a core competency for a successful construction company. In fact, time overruns often in turn lead to cost overruns and associated margin pressure as well. Further, early completion also leads to incentives such as early completion bonus which, in our view, has accounted for ~180bps of margin out-performance over peers (out of 600-700bps) for companies such as Dilip Buildcon.

Due to their ability to complete jobs earlier, we prefer Dilip Buildcon, PNC Infratech and KNR Construction in the road space. The ability to execute early in general has been driven by the following set of competencies:

Project selection and management including sustained promoter push including even in the process of land acquisition

These companies invest on relatively larger teams of in-house project managers. These teams assess projects to be bid based on the ground studies where they assess the actual extent of land acquisition, the presence of religious structures and reserve forests that may act as obstacles, ability to source key materials at competitive rates (including potential sites for aggregate and sand mining) and the regulatory and environmental clearances in place.

These companies also empower their site management to proactively resolve any land-acquisition-related issues with the villagers and any other issues that may come up. This is despite the fact that handing over encumbrance-free land is the responsibility of NHAI or Central authorities. These management teams and often the promoters for relatively large projects liaise directly with state, central and local government officials to ensure speedier disbursement of compensation to project affected people as well as to facilitate other steps in land acquisition and getting other clearances.

Projects sites ability to fit into a cluster or potential for clustering is paramount

The sites are also assessed from their ability to be clustered with existing projects. Clustering ensures synergies across projects as machinery, manpower or inventory lying idle in one project can easily be transferred to a neighbouring project. This allows significant savings on mobilisation costs which allows these companies to place lower bids than competition and ensure a better win rate than the industry. The clustering of manpower and machinery also allows these companies to take up irrigation and allied projects in neighbouring areas at a fraction of the equipment capex necessary as well.

The extent of involvement of the management and the successful cluster approach is evident from some examples where companies such as PNC and Dilip have been able to press ahead on some of their projects in UP and MP while companies in nearby packages had delayed mobilising. Even KNR was able to complete its Kerala BOT project ahead of time while adjoining stretches are still some way from completion.

Emphasis is increasingly on ownership of equipment especially at a time when critical equipments are scare

Companies such as Dilip Buildcon, PNC Infratech and KNR Construction own almost their entire requirements of plant and machinery. The ownership of key equipments such as concrete road pavers and associated equipment by these companies assumes significance, for the following reasons:

- **The increasing trend is to construct cement concrete highways**. The decision of the Ministry is influenced by the desire of not only getting more durable roads which leads to lower lifecycle maintenance costs (though upfront costs are higher) but also to curb bitumen imports which can save forex. To improve ride quality, NHAI is also proposing to lay a bitumen layer which can lead to further demand for equipment. With the vast majority of future roads to be awarded likely to be concrete roads, ownership of equipment at least in this space is essential.
- **Leasing may be difficult and unreliable due to scarcity of equipment**. Concrete roads pavers are in short supply in the lease and rental market which not only makes leasing relatively more difficult and expensive but at times unreliable in terms of availability. Thus equipment ownership increases control over construction activities.
- **Lead times for concrete pavers are in excess of six months at present**. Based on our interactions with some civil construction companies the lead time to import this equipment is in excess of six months at present. Thus, companies which already own their equipment are at a relative advantage compared with peers

The availability of machinery, and that too of uniform make, at these companies eases in-house maintenance and easier training of personnel. This ensures higher levels of machinery availability across projects and ensures speedier and cost effective execution.

All key activities are in-house with minimal or no sub-contracting which increases execution reliability and saves on margins

DBL, PNC and KNR conduct almost all their activities and manufacturing in-house. Earlier, PNC and KNR were into significant levels of sub-contracting but this has gradually reduced to minimal levels. In fact, according to KNR management, only small jobs of orders less than INR2.5bn, and where a third party is already mobilised with manpower and machinery, are sub-contracted. Having all core activities in-house ensures that manpower availability is high and can be deployed sooner in nearby projects in the same cluster at a relatively shorter notice compared to peers who are relatively more spread out geographically.

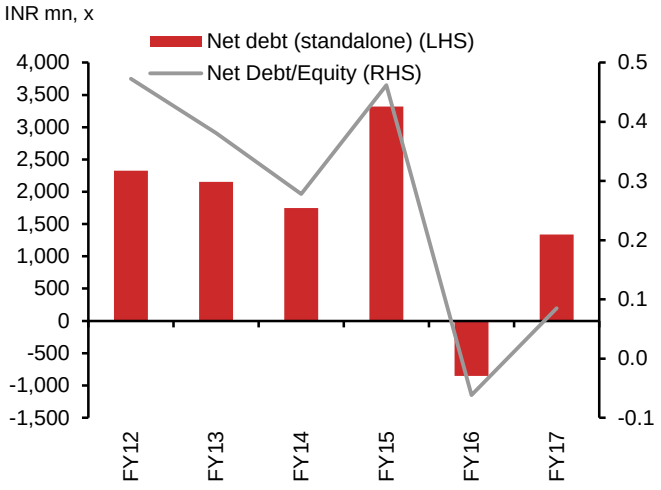
These companies focus on raw material security for key materials like aggregates
Successful companies such as DBL, PNC and KNR focus on raw material security very early on in the project. These companies scout for quarries and locate site camps nearby and establish crushers within a short time of being notified their L1 (lowest bidder) positions in a road tender. Sometimes these companies are fully mobilised at site even prior to the grant of Appointment Date by Project Authorities. They also focus on securing soil burrows in nearby areas for mining and ensure supply of bitumen and cement through long term centralised procurement. We estimate this leads to ~70-100bps of margin accretion through volume discounts.

We would mention in particular that companies such as PNC have been able to ensure smooth supply of aggregates in a challenging state like UP where quarries are in short supply. This has been managed through establishing stone crushing units in nearby states such as Uttarakhand, Rajasthan and Jharkhand.

These companies have significantly stronger balance sheet than peers which ensures adequate funding for equipment and possibly for HAM projects
Companies such as PNC, KNR and DBL have some of the strongest balance sheets in the sector. We believe this can be attributed to focus on EPC so far and deliberate strategy to minimise BOT exposure. Early completion ensures smooth and healthy cash flow generation in most cases.

In particular, as seen in Fig. 36 and Fig. 37 below, the levels of standalone debt has decreased significantly for PNC and KNR, almost to the extent that parent net debt to equity is at negligibly low levels for both these companies. While consolidated debt is higher, these reside in their limited-liability BOT assets where the debts are ring-fenced within the subsidiaries. Even then, consolidated debt has declined relatively, accompanied by an even lower net debt to equity ratio at the consolidated level, as shown in Fig. 38 and Fig. 39.

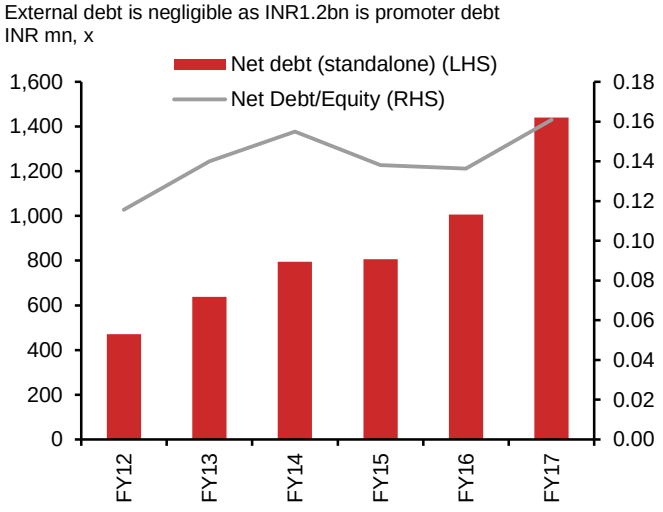
Fig. 36: PNC Infratech debt metrics improved significantly



Source: Company data, Nomura research

Fig. 37: KNR Construction debt metrics improved as well

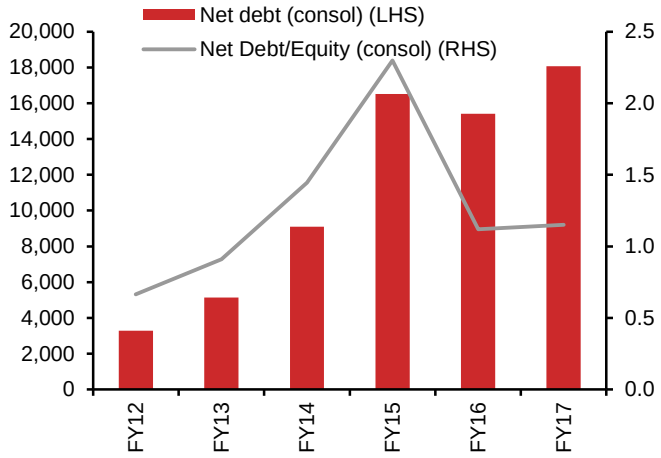
External debt is negligible as INR1.2bn is promoter debt



Source: Company data, Nomura research

Fig. 38: PNC: same trend reflected at consol level as well

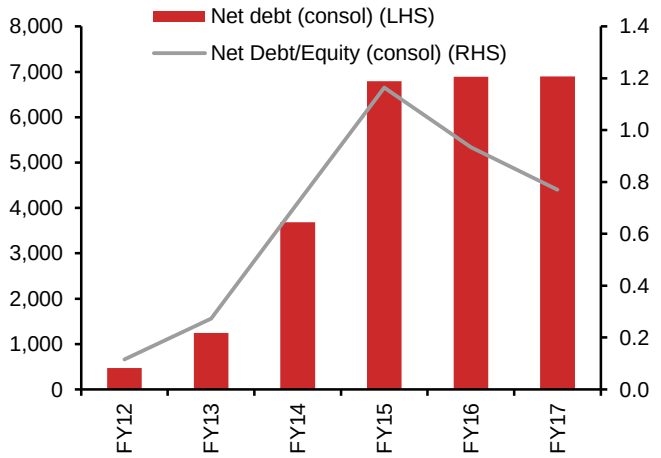
INR mn, x



Source: Company data, Nomura research

Fig. 39: KNR: Consol metrics reflect same pattern

INR mn, x

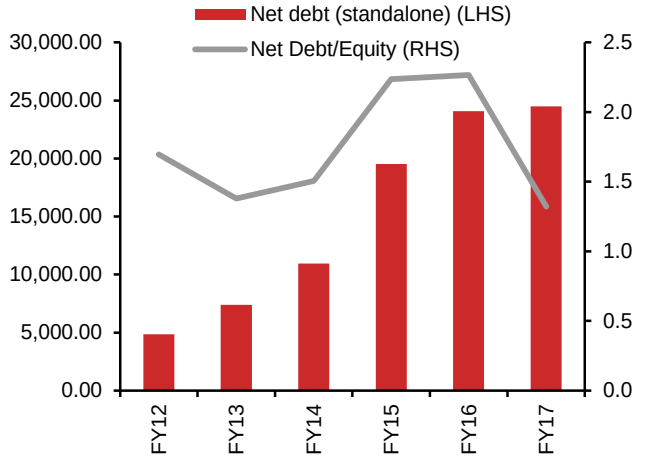


Source: Company data, Nomura research

In the particular case of Dilip Buildcon, while absolute standalone and consolidated debt may have increased from FY12, this has been to support growth which hinged on significant capex on equipment and maintaining higher inventory levels. However, with pick-up in cash flow levels, absolute debt levels have stabilised in FY17 accompanied by a rise in profitability, which has ensured improvement of debt/equity ratios, both at the standalone and consolidated levels.

Fig. 40: DBL parent metrics improving of late

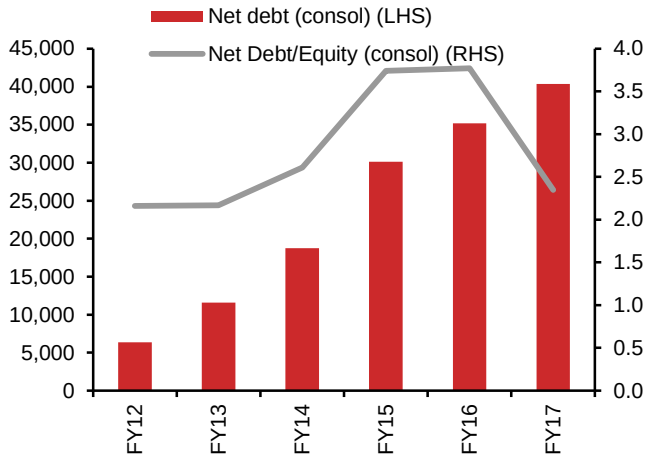
INR mn, x



Source: Company data, Nomura research

Fig. 41: Improvement seen in consol as well

INR mn, x



Source: Company data, Nomura research

Strong balance sheet essential for equipment funding and funding for HAM

Being a pure EPC focused player does not imply low capex spending at present. Due to the fact that the vast portion of roads to be constructed will be cement concrete roads, there is significant capex outlay that will be essential to procure equipment such as concrete pavers. According to our discussions with several contracting companies, cement roads require ~18% in capital/equipment costs compared to just 9-10% for bitumen roads and, thus, the ability to incur capex till a significant equipment bank is built up for concrete roads is critical.

Further, strong balance sheets lend comfort to banks in promoter's ability to finance equity for the projects (~9% of entire project cost) as well as ability to repay debt. Thus, while some companies are struggling to achieve financial closure, companies such as PNC have been able to secure debt at relatively attractive interest rates of 8.85% (significantly lower than the bank rate +300bps that HAM annuities entail).

These companies have been prudent in avoiding capex-heavy BOT projects which involved higher premiums during peak of irrational exuberance

Many large and established companies have bid for BOT (toll) projects at very aggressive premiums at the peak of the economic cycle. Based on our meetings with some companies, we are given to understand that some companies were building in aggressive traffic growth numbers as high as 8% pa and inflation at 6% which led to toll revenue growth of 14% pa on these assumptions. Such assumptions led to companies bidding high premiums/negative grants or higher government share in toll revenues to get BOT awards. As we are aware, due to factors such as land acquisition and lack of clearances, several projects were stalled. Even for projects that did see movement, there was dip in traffic growth due to extraneous events such as a mining ban in some states and decline in economic activity in general over FY12-FY15. This led to decline in traffic in several cases, unlike the assumption of high growth that was implicit in the bids at that time.

DBL, PNC and KNR took up limited BOT projects to sustain their top line but did not pursue unprofitable growth through chasing order book accretion

Companies such as DBL, PNC and KNR continued to remain EPC-focused in that era despite the growing BOT appetite for the industry. However, due to lack of meaningful EPC orders then as well as general shrinkage of work pool, these companies had taken limited amounts of BOT projects just to sustain the top line to ensure recovery of fixed costs. This is reflected in DBL taking up state projects with large annuity components ensuring base level of cash flows and PNC taking up a few BOT projects resulting in flattish top line from FY11-14. KNR also followed a similar philosophy of prudence, resulting in a relatively flat top line in FY10-FY15.

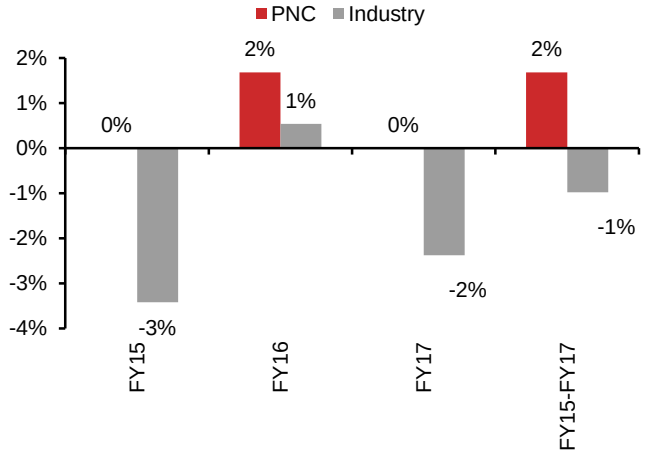
However, we note that for all the companies the BOT projects are self-sustaining in the form of cash flows covering interest, O&M and principal repayment obligations, except perhaps the GAEPL project of PNC, but even then the overall portfolio is cash positive. KNR is also cash positive at every BOT project after refinancing through promoter capital infusion in the Kerala BOT which ensures that toll revenues for now cover debt service obligations.

PNC and KNR has shown relatively higher prudence in bidding though DBL has been aggressive due to better cost structure

Fig. 42 and Fig. 43 highlight that, on an average, the project bids for PNC and KNR for EPC contracts in recent times have been usually at a premium to NHAI-estimated costs. This is at a time when the industry has on an average quoted costs at below NHAI estimates by ~1% over FY15-17. This highlights that these companies have followed a policy of prudent bidding as compared to their peers.

Fig. 42: PNC premium/discount to NHAI cost vs peers

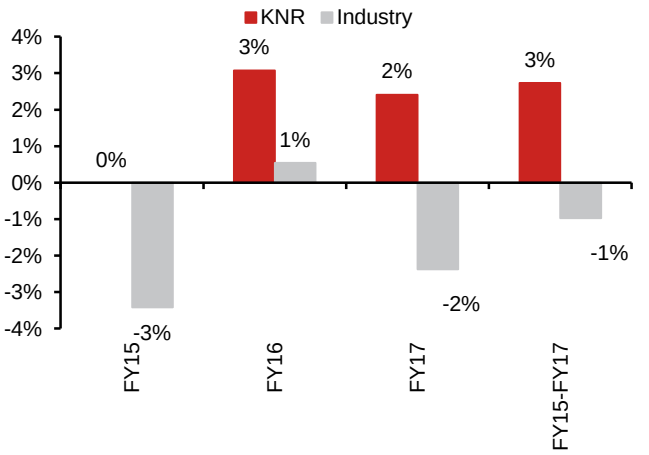
PNC has bid at premium to NHAI cost



Source: NHAI, company data

Fig. 43: KNR premium/discount to NHAI cost vs peers

KNR has bid at premium to NHAI cost



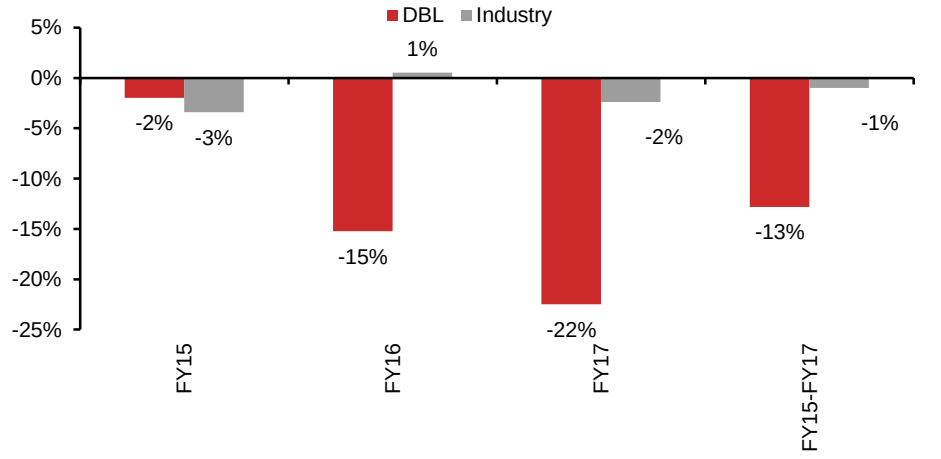
Source: NHAI, company data

DBL bids appears aggressive of late but we note that these are contiguous roads to existing DBL projects

DBL's bidding appears aggressive in EPC projects when we compare with that of its peers. However, a closer look at the orders won in FY16 and FY17 indicates that the additional orders were for a road in West Bengal with which DBL's under-execution road in Jharkhand is contiguous, which should lead to savings in mobilisation. Further, another order is also in a cluster with DBL's existing lot of AP projects and another one in Chhattisgarh is located in the MP cluster. The existence of clusters and already deployed manpower and machinery ensures substantial savings in project cost (~10% of costs) which, along with a more efficient cost structure, allows DBL to outbid the competition and yet maintain margins (Fig. 44).

Fig. 44: DBL premium/discount to NHAI cost vs peers

DBL has been able to bid low due to new awards being contiguous with existing projects and in general a more efficient cost structure than peers



Source: NHAI, company data

Some of the companies have shown ability to divest BOT assets and possibly recycle unlocked equity

DBL has already taken on board Shrem Infra (unlisted) as 49% equity partner for the Tuljapur-Ausa HAM project. DBL will divest the remaining 51% after two years from completion of COD (Commercial Operations Date) at a pre-determined price. DBL is also looking to tie-in equity investors for its remaining HAM projects to eventually ensure an asset-light balance sheet.

PNC Infratech assets generate adequate cash with the exception of GAEPL and hence the company is not in a hurry to divest; however, based on our interactions, the management is definitely open to all options but at a suitable price. In this regard, PNC has been able to divest its minority stake at Jaora Nayagaon Toll road project (8.51%) for INR341.9mn to Viva Highways (unlisted) on 2 January 2016, resulting in gains of INR97.7mn. We note that PNC has been among the few companies that have been able to sell assets above the book values of equity invested in the present market.

Similarly, KNR and its JV partner Patel Engineering (PEL IN, NR) have signed an agreement with Essel Infra (unlisted) for selling of entire stakes in two BOT (annuity) projects at an EV of INR8.5bn. This sale had led to deleveraging for KNR with INR250mn (50% KNR share) of equity flowing in for both parties and the remaining going towards debt settlement.

The ability to divest assets at good prices for these companies will be helpful in recycling capital through the system when they start picking up HAM projects. Divestments will also lead to consolidated debt levels remaining in check.

Fresh wave of road capex driven by UP (north), MP & Maharashtra (West) and south

Road capex in UP to be a major driver ahead of 2019 General Elections

Uttar Pradesh (UP) is the largest state in terms of population in India and has a disproportionately large impact on electoral outcomes and hence is crucial for the ruling dispensation. We believe that with governments both at the Centre and the State now under the ruling party, there is bound to be significant increase in infrastructure capex to tide over potential anti-incumbency that may develop ahead of the 2019 Lok Sabha polls. With same ruling dispensation at Centre and the State, work is expected to get accelerated (reduced political hurdles).

Strong Central Government pipeline is visible

MoRTH, as recently as June 2017, approved INR1.5tn of projects for UP and DPR (Detailed Project Report) will be prepared shortly, according to government officials. The pipeline will include conversion of 72 state highways into national highways and 15 greenfield projects. Further, Ring Roads are planned for all major cities of UP, namely Kanpur, Gorakhpur, Bareilly, Moradabad and Meerut. In fact, the CCEA has cleared INR37bn worth of projects for six-laning of Chakeri-Allahabad section of NH-2 in June itself (145 km) under the HAM model.

Budelkhand Expressway is also planned which will connect Jhansi and Delhi and will be linking to the Agra-Lucknow Expressway. Other key projects in the pipeline offered through NHAI can be the Delhi Yamnotri Expressway for INR50bn.

Accompanied by strong state order pipeline

The Purvanchal Expressway is an opportunity worth INR260bn. With land acquisition in full swing, the government expects to tender the project in September 2017. With the Chief Minister himself pushing for this mega project, there appears to be significant political will that can crease out hurdles for the project.

PNC Infratech and Dilip Buildcon to be primary beneficiaries

PNC is has strong execution record and access to resources like quarries, clusters with manpower and equipment

PNC Infratech is a well-established play in UP and has experience not only in construction of national highways but also flagship expressways of the State Government like the Lucknow Agra Expressway which was completed ahead of schedule. These strong credentials in execution and profitability makes PNC a favourite as a road capex play for North India.

PNC also has access to resources in UP that few companies can boast of; in particular, it is extremely difficult to ensure regular and economic supply of aggregates in UP due to lack of quarries. PNC has been able to overcome these difficulties by ensuring steady supply from its own quarries in neighbouring states such as Uttarakhand, Rajasthan and Jharkhand. PNC in fact meets most of its aggregate requirements in-house. Further since PNC is already mobilised around Varanasi for one of its projects as well as near Lucknow and Agra they are well placed to cluster any newly awarded projects along the East West axis of the State.

Thus PNC has unparalleled ability not only to mobilise manpower and machinery across the state but also has a robust supply chain for critical raw materials like aggregates and sand through control of quarries in neighbouring regions.

DBL is well placed in areas closer to its MP cluster especially around Eastern UP

DBL has already taken up some HAM projects in eastern UP though construction is yet to start. However due to access of quarries in MP and mobilisation in eastern UP DBL may be able to establish a cluster in eastern parts of the State. The large size of opportunity in UP will provide sufficient space for growth for both DBL and PNC.

L&T may also benefit from ordering in UP

L&T has executed and is at present executing few projects in UP especially around Western UP. L&T should be able to participate in EPC contracts to be handed out for Purvanchal Expressway. However given its reluctance to participate in HAM orders we think that L&T will likely be leaving a large opportunity set to be exploited by its rivals.

Maharashtra and MP will drive capex in West-Central India

Maharashtra state has amongst the most ambitious infrastructure spending plans in India. With elections in both State and Center due in 2019 we expect actual execution and awarding pace to pick up. Further even for State projects in Maharashtra the government has been able to secure funds from multi-lateral agencies like JICA, ADB and could raise even more funds through mortgaging of excess land lying with government departments with financial institutions.

We do not see significant risks for funding for the state projects in the medium to long term. However there may be some hurdles in FY18 for Maharashtra as the state government slashes capex spends by 20% to INR280bn in the wake of significant outflows due to farm loan waiver and compensation to municipal bodies for loss of tax revenues as a result of GST rollout.

Mumbai Nagpur Expressway offers INR276.5bn of opportunities

The most prominent among the opportunities emanate from the significant Mumbai Nagpur Expressway which is estimated by MSRDC to cost INR460bn and will provide INR276.5bn in contracts split into 16 packages. The State has tied up part of the funding as well and has acquired over 30% of the land required so far.

State is planning for 10,000km of roads under MRIP programme and MTHL project is another INR170bn opportunity

The state at present is evaluating technical bids for worth INR77.8bn and tendering is underway for INR52.4bn worth of projects. In all 267km of roads are planned which are split into 25 packages. 13 more packages for 701km will be tendered. MSRDC also plans to spend INR130bn through MoRTH to upgrade highways in Maharashtra over the next two years (two lanes to four lanes).

Further 10,000km of roads are planned under the Maharashtra Road Improvement Programme (MRIP) covering various districts and spread over 25 packages. These projects if found financially viable by the State will be bid under the HAM model.

There are other major initiatives as well like the proposed coastal road and the Mumbai Trans Harbour Link (MTHL) as well for which tenders will be invited. MMRDA has invited 29 contractors to bud for the MTHL project which will be offered in three packages. The total cost is estimated by MMRDA at INR170bn and will be likely funded by soft loans from JICA.

Centre has planned 2,021km of roadways at INR2.0tn for the MP state

MoRTH has already promised INR2.0tn to MP over the next two years to develop 2,021 km long seven different roads. The State is planning for two mega access controlled expressways – Chambal Expressway and Narmada Expressway under the EPC model. Narmada Express-way will begin from Amarkantak and connect the state with Chhattisgarh and Gujarat and Chambal Express-way will connect the state with Rajasthan and Uttar Pradesh.

Dilip Buildcon is the prime beneficiary followed by L&T and PNC Infratech

DBL has large clusters already established in Maharashtra and MP and an unbeatable execution track record

Madhya Pradesh (MP) is the home base for DBL and it has significant clusters located in the state. In addition by picking up INR41.7bn in orders in HAM projects in Maharashtra State (including three projects which are contiguous) in FY17 DBL is already on its way to establish yet another large cluster in east-central region of Maharashtra in addition to its MP cluster. With significant manpower and machinery already deployed in this region DBL may be able to bid at significantly lower costs than its peers. DBL also has quarries in MP which should support its operations Maharashtra.

DBL has been at its best in terms of execution in MP and adjoining regions and thus is well placed to execute the projects not only ahead of time but also within budget. DBL will be well-placed for orders like Chambal and Narmada Highways where local dynamics is skewed in its favour.

PNC Infratech could benefit from tight qualification norms in Maharashtra

PNC Infratech has arguably one of the strongest balance sheets in the industry and has significant experience in construction of expressways. These qualifications have come in handy so much so that it was only among the three consortium or companies that were declared qualified for Mumbai Nagpur Expressway, which we view as a positive.

With the trend increasingly towards companies with healthy financial profiles in the state and proved execution capabilities we expect PNC Infratech to be a key beneficiary.

Fig. 45: Mumbai Nagpur Expressway: Qualified consortiums (June 2017)

Restrictive qualification criteria led to rejection of vast majority of the 27 bidders

Qualified	Provisionally qualified
PNC	L&T
AFCONS	Tata Projects
NCC + Megha JV	IL&FS
	Reliance Infrastructure
	Navayuga Engineering
	China Construction Fifth Engineering Division Corporation
	China Guangdong Provincial Changda Highway Engineering Co. Ltd

Source: Media reports, Nomura research

L&T and KNR can also emerge with works due to large opportunities

L&T has provisionally qualified for the Mumbai Nagpur Expressway and with revision of qualification criteria L&T will be able to qualify, in our opinion. Since the project offers such large opportunity we expect L&T to win at least some of these packages. L&T also has significant presence in MP as well which should allow it to win some of the packages in the Chambal and Narmada Expressway projects as well. However as NHAI and for that matter the state governments are increasingly planning to award HAM projects L&T may be losing out some ground due to its stated aversion for HAM projects.

KNR is largely south focused but has executed projects in southern regions of Maharashtra. KNR will likely be able to garner some projects in the region offered either by NHAI or through Maharashtra Road Improvement Programme (MRIP).

Capex in South driven by Karnataka as well as by AP and Telangana

Opportunities available in AP/Telangana but funding remains a challenge

Significant opportunities are available from infrastructure projects in Andhra Pradesh (AP) due to development of Amravati as the new capital region. However industry is in general cautious as funding is yet to be completely secured. The Telangana state government is also pushing for significant expansion programmes with spending envisaged at INR210bn of which INR133.6bn worth of projects has already been sanctioned so far. The Central Government has also sanctioned INR80bn of projects for the state recently. However, industry is cautious regarding the state's ability to fund all projects though such concerns have been allayed so far with timely disbursements of payments for ongoing projects.

Karnataka has significant capex plans and plans for its own HAM projects

Karnataka will initially offer INR26bn for 419km of projects split in three packages under HAM model. However unlike NHAI the grant will be higher at 75% (calculated on lower of bid project cost or the state estimated project cost) against 40% for NHAI. Overall 1,200km of State Roads are being planned by KSHIP (implementing agency) under the HAM model.

NHAI will come up with Bangalore-Mysore Expressway under HAM model

Also NHAI has decided to re-tender the six-lane Bengaluru-Mysuru Expressway as HAM project after previous efforts to tender as a BOT project proved unsuccessful. The contract will be awarded in two packages namely 56.2km (Bengaluru-Nidagatta) and 61.1km (Nidagatta-Mysuru) with a total NHAI estimated cost of INR41.53bn. The land acquisition of the project has already been completed. Once construction starts, it is estimated to take two years for completion.

KNR Construction to be the major beneficiary

With key companies such as L&T avoiding HAM projects and Karnataka State as well as NHAI offering largely HAM projects KNR will be well placed to secure orders.

KNR's south focus and clusters in the region places it an edge over its peers

KNR is almost entirely south focused with Karnataka, AP, Tamil Nadu, Telangana and Kerala as its areas of strength. KNR has clusters in these states and has significantly large equipment bank in the region which places them at a relative advantage. KNR has a strong balance sheet as well which will help it qualify even under stringent qualification norms a well.

Further with resolution of sand mining approval related issues in Tamil Nadu we do not see any significant threat to security of key raw materials like aggregates and soil. Management has already started participating in HAM tenders and are hopeful to win one in FY18. The balance sheet strength (low leverage) will ensure that their projects achieve financial closure as well.

KNR faces competition from PNC which has made inroads in Karnataka

PNC has won the tender for the Chitradurga-Davanagare HAM project in Karnataka and intends to expand its footprint to get cluster benefits. This places the company in competition with KNR for projects. PNC is looking at opportunities like the Karnataka HAM projects as well as Bangalore-Mysore Expressway to be tendered by NHAI.

However for now competition will be limited to Karnataka and not in the other states. DBL has also been aggressive in Andhra Pradesh in NHAI projects but so far has not taken part in state projects.

The development of infrastructure based on Amravati Capital region should be capitalised by KNR among other local companies.

We recommend a portfolio approach for investors to hedge region specific risks

The capex revival in road sector is already in progress and we expect momentum in road contracting and road construction to sustain in the near to medium term. However to hedge state specific and company specific risks in an arguably risky sector for investment we would prefer a portfolio approach for investors

- Invest in DBL for capex growth in West Central India (MP, eastern UP and Western Maharashtra)
- PNC for road capex in UP and north India as well as expressway orders in Maharashtra
- KNR for road capex in the Southern States driven by Karnataka, Andhra Pradesh and Telangana

Although these companies individually face competition from established companies, their areas of operation do not overlap in any significant manner. Thus, in a particular area, eg, the south, KNR may be the player with strongest balance sheet and machinery and manpower easily available in the area. These aspects are not easily matched by erstwhile companies. The older companies have significant debt and hampers their ability to up ramp their gross block of plant and machinery in a significant manner. Thus the new companies are not easily matched on strength of manpower, sourcing and equipment by the older companies. Shortage of equipment makes hiring expensive and availability unreliable which can lead to delays and cost overruns for older debt stressed companies.

However, at an overall level, we see the strongest growth profile for PNC which is driven by revival in progress of its stalled projects, further ordering in UP. PNC also has the strongest balance sheet among its peers and its experience in expressway construction qualifies the company in almost the entire road space.

The overall opportunity set of central orders and state road capex could be as much as INR6.8tn over the next three years, on our estimates. Among these preferred companies (DBL, PNC and KNR), we estimate that close to INR4.0tn of opportunity size is addressed in the key states. Thus, an investment in these plays addresses a significant portion of the opportunity set, in our view (Fig. 46).

The following table (Fig. 47) maps the opportunity set by states against potential beneficiaries.

Fig. 46: Opportunity breakdown by state

INR bn

	FY18-20 order pipeline
Maharashtra	
MORTH road expansion	130
Mumbai Nagpur Expressway	277
State MRIP programme roads	300
MTHL	170
	877
Madhya Pradesh	
NHAI+MORTH (expressways)	**1,156**
Total opportunity is West and Central India	**2,033**
Uttar Pradesh	
NHAI+MORTH (expressways)	867
Purvanchal Expressway	260
Total opportunity is UP	**1,127**
Karnataka	
Bengaluru Mysore Expressway	42
KSHIP HAM projects	96
Telangana	210
NHAI approved	80
Andhra Pradesh (MORTH projects)	400
Total opportunity in South	**828**

Source: MoRTH, various state agencies (MSRDC, UPEIDA, etc), Nomura estimates

Fig. 47: Key investment themes and plays

State/Region	State wide opportunities	Preferred play in Order	Competency of preferred pick	Risk to preferred pick
North India				
Uttar Pradesh	**Central projects**	**PNC Infratech**	Assured supply of aggregates from own mines in nearby states	DBL has started establishing clusters in East UP
	MORTH approved pipeline of INR1.5tn over next 2-3 years	Dilip Buildcon	Pre-existing clusters	DBL's presence can trigger price wars
	- 15 greenfield projects	L&T	Mobilised across East West Axis	Other competitors Gayatri , NCC, L&T
	- 72 State Highways converted to National Highways		Strong execution credentials and strong balance sheet	
	- Ring roads in all major cities namely Kanpur, Gorakhpur, Bareilly, Moradabad and Meerut		BOT assets are self financing	
	- Bundelkhand Expressway (Delhi-Jhansi)			
	- Delhi Yamnotri Expressway			
	State projects			
	Purvanchal Expressway (INR260bn) tendering expected in September 2017			Funding of State project an issue post farm loan waiver
	The flagship project is a priority of UP Chief Minister			
	Significantly large prospects to limit competition			
West India				
Madhya Pradesh	**Central projects in MP**	**Dilip Buildcon**	Pre-established strong clusters in MP and Maharashtra	Stringent qualification norms in Maharashtra
	MORTH plans INR2.0tn of projects in MP over 2 years	PNC Infratech	Strong execution credentials	Favours PNC in Expressways
	- Narmada Expressway and	L&T	Largest equipment/manpower	
	- Chambal Expressway	KNR Construction	Owns quarries in MP	L&T, KNR, NCC are other competitors
Maharashtra	**Maharashtra state pipeline**			
	- Mumbai Nagpur Expressway (INR276.5bn) 16 packages			Land related agitations by local farmers
	- 10000km under HAM under MRIP (25 packages and 87 contracts)			
	- MTHL project (INR170bn) in 3 packages			
	- MORTH pipeline (INR130bn) for lane expansion			
	Funding is largely in place through multi-lateral funding agencies and possible mortgage of state lands			
Southern States				
Karnataka	**Strong state pipeline**			
	- 1200km of roads under KSHIP under new HAM model	**KNR Construction**	Strong South focus. Excellent execution and early completion record	Limited sub-contracting leads to residual execution risks
	- 419km (INR26bn) is in tender pipeline already	PNC Infratech	Pre-existing strong clusters in all of South	PNC has entered into Karnataka
	- KSHIP HAM offers 75% equity support (vs NHAI HAM of 40%) and lower repayment tenure of 7.5 years	DBL	Significant equipment bank and manpower in the region	DBL is present in some regions of Andhra Pradesh
	Bengaluru-Mysuru HAM (NHAI) for INR41.53bn' - 100% land already acquired		Own aggregate mines and sand burrows across the region	
Andhra Pradesh	Development of Amravati Capital region and cities like Vijayawada provide long term opportunities in excess of INR1.0tn over a decade		Strong balance sheet; Prudent bidding in tenders across cycles	Funding for Amravati is not tied up completely
Telangana	Telangana State to spend INR210bn (INR134 tn sanctioned). MORTH sanctioned further INR80bn of projects			Funding issue is there in Telangana but payments are regular so far

Source: MoRTH, various state agencies (MSRDC, UPEIDA, etc), Nomura estimates

Investment risks

- Revival in competition through recent measures initiated to revive financially stressed infrastructure companies: recent Government initiatives to revive the infrastructure sector could lead to a revival in balance sheet health for some of the ailing construction companies. With an improvement in their balance sheet, some of these companies may resort to aggressive bidding for projects as in the past, driving down sector returns.
- Further deterioration in working capital and net debt metrics. This can be due to execution related slowdown or aggressive bids in HAM projects which may necessitate more equity investment than required as well as the inability to seek equity partners.
- Slowdown in public spending on infrastructure/road projects: Over the past few years, both the Central and state Governments have shown a strong will to invest in infrastructure across the country, especially roads. While we expect this to continue and even grow further, there is a possibility that as the General elections come closer in May 2019, there could be a shift in policy focus from infrastructure spend to populist measures, which could lead to a slowdown and hence higher competition for a smaller pie.
- Some cement companies are in initial round of discussions to import or make pavers and supply such equipment on hire. But discussions are at nascent stages and we do not expect any near term impact; however, if this does succeed, it can pose challenges to the equipment ownership model.

NOMURA

Asia Insights

ECONOMICS

India: The RBI hikes but policy remains neutral

Having frontloaded hikes, we now expect rates to be left unchanged for the time being.

The monetary policy committee voted 5-1 to hike the repo rate by another 25bp to 6.50%, in line with expectations. The policy stance was also left 'neutral', suggesting the MPC remains data-dependent and has yet to be convinced that a series of hikes is warranted. Having delivered a cumulative 50bp of rate hikes already and with a real repo rate of ~1.7%, we expect the RBI to leave policy rates unchanged through FY19, giving it time to assess the impact of the hikes already delivered and because we expect growth and inflation to soften in coming quarters.

Strategy implications: *On rates, we believe today's outcome is largely in line with market expectations and view this monetary policy decision as non-disruptive to markets. We increase our long 5yr bond position and maintain INR 1yrfwd1s4s steepeners in our portfolio.* We also see value in receiving front-end NDOIS at current levels. *On FX, the 25bp hike from the RBI reinforces its credibility, but we expect any positive reaction in INR to be limited, as this decision was widely anticipated. Overall, we maintain our cautious view on INR, in line with the region, but near-term concerns remain from higher oil prices and a lack of portfolio inflows from global policy/trade risks.*

- **Hike with neutral stance**: The monetary policy committee (MPC) voted 5-1 to hike the repo rate by another 25bp to 6.50%, in line with consensus and our expectations. Ravindra Dholakia, the sole dissenter, voted to leave the policy rate unchanged. The decision was prompted by elevated core inflation and as headline inflation remained above the medium-term target of 4% amid an output gap that has "virtually closed".
- **Rationale behind neutral stance**: The RBI revealed its year-ahead Q2 2019 (April-June) inflation forecast of 5%. In the press conference, the RBI governor explained that they maintained a neutral stance because the risks to inflation appeared balanced and, because inflation has been volatile, they wanted to keep their options open. Separately, the deputy governor stated that, since monetary policy works with a significant lag, the impact of hikes (on economic data) will become visible in due course. We interpret this to mean that the RBI frontloaded the rate hikes.
- **Inflation risks balanced; growth optimism**: The RBI expects CPI inflation of 4.6% y-o-y in July-September 2018 and 4.8% in H2 FY19 (October-March); the latter represents a marginal increase from its June projection of 4.7%. The RBI remains optimistic on growth, and still projects a gradual GDP growth recovery to 7.4% in FY19 (7.5-7.6% in H1, 7.3-7.4% in H2) from 6.6% in FY18, aided by stable monsoons, rural stimulus led by MSP hikes and sustained investment momentum; although it flagged risks around trade tensions and tightening financial conditions. In Q2 2019 (April-June), the RBI expects CPI inflation of 5% and GDP growth of 7.5%, with risks evenly balanced.
- **Liquidity stance**: The RBI re-iterated that its liquidity policy will be determined by anchoring the weighted average call rate to the repo rate. It considers systemic liquidity to be neutral, while flagging that currency in circulation growth remains above historical trends.
- **Nomura view – A wait-and-see period lies ahead**: The RBI has delivered back-to-back hikes while maintaining a neutral stance, as we have expected. In our view, its reluctance to shift to a 'tightening' stance suggests that it is not convinced that a series

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1 August 2018

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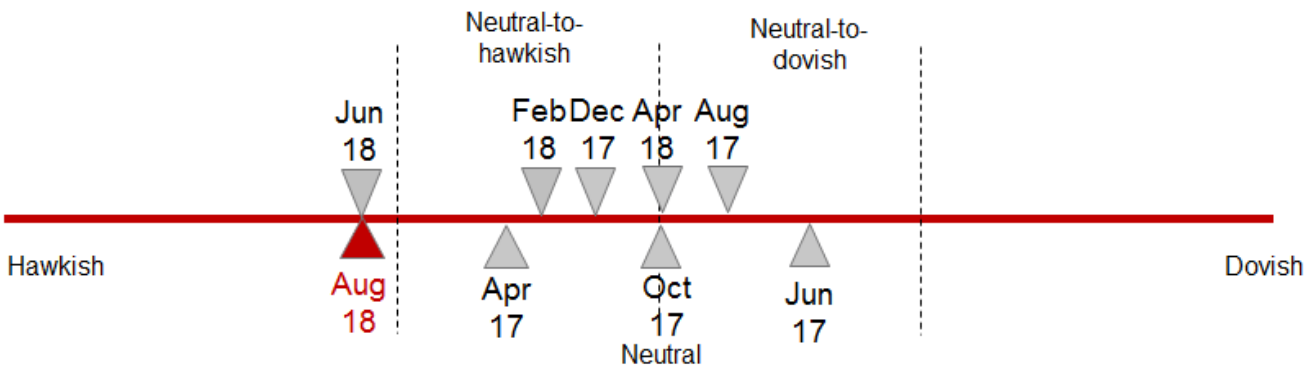
of hikes is warranted, possibly because of global growth risks or because it expects inflation to gradually taper. Having delivered a cumulative 50bp of rate hikes already and with a real repo rate of ~1.7% (6.5% repo minus the RBI's average CPI forecast of 4.8% in FY19), we expect the RBI to wait and see what kind of impact the already-delivered hikes will have. Therefore, we expect rates will be left unchanged through FY19.

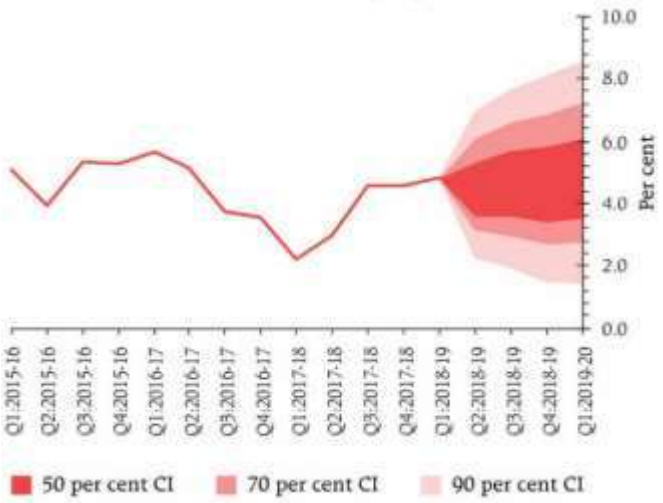
- **Exiting the high growth-inflation quadrant**: We expect unchanged policy rates primarily because we believe both growth and inflation peaked in Q2 (Q2 GDP data are due on 31 August). While India has experienced an inflationary recovery, consistent with our forecasts last year, we now believe that adverse terms of trade, tighter financial conditions, a pullback in government spending after September (to meet its fiscal deficit target) and a slowdown in global growth are likely to weaken domestic growth as well (see *India: Strong growth, but leading indicators suggest a slowdown ahead*, 30 July 2018). We expect GDP growth to peak at 7.5-8.0% in Q2 and moderate to ~7% by end-2018. This should, in turn, moderate core inflation momentum.
- **Risks to our view**: Our preliminary projections suggest that the next policy meeting on 4 October is a close call, but we are more convinced of a pause after December. Key risks to our view of unchanged policy include a continued build up in month-on-month core inflation momentum (we expect year-on-year core inflation to fall because of a base effect), a rebound in crude oil prices, significant currency depreciation or an MSP-driven food uptick (see *India: Higher MSPs announced, but devil will be in the delivery*, 4 July 2018).

Fig. 1: Nomura's assessment of the RBI's underlying policy bias



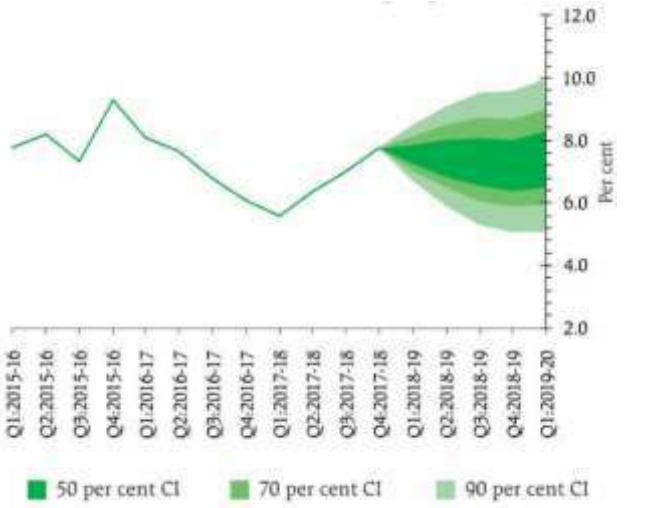
Source: Nomura Global Economics

Fig. 2: RBI's quarterly CPI inflation projection



Note: CI = Confidence interval. Source: RBI and Nomura Global Economics.

Fig. 3: RBI's quarterly GVA growth projection



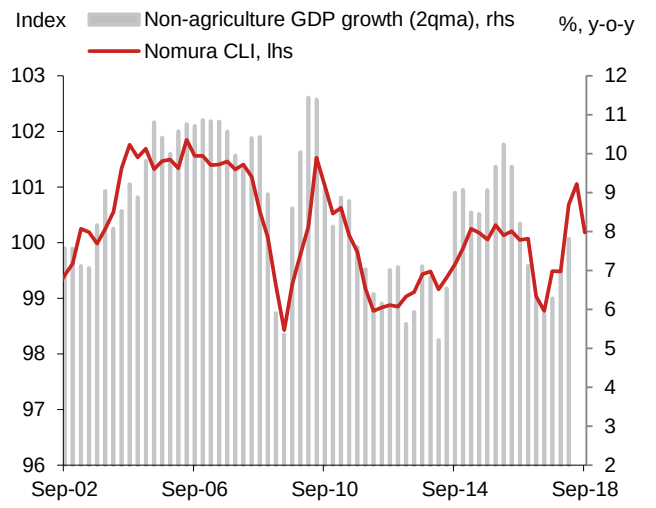
Note: CI = Confidence interval. Source: RBI and Nomura Global Economics.

Fig. 4: Evolution of the RBI's forecasts

Policy	Growth, % y-o-y	Inflation
Apr-17	7.4%, balanced risks	Average 4.5% in H1FY18 and 5% in H2FY18 (ex-HRA)
Jun-17	7.3%, balanced risks	2.0-3.5% in H1FY18 and 3.5-4.5% in H2FY18 (ex-HRA)
Aug-17	7.3%, balanced risks	A little above 4% (ex-HRA) by Q4 FY18, ~4.5% (incl central HRA) by Q4 FY18 as per the fan chart
Oct-17	6.7%, balanced risks	4.2-4.6% (incl central HRA) in H2 FY18; 4.5% by Q4 FY19
Dec-17	6.7%, balanced risks	4.3-4.7% (incl central HRA of up to 35bp) in H2 FY18
Feb-18	GDP*: 7.4% in FY19 (7.4-7.5% in H1 and 7.3-7.4% in H2), balanced risks	5.1% in Q4 (incl central HRA), 5.1-5.6% in H1FY19 (diminishing central HRA impact), upside risks
Apr-18	6.6% in FY18, 7.4% in FY19 (7.3-7.4% in H1 and 7.3-7.6% in H2), balanced risks	4.5% in Q4, (incl HRA) 4.7-5.1% in H1FY19, 4.4% in H2FY19, upside risks
Jun-18	7.4% in FY19 (7.5-7.6% in H1 and 7.3-7.4% in H2), evenly balanced risks	4.8-4.9% in H1 FY19 and 4.7% in H2, upside risks. Ex-HRA, 4.6% in H1 and 4.7% in H2
Aug-18	7.4% in FY19 (7.5-7.6% in H1 and 7.3-7.4% in H2), evenly balanced risks. 7.5% in Q1FY20	4.6% in Q2, 4.8% in H2 FY19 and 5% in Q1FY20. Ex-HRA, 4.4% in Q2, 4.7-4.8% in H2 and 5% in Q1FY20

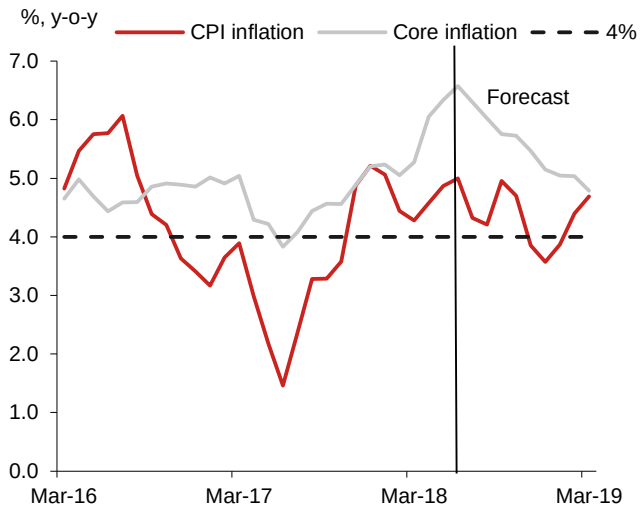
Note: Growth forecasts in 2017 refer to GVA forecasts, while 2018 are GDP forecasts. Source: RBI, Nomura Global Economics.

Fig. 5: Nomura composite leading index and non-agriculture GDP growth



Source: Nomura Global Economics estimates

Fig. 6: Inflation outlook



Source: CEIC and Nomura Global Economics estimates.

Rates strategy

We believe today's outcome is largely in line with market's expectations and view this monetary policy decision as non-disruptive to markets. We continue to like our long 5yr bond position and INR 1yrfwd1s4s steepeners. Given our expectation of an extended pause and a gradual move lower in headline inflation, we believe bond yields will gradually move lower over time. We also see value in front-end NDOIS at current levels.

We believe the spread between 5yr bonds and the repo rate remains too wide and is justified only if the market expects a series of hikes. We expect the yield curve beyond the 5yr zone to steepen, as we believe the longer end should underperform as it starts commanding some premium due to an increase in fiscal risks.

We believe the RBI will continue to actively manage liquidity in the banking system. We estimate total system liquidity (banking system liquidity + government balances) will increase in this quarter (current estimate: ~INR400bn deficit as of last week of July), which should will keep the OMO buyback rate at INR100bn/month until September. However, we also expect OMO buybacks to increase in H2 of this fiscal year. For year as a whole, we expect INR1.2-1.4trn of OMO buybacks.

We add further to our long IGB 7.37 2020 (current 7.84%, target: 7.60%, reassess: 7.94%) recommendation, taking our total position from USD0.67K DV01 to USD1K DV01 on this bond. We continue to hold USD0.33K DV01 on IGB 7.68 2023 as well. Today's addition takes our position to 35% of our total intended position.

In NDOIS, we stay with 1yrfwd1s4s steepeners (USD4K DV01), which are at 40% of our total intended position (see *Asia Insights - India rates: Liquidity, OMO buybacks and yield curve dynamics,* 30 July 2018). That said, we also see value in adding receive Sep-IMM start 2yr NDOIS (current: 6.925%; Reassess: 7.05%; USD0.5K DV01) in addition to the steepeners. We recommend keeping 25% extra DV01 receive in the front end.

FX strategy

The 25bp hike from the RBI reinforces its monetary policy credibility amid rising core inflation and supports real yields, while its neutral stance gives the RBI flexibility to respond to data as they evolve. That said, we do not expect a material reaction in INR, as this hike was largely anticipated/priced-in, while equity markets have been well-supported despite the rate hike expectations. This hike is consistent with RBI efforts to stabilise the currency via intervention, while we believe that RBI has the ability to implement more significant measures if necessary (including FX swaps for oil importers, NRI bonds, gold schemes among others). Global risks from trade protectionism, tightening DM monetary policy, oil prices and EM growth risks in Q3 can continue to buffet INR while, domestically, tighter financial conditions could constrain growth and the current account deficit are all key headwinds for INR. Overall, we maintain our cautious view on INR, in line with the region, but expect relative outperformance (on a total return basis) in the medium term with an eye on rising political risks towards year-end.

Morgan Stanley

INVESTMENT MANAGEMENT

Connecting the Dots

India's Generational Shift in Consumption and Debt

ACTIVE FUNDAMENTAL EQUITY | GLOBAL EMERGING MARKETS EQUITY TEAM | MACRO INSIGHT | JULY 2018

AUTHOR

SWANAND KELKAR
Managing Director
Morgan Stanley
Investment Management

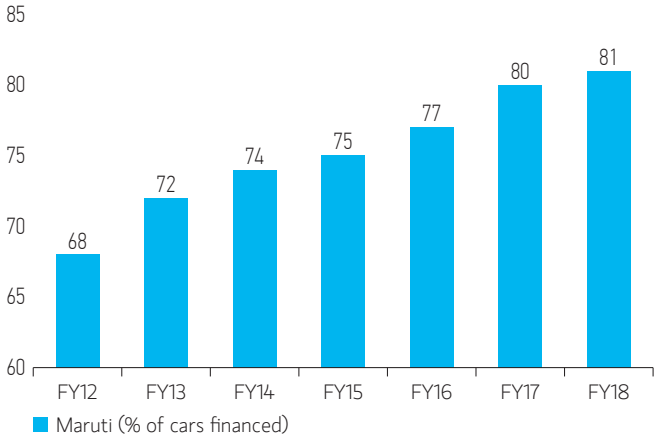
Recently, on my commute home, I saw two adjacent shops with large banners outside them. One said 'Phone on loan' and the one next to it said 'Loan on phone.' The former was obviously selling mobile phones and was offering attractive loan options to make that purchase, while the latter was a Direct Sales Agent of a financing company offering personal loans wherein it required just one phone call to get the loan preapproved. These two shops seemed quite symbolic of what is happening to consumption and household debt in India.

The other incident that took me further on this chain of thought happened at a family gathering. We were gathered to celebrate the birthday of a Generation Z niece and I asked her what gift she wanted. I was surprised by her response when she said "I want an add-on credit card"—she was turning sixteen. While I was surprised, the septuagenarians in the family, for whom loan was another four-lettered word, were totally aghast. I think I was witnessing a diametrical attitudinal shift towards leverage that had happened over three generations in India and that is a trend which I think is here to stay: the trend that the Indian household, over the next few years, will increasingly lever itself up and spend on consumption.

This is not a trend which is starting out now and one can find evidence for this in various data. Take for instance, the finance penetration of Maruti cars, i.e. the percentage of cars sold on which the buyer has taken a loan. That percentage has steadily increased from 68% in F12 to 81% in F18 *(Display 1)*. At a broader level, household debt to GDP has inched up from 11.2% in F12 to 15.7% in F18 *(Display 2)*. This trend has legs to run and will be aided by a confluence of several factors apart from the attitudinal shift. For starters, 15.7% household debt to GDP is fairly low by Emerging Market standards which has an average of 39%.[1] While it is tempting to think that this would be tightly correlated with per capita GDP, there are idiosyncratic differences between countries. South Africa, with per capita GDP of about USD 6,000, has about 44% household debt while Thailand, with a similar per capita income, has almost 78% debt.[1] Indonesia, with twice the per capita GDP of India, has similar household debt levels[1] but in an individual product like two-wheelers, finance penetration is in excess of 70%[2] while that number is 35% in India.[3]

DISPLAY 1

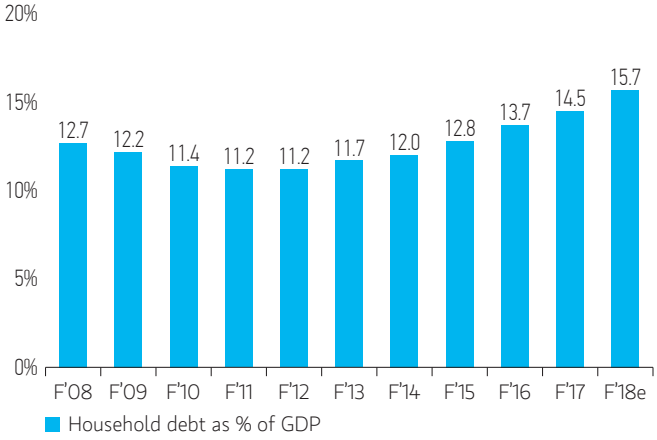
Increasing finance penetration of Maruti cars



Source: RBI, Macquarie Macro Strategy. Data as of July 2018.

DISPLAY 2

Increasing household debt as a percentage of GDP



Source: RBI, Macquarie Macro Strategy. Data as of July 2018.

e- Estimated

An important enabler for this trend in India could have been the formation of credit information bureaus such as CIBIL (Credit Information Bureau (India) Limited), that lenders can access to check the credit history of their prospective borrowers. About a decade ago, in the absence of income documents, lenders relied on surrogate verification while assessing creditworthiness. In an extreme case, if you stepped out of the airport and had an economy class boarding pass you were preapproved for a silver credit card while if you had a business class boarding pass you got a gold card. Things are more sophisticated now where CIBIL itself has a database of 248 million unique borrowers which has almost doubled in over five years *(Display 3)*. Put differently, lenders are able to verify CIBIL records of over 80% of individual borrowers today versus only 60% five years ago.[4] While information on credit history has been one of the enablers, data-savvy lenders, especially banks, are using their own customers' banking data to extend targeted loans. India's largest private sector bank, for instance, has disclosed that 50% of their incremental personal loans and 70% of incremental credit card loans are extended to customers who have an existing relationship with the bank.[5] Aided by such data analytics, the bank has been able to grow its share of unsecured loan book from 22% of retail loans in F12 to 32% in F18 *(Display 4)* and this share gain has happened within a retail loan book that itself has grown at 22% CAGR.

[1] Source: IMF, RBI, CEIC, BIS, Macquarie Macro Strategy. Data as of December 2017

[2] Source: CLSA, Morgan Stanley Investment Management Research. Data as of May 2018

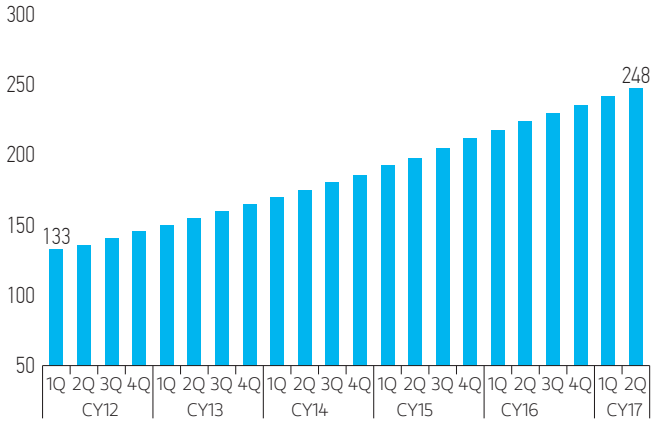
[3] Source: CEIC, BIS, Macquarie Macro Strategy. Data as of July 2018

[4] Source: CIBIL, Macquarie Macro Strategy. Data as of December 2017

[5] Source: Company data, Macquarie Macro Strategy. Data as of January 2018

DISPLAY 3

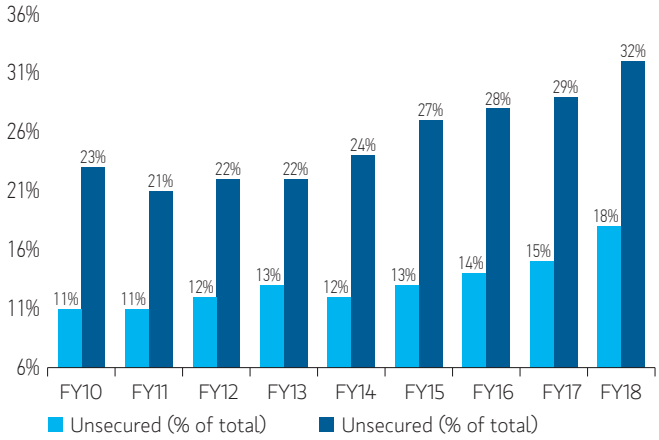
CIBIL's unique client database almost doubled in five years (in MM)



Source: CIBIL, Macquarie Macro Strategy. Data as of December 2017

DISPLAY 4

India's largest private sector bank's unsecured lending in retail space



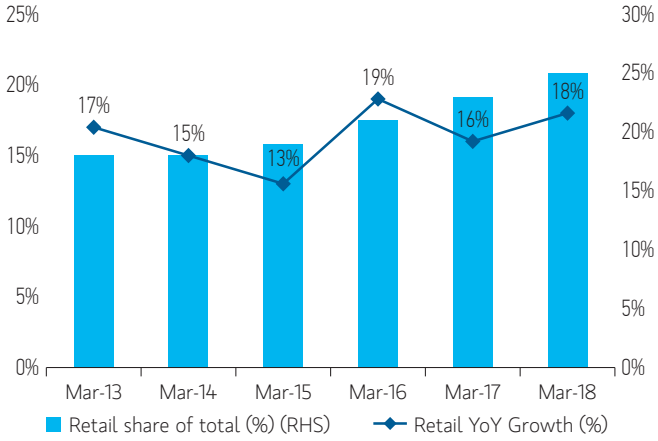
Source: Company Data, Macquarie Macro Strategy. Data as of March 2018

While changing attitudes, low penetration, availability and mining of data are immediate tailwinds, better asset ownership records could be a meaningful medium-term driver. Digitisation of land records is an important step in this direction, where a clear land title becomes actionable collateral for lending, especially in rural areas. Digitisation of land records has continued apace in India with 86% of land records digitised as of date and about 48% where even the asset transfers are digitally recorded.[6]

I can already imagine the (septuagenarian) naysayers objecting that this is a bad precedent and will eventually end in tears of crisis. The distinction here is that overuse of leverage is bad and it might be worthwhile to see if there are signs of overheating. Exhibit A of naysayers is that almost all incremental credit growth, of late, has been retail-led and that is a sign of overheating. While that may be true, retail credit by itself (and this includes secured mortgages) has grown at an average of about 18% over the past three years and it is abysmally low growth in other parts of the economy that has made retail's contribution look outsized *(Display 5)*. Another possible sign of overheating is increase in individual ticket sizes, i.e. growth is not driven by more borrowers but by giving more credit to the same borrowers. Here again we do not see anything out of the ordinary *(Display 6)* and the final test of the pudding is in the bad loan numbers *(Display 7)*. Again, there is nothing to report, with the NPA (Nonperforming Assets) numbers actually improving in some categories.

DISPLAY 5

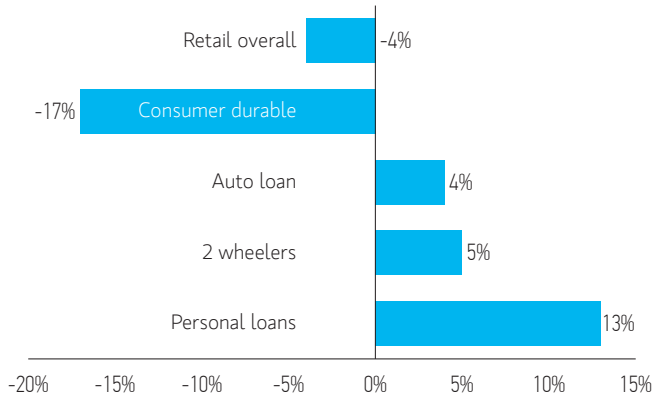
Retail credit growth



Source: RBI, Macquarie Macro Strategy. Data as of March 2018

DISPLAY 6

Ticket size growth of key retail products (CY13-17E CAGR)

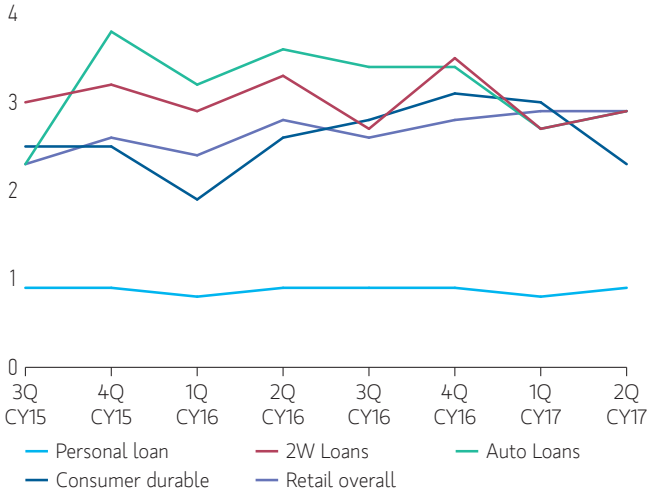


Source: TransUnion CIBIL data, Study by FICCI-BCG. Data as of November 2017. E-Estimated

[6] Source: Department of Land Resources, Ministry of Rural Development. Data as of July 2018

DISPLAY 7

Delinquency rates by select retail products (%)



Source: TransUnion CIBIL data, Study by FICCI-BCG. Data as of November 2017

So what could you do as an investor? Two things, in my opinion: look for financiers who are sensibly extending such loans to retail borrowers, relying on data and technology to make better credit decisions and lower costs; also look for categories of products that the consumers are buying with this credit. These could start with shoes (yes, we did see an easy monthly instalment option for a pair of shoes) and can go right up to a home. Like all powerful trends this trend could be prone to getting overextended in due course of time but based on currently available data, it might be early to worry about that just yet.

And no, the niece did not get the credit card.

DEFINITIONS

Price-Earnings (P/E) is the price of a stock divided by its earnings per share for the past 12 months. Sometimes called the multiple, P/E gives investors an idea of how much they are paying for a company's earning power. The higher the P/E, the more investors are paying, and therefore the more earnings growth they are expecting. **Gross Domestic Product (GDP)** is the monetary value of all the finished goods and services produced within a country's borders in a specific time period. It includes all private and public consumption, government outlays, investments and net exports. **Compound Annual Growth Rate (CAGR)** is the year-over-year growth rate of an investment over a specified period.

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INDIA

AUGUST 01, 2018

UPDATE

BSE-30: 37,522

GST: Revenues far from satisfactory. Even as the monthly GST collections have been closer to comfort, the actual revenues (accounting for refunds) are far from satisfactory. Combining the CGA releases (cash-accounting based) and monthly PIB releases, the current run-rate until now is around ₹920 bn, implying a required run-rate of ₹1.1 tn for the rest of FY2019. It will be difficult for the government to meet the FY2019BE GFD/GDP of 3.3% in the absence of expenditure adjustments, higher-than-budgeted non-GST revenues, and tweaks in IGST settlements. We maintain our FY2019 GFD/GDP estimate at 3.5% with risk of higher borrowings in 2HFY19.

Not much upside visible from intra-state e-way bill

Based on the monthly PIB release, total GST collections stood at ₹965 bn in June compared to ₹956 bn in May. CGST collection amounted to ₹159 bn (May: ₹160 bn), SGST stood at ₹223 bn (₹220 bn), IGST at ₹500 bn (₹495 bn), and compensation cess was at ₹84 bn (₹81 bn) (Exhibit 1). We had noted in our last GST report (*GST: Higher compliance, not-so-higher revenues*, July 2) that CGST and SGST collections for the months of June/July would provide a better sense if intra-state e-way bill led to better compliance. However, the CGST/SGST revenues do not indicate much compliance improvement due to intra-state e-way bill. We had also noted that the positive effect of inter-state e-way bill was visible in the IGST collections increase.

Current run-rate strongly indicates revenue shortfall in FY2019

Combining the CGA accounts (collections for Mar-May) and PIB release for collections for June imply a run-rate of ₹920 bn for 4MFY19 (the difference between PIB releases and CGA-derived numbers can be attributed to refunds from IGST and CGST). This is lower than the required run rate of ₹1.04 tn as per central and states' budget estimates (required rate of ₹1.1 tn for rest of FY2019). As of now, run-rate of ₹593 bn for center's GST collection (CGST+IGST) is required for the rest of FY2019 to meet the union budget estimate of ₹6.5 tn. For 4MFY19, the current run-rate is at around ₹450 bn (Exhibit 2). The SGST run-rate is further lower at ₹389 bn against a required run-rate of ₹440 bn for the rest of FY2019. Even if we build in an optimistic 8-10% qoq growth in the overall run-rate, there is likely to be a shortfall of around ₹300 bn (translates to around 15 bps slippage in GFD/GDP). If current run-rate is maintained, the shortfall could be around ₹1 tn (40 bps in GFD/GDP) assuming no IGST/cess or revenue/expenditure adjustments.

Lower IGST transfer to states and higher compensation cess to bridge center's GST gap?

In a scenario where union GST revenues (CGST+IGST) are short of budget estimates, it will be interesting to see how the IGST transfers are treated in FY2019. If a repeat of FY2018 is on the cards, we could possibly see lower IGST transfer to states, balanced out by higher compensation cess transfers to keep revenues balanced for the states. We note that the center cannot transfer the cess collections to the Consolidated Fund of India for its own use. However, the unallocated IGST has been used as part of the center's revenues in FY2018. We note that the center had released around ₹411 bn to the states through compensation cess. With around ₹210 bn of FY2018 compensation cess collections in the Public Account of India, it would be interesting to see how the government offsets in case of any lower settlement to states from IGST.

QUICK NUMBERS

- June GST collections at ₹965 bn
- 4MFY19 run-rate at ₹920 bn; required rate at ₹1.1 tn for rest of FY2019
- Maintain our GFD/GDP estimate at 3.5%

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Exhibit 1: CGST and SGST stable in June; IGST maintains buoyancy seen in April
Breakup of monthly GST collection (Rs bn)

	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
CGST	151	148	145	157	136	145	145	157	187	159	160	159
SGST	230	216	219	230	193	205	204	214	257	217	220	223
IGST	481	486	505	448	428	453	447	445	505	491	495	500
IGST (imports)	213	238	247	223	218	231	229	232	212	244	245	249
Compensation cess	73	80	82	79	81	86	85	77	86	73	81	84
Total GST	**936**	**930**	**951**	**913**	**837**	**889**	**880**	**893**	**1,035**	**940**	**956**	**965**
Total filings (mn)	**5.9**	**5.9**	**5.7**	**5.0**	**5.3**	**5.6**	**5.8**	**6.0**	**6.0**	**6.2**	**6.5**	**6.6**

Source: PIB, Kotak Economics Research estimates

Exhibit 2: CGST and SGST run-rates significantly behind their budgeted run-rates
Summary of GST collections, March fiscal year-ends (Rs bn)

	Mar-18	Apr-18	May-18	Jun-18
Monthly collections (PIB press releases)				
Center	**325**	**288**	**316**	**409**
Center GST (CGST)	187	159	160	159
Centre's share of IGST (C-IGST)	138	129	157	250
States	**403**	**340**	**367**	**473**
States' GST (SGST)	257	217	220	223
States' share of IGST (S-IGST)	146	123	147	250
Unallocated IGST	**222**	**239**	**192**	**(0)**
Compensation cess	**86**	**73**	**81**	**84**
Total	**1,035**	**940**	**956**	**965**
FYTD collections (incl. CGA adjustments for CGST, SGST, IGST)				
Centre	**521**	**971**	**1,383**	**1,797**
- CGST	321	602	911	1,313
- Unallocated IGST	200	369	471	484
State	**399**	**732**	**1,092**	**1,558**
Compensation cess	85	157	237	321
Total	**1,004**	**1,860**	**2,712**	**3,675**
FY2019BE				
Centre				6,539
- Unallocated IGST				500
State				5,078
Compensation cess				900
Total				**12,517**
FY2019E required run rate				
Centre				545
- Unallocated IGST				42
State				423
Compensation cess				75
Total				**1,043**
FYTD run rate				
Centre	521	486	461	449
- Unallocated IGST	200	185	157	121
State	399	366	364	389
Compensation cess	85	79	79	80
Total	**1,004**	**930**	**904**	**919**

Notes:
(a) Monthly collections are inclusive of monthly IGST transfers.
(b) FYTD collections for Jun-18 is based on our estimates of refunds and IGST settlements.

Source: PIB, CGA, Kotak Economics Research estimates

McKinsey&Company

Economic Conditions Snapshot, June 2018

McKinsey Global Survey results

Respondents' views on economic conditions and growth prospects have tempered. Meanwhile, trade-related changes have become ever more pressing risks to domestic, global, and company growth.

Jean-François Martin

Midway through 2018, respondents around the world express more cautious views than they did in March about the state of the economy and its prospects for the rest of the year. In McKinsey's most recent survey of executives' sentiment on economic conditions,[1] the shares of respondents who say overall conditions are improving and predict that the rate of economic growth will increase are smaller than in the past few surveys. There are some geographic divides, but in contrast to the previous survey's results, these differences do not fall along developed- or emerging-economy lines.[2] Instead, respondents in Latin America report particularly downbeat views, while their peers in North America and India are the most positive about current conditions at home and in the world economy.

Changes in trade policy remain the most cited risk to domestic and global growth, and respondents are increasingly likely to identify the issue as a risk to their companies. Compared with the past three surveys, respondents are less likely to report increases in trade levels between their countries and the rest of the world or that their companies have seen a positive business benefit from changing trade levels. Overall, respondents remain optimistic about their companies' prospects, including the size of their workforces, but they also report significant effects on the workforce—past and expected—from technology-related trends.

Tempered views on the economy

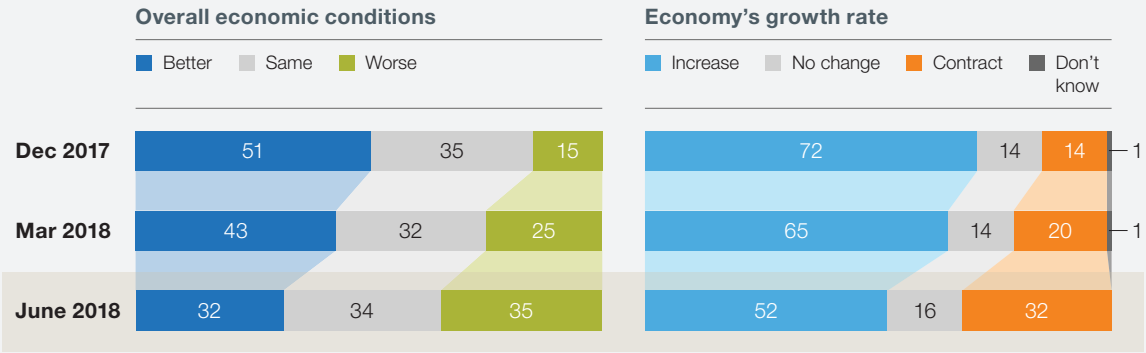
Respondents' opinions on economic conditions and prospects for growth, both global and domestic, are more cautious than they've been in several surveys. Forty percent of respondents—down from 54 percent and 60 percent, respectively, in the past two surveys—say the global economy is in better shape now than six months ago.

What's more, expectations of the world economy's prospects have declined (Exhibit 1). The share of respondents that predict global conditions will worsen now exceeds the share predicting improvements, for

Exhibit 1

Expectations for the future of the world economy—its overall conditions and its growth rate—have declined.

Expected changes in global economy, in 6 months, % of respondents[1]



[1] Figures may not sum to 100%, because of rounding. In Dec 2017, n = 1,549; in Mar 2018, n = 1,230; and in June 2018, n = 1,648.

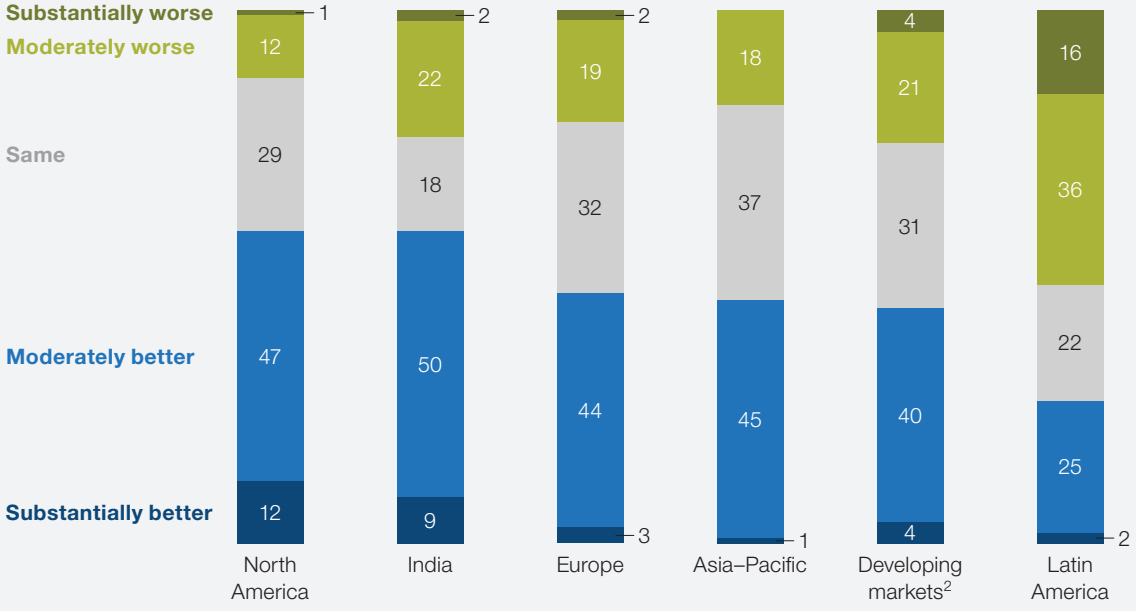
the first time since December 2016. Likewise, their views on global growth rates also have become more tempered. Respondents are more than twice as likely as they were six months ago (32 percent, up from 14 percent) to predict that the rate of global growth will slow in the next six months—though a majority still expect an increase. One exception is in Europe, where just 43 percent of respondents, compared with 55 percent of all others, believe the global growth rate will increase.

As to their home economies, respondents remain on the optimistic side—although for the first time in a year, less than a majority say economic conditions have improved in recent months. Those in North America and in India are the most upbeat across regions, and those in Latin America are the least so (Exhibit 2). Only 27 percent in Latin America cite improvements, compared with 52 percent who report declines—a dramatic change from three months ago, when respondents in the region were among the most optimistic.[3]

Exhibit 2

Respondents in North America and India are the most upbeat about their current economies, and those in Latin America the least so.

Current economic conditions in respondents' countries,
compared with 6 months ago, by office location, % of respondents[1]

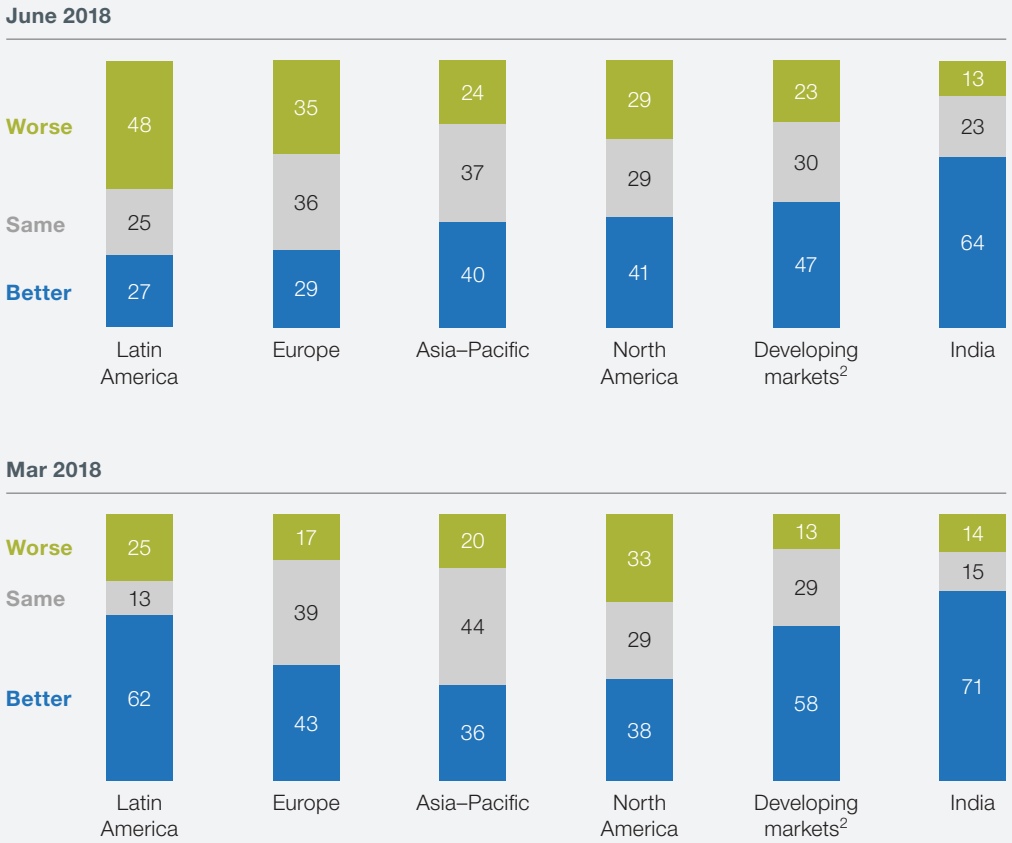


[1] Figures may not sum to 100%, because of rounding. In North America, n = 398; in India, n = 123; in Europe, n = 605; in Asia–Pacific, n = 186; in developing markets, n = 200; and in Latin America, n = 116.
[2] Includes respondents in China, Middle East, and North Africa.

Exhibit 3

Respondents in Latin America and Europe report the most cautious outlook—and much more so than in March—for their home countries.

Expected changes in domestic economic conditions,
in 6 months, by office location, % of respondents[1]

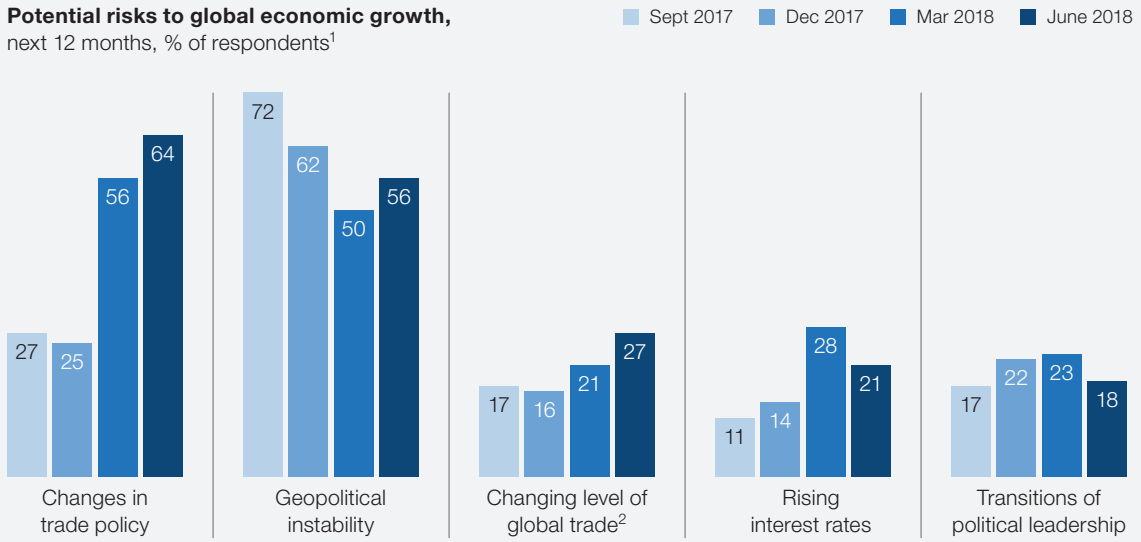


[1] Figures may not sum to 100%, because of rounding. In March 2018, Latin America n = 87; in Europe, n = 475; in Asia–Pacific, n = 124; in North America, n = 311; in developing markets, n = 148; and in India, n = 85. In June 2018, Latin America n = 116; in Europe, n = 605; in Asia–Pacific, n = 186; in North America, n = 398; in developing markets, n = 220; and in India, n = 123.
[2] Includes respondents in China, Middle East, and North Africa.

Looking ahead, the outlook on respondents' home economies is even more cautious. Compared with previous surveys, they are more likely now to expect their countries' growth rates will contract. At the same time, just 38 percent predict that domestic conditions will improve over the next few months, down from 47 percent in March and 49 percent in December 2017. Respondents in Latin America and Europe are the least likely across regions to expect improvements, and much less likely than they were in the previous survey (Exhibit 3).

Exhibit 4

A growing share of respondents cite changes in trade policy most often as a risk to global growth.



[1] Out of 13 potential risks that were presented as answer choices. In Sept 2017, n = 1,407; in Dec 2017, n = 1,549; in Mar 2018, n = 1,230; and in June 2018, n = 1,648.
[2] In Sept and Dec 2017, answer choice was "slowdown in global trade."

Trade-related concerns persist

For the second survey in a row, changing trade policy is cited most often as a threat to global economic growth. Changes in trade policy are cited by 64 percent (Exhibit 4), up from 56 percent previously and twice the share that said so one year ago. Trade-policy changes are the most commonly cited risk in all regions and by respondents in both developed and emerging economies. A related risk, changing levels of global trade, is identified by 27 percent of respondents. It's now the third most common threat; in March, it was cited sixth.

As a risk to domestic growth, trade-policy changes also continue their climb and have overtaken political issues—that is, domestic political conflicts and transitions of political leadership—as the most commonly cited risk. As in the previous survey, changing trade policy is an outsize concern in North America. In this survey, so are domestic political conflicts, which are cited more often than average in India, Latin America, and North America.

Furthermore, after a year of increasingly positive views about trade levels between respondents' countries and the rest of the world, sentiment has taken a downward turn. A plurality of respondents continue to report that trade levels have increased in the past year. But the share saying so now is smaller than in the past

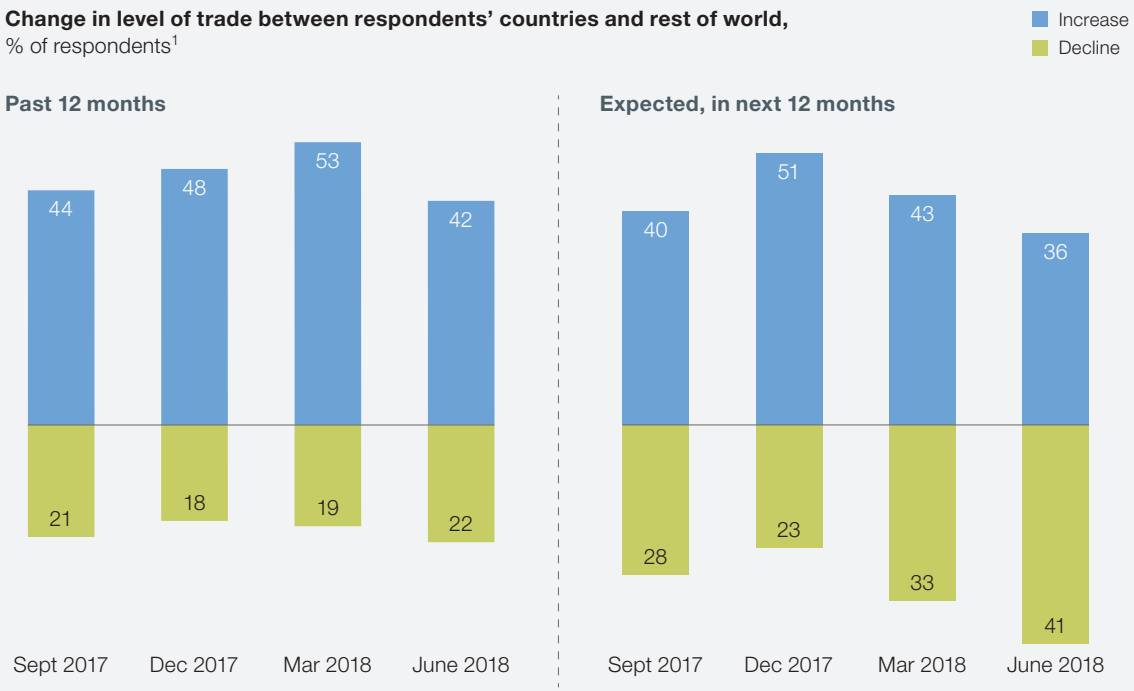
three surveys, and their predictions of future trade levels are increasingly pessimistic (Exhibit 5). Forty-one percent of respondents expect trade levels will decline in the next year, the largest share to say so since we first asked this question in December 2016. Now, respondents are more likely to expect declining rather than increasing trade.

Even respondents in emerging economies are less enthusiastic about trade than they've been in past surveys. Three months ago, 60 percent of these respondents said trade between their own countries and others had increased, compared with 49 percent of their developed-economy peers. But in the newest survey, that gap has narrowed: 45 percent in emerging economies and 40 percent in developed economies report increasing trade levels. Looking ahead, those in North America—who are also the most likely to cite trade-policy changes as a threat to domestic growth—remain the most downbeat about their countries' trade prospects, and increasingly so.[4]

Exhibit 5

Views on trade levels have taken a downward turn, and respondents are even less optimistic when they look ahead.

Change in level of trade between respondents' countries and rest of world,
% of respondents[1]



[1] Respondents who answered "no change" or "don't know" are not shown. In Sept 2017, n = 1,407; in Dec 2017, n = 1,549; in Mar 2018, n = 1,230; and in June 2018, n = 1,648.

Exhibit 6

In Latin America and North America, respondents are less convinced—and less so than average—of trade's positive business effects.

Effects of changing trade levels on companies' business,
past 12 months, % of respondents[1]

[1] Respondents who answered "no effect," "somewhat negative," "very negative," or "don't know" are not shown. This question was asked only of private-sector respondents who reported some change in trade levels (either increase or decline) between their home countries and the rest of the world in the past 12 months. In Sept 2017, total n = 859, Latin America n = 100, and North America n = 135; in Dec 2017, total n = 924, Latin America n = 89, and North America n = 187; in Mar 2018, total n = 778, Latin America n = 71, and North America n = 135; in June 2018, total n = 944, Latin America n = 82, and North America n = 164.

Shifting tides at the company level

Trade-related changes have implications for companies, too, and the latest results suggest that these effects are evolving. Changes in the trade environment continue to rise as a risk to company-level growth: they are now cited third (formerly, fifth) most often by respondents. And while most respondents' companies tend to be immune from shifting trade levels at the country level, a growing share say the effects on their business have been negative: 22 percent say so now, up from 17 percent and 14 percent in the past two surveys. Respondents in developed Asia are the most upbeat about the business effects: 52 percent report a positive effect from changing trade levels. Conversely, their peers in Latin America and North America are the least likely—and much less likely than the global average—to report business benefits. In fact, respondents in the Americas are warier now of trade's effects than they've been in recent months (Exhibit 6).

Still, respondents in these—and all—regions expect no meaningful hits to their business in the near term. Overall expectations for profits and demand remain high: 58 percent of respondents in Latin America and 68 percent in North America (compared with 62 percent of the global average) predict that their companies' profits will increase in the next six months.

While expectations for workforce size are holding steady and remain more positive than negative,[5] other results suggest that major workforce changes—thanks to technology—are already under way. Seven in ten respondents say that in the past five years, advances in digitization and/or automation have affected some portion of their companies' workforce (that is, created a need for retraining or replacement), and respondents from larger companies report an even greater effect to date.[6] Looking ahead to the next five years, nearly all respondents (94 percent) expect technology-related skill gaps will emerge.

Few companies are ready to handle these skill gaps, though. Thirty-nine percent of respondents say their companies are unprepared to deal with skill issues, and only one-third say addressing these gaps is a top or top five priority for their organizations. The biggest barrier to doing so, respondents say, is their current human-resources infrastructure, which isn't able to support a new strategy for addressing these gaps. Finally, the results suggest that these workforce changes are a universal issue. Across regions, respondents in emerging and developed economies report similar experiences and views on the effects of automation and digitization on their workforces, the extent to which their companies are—or are not—prioritizing potential skill gaps related to technology trends, and their preparedness to address these gaps. ■

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[1] The online survey was in the field from June 4 to June 8, 2018, and garnered responses from 1,648 participants representing the full range of regions, industries, company sizes, functional specialties, and tenures. To adjust for differences in response rates, the data are weighted by the contribution of each respondent's nation to global GDP.

[2] "Economic Conditions Snapshot, March 2018," March 2018, McKinsey.com.

[3] In the March 2018 survey, 64 percent of respondents in Latin America said economic conditions in their home countries had improved in the past six months, and 21 percent said conditions had declined.

[4] In this survey, 63 percent of respondents in North America predict that trade levels between their countries and the rest of the world will decline in the next 12 months. In March 2018, 58 percent of respondents in the region said the same; in December 2017, 37 percent; and in September 2017, 34 percent.

[5] In this survey and in March 2018, 44 percent of all respondents predicted that the size of their companies', departments', or agencies' workforces would stay the same in the next six months; 38 percent expected an increase in workforce size; and 17 percent expected a decrease.

[6] At companies with annual revenue of at least $1 billion, 77 percent of respondents say at least 1 percent of their workforce has needed retraining or replacement in the past five years, due to advances in automation and digitization. At companies with revenue of less than $1 billion, 69 percent say the same.

The contributors to the development and analysis of this survey include **Sven Smit**, a senior partner in McKinsey's Amsterdam office.

He wishes to thank Alan FitzGerald and Vivien Singer for their contributions to this article.

House prices aren't just slipping in the UK – this is global

By: John Stepek (https://moneyweek.com/author/john-stepek/)
30/07/2018

House prices in Sydney fell by 4.5% in the second quarter

It's very easy to become parochial when it comes to thinking about property markets.

We focus on the slowdown in the UK market and we ponder what's causing it. Could it be new rules on landlords? Could it be the crackdown on overseas investors? Could it be

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Brexit?

But this really is less than half the picture.

Because the residential property slowdown isn't just happening in the UK – it's happening pretty much everywhere.

Why residential property matters

We talk about property a fair bit in Money Morning. There are a few reasons for that. Firstly, everyone's obsessed with it. So it's fair game as a topic.

Secondly, it's an important asset class. Stockmarket crashes grab headlines, but the truth is the market can slide hard without ever really scratching the sides of the economy. But if the housing market crashes, you tend to know about it, because typically there's a lot of debt involved.

Thirdly, it's usually a pretty big item on the household balance sheet. I think it's fair to say that the majority of us aspire to owning a home and clearing the mortgage. And those who already have might be keen to use it to fund other things – retirement, deposits for offspring, or even an inheritance (although my advice on this latter point is spend the lot, your kids want you to have fun – and if they don't, they don't deserve it anyway).

Anyway – so that's why we go on about property. But as I said in the intro, it's easy to get a bit too fixated with what's going on locally. That can lead you to the wrong conclusions. After all, there are a lot of legislative changes that are affecting the UK housing market right now, for example.

But it's not just the UK. House prices are hitting a wall almost everywhere.

Take Australia. The land down under has long had one of the most expensive property markets in the world. It barely winced during the 2008 financial crisis, despite carnage everywhere else.

And yet now, it finally appears to be losing steam. Prices in Sydney fell by 4.5% in the second quarter, while prices in Melbourne slipped too.

Australia is far from alone. Hot global markets everywhere are slowing down. Canada is another good example.

And now we're seeing it happen in the US as well. As Bloomberg reports: "The US housing market – particularly in cutthroat areas like Seattle, Silicon Valley and Austin, Texas – appears to be headed for the broadest

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slowdown in years."

The number of home sales (of existing homes as opposed to new builds) fell in June for the third month in a row. New builds are selling at the slowest pace in eight months.

Meanwhile, the inventory of unsold homes – the amount of supply on the sidelines – is rising again. Prices in May were up by 6.4% year-on-year (so a lot stronger than in the UK, for example), but that's the smallest annual gain since 2017 – and over the last three months, prices have risen at their slowest rate since 2012.

What's interesting about the US housing market is that historically, despite the fact that it bore so much responsibility for the 2008 crash, it has been a relatively well-behaved property market. Over the very long run, US house prices have only risen in line with inflation. You can't say the same for the UK.

So the fact that it, too, is starting to struggle, suggests that this isn't purely a bubble market phenomenon.

Why are housing markets around the world slowing down?

Why is this? What do all of these markets have in common? Because clearly, it's not Brexit. Nor is it cracking down on buy-to-let landlords. And while most countries have grown a little more hostile to foreign investors (most Canadian cities have imposed strict rules, for example), it's not the most obvious answer.

Let's go back to basics for a moment. You buy property with debt. Usually a fair chunk of it. Property can be very lucrative as an investment precisely because of this debt (or "leverage").

Put down £25,000 deposit. Buy a £100,000 house, using a £75,000 mortgage. Sell it in two years' time for £125,000. Pay the £75,000 back to the bank. Pocket £50,000. The price went up by 25%, but you've doubled your money. Rinse and repeat until you're a millionaire.

But what makes prices go up in the first place? The rational value of a property (as opposed to the "bubble" value) is dependent on the expected rental income it will generate, and what other people are willing to pay for that income stream. It's just like a bond in many ways, only riskier, and with plumbing involved.

So if you can get 5% from your bank account, you'll want a lot more from your property – say 10%. But if you can only get 1% from your bank account, you'll take a lower yield on your property – say 5%.

Let's assume that the annual rental is £10,000 and it stays there. So with interest rates at 5%, you'll happily pay £100,000 for that rental income. But with rates at 1%, you'll happily pay £200,000. (I'm keeping the examples simple here).

You see what's happened? The price of the property is basically contingent on interest rates.

And what's happening around the world now? That's right. Interest rates have stopped going down. And in some cases (notably the US) they are rising. As a result, there's not much fuel for prices to go higher (rents are as high as they can go without a real boost in wages), and if borrowing costs rise, that will drive prices down.

As Bloomberg notes of the US, affordability is a huge issue in many of these areas, while prices nationwide are still rising "twice as fast as incomes". Yet the bigger issues is that "buyers are getting squeezed by rising mortgage rates."

In short, property (alongside bonds) is one of the asset classes that has benefited most from the decline of interest rates in recent decades. And now that's reversing.

For “normal” people, that has imposed a ceiling on the amount of borrowing they can arrange – they simply can’t afford to buy at the prices sellers still hope to get. For global investors, they’ve realised not only that the world is becoming more hostile to the free flow of footloose capital, but that, quite simply, in a rising rate environment, property is not a good investment.

What happens next? That all depends on rates.

• *Don't miss the chance to see MoneyWeek editor-in-chief Merryn Somerset Webb and guests live at the Edinburgh Festival Fringe this year. Merryn will be talking economics, politics and money at Panmure House – Adam Smith's only surviving home – from 16 to 25 August. Book now! (https://tickets.edfringe.com/whats-on/butcher-the-brewer-the-baker-and-merryn-somerset-webb)*

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Trump Fails at Lowering Drug Prices as Costs Keep Going Up

By Robert Langreth, Cynthia Koons and Jackie Gu
July 16, 2018

As a candidate and then as president, Donald Trump has had plenty to say about how drug prices are out of control and how he plans to get them down.

Drug companies are “getting away with murder,” he said in January 2017, promising to save “billions” through better negotiating. On May 11, Trump called his new drug price plan “the most sweeping action in history.” And after Pfizer Inc. raised prices of many of its products this summer, he tweeted on July 9: “We will respond!”

While Pfizer agreed to delay its increases for now, the long-term trend shows prices keep going up.

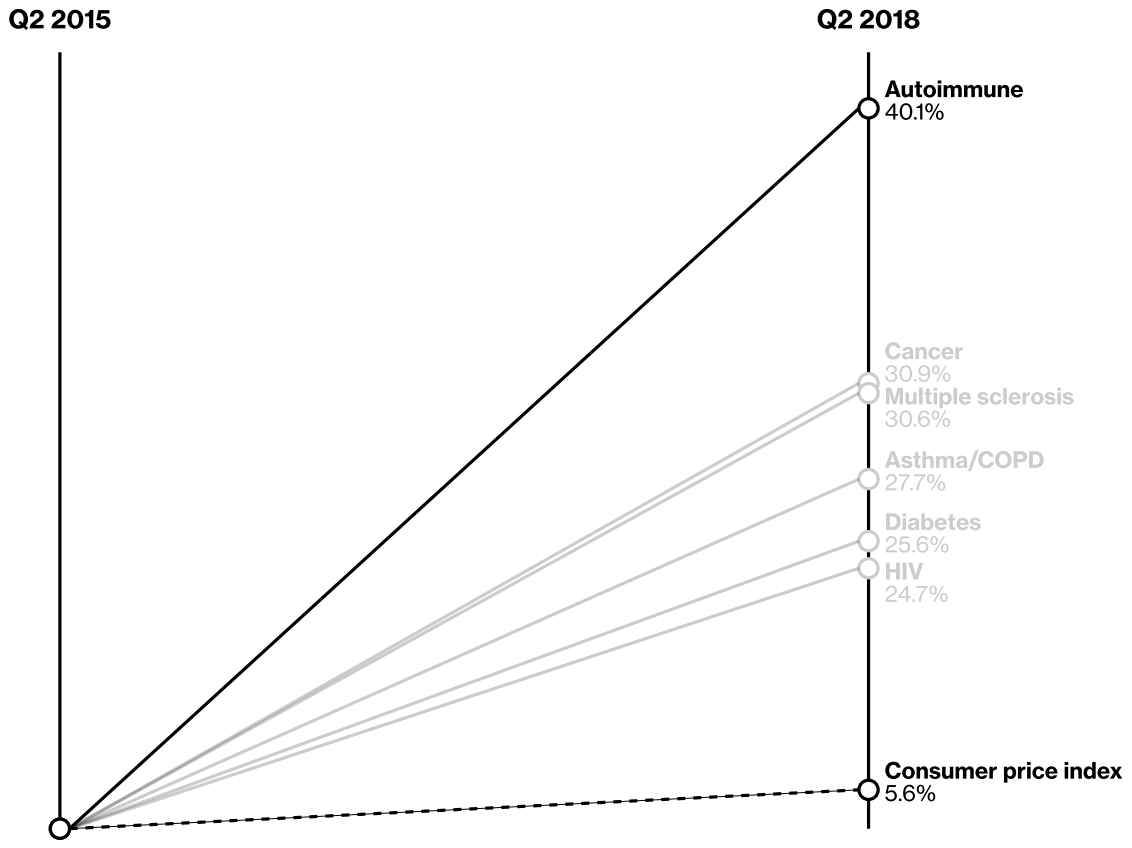
Today, we’re introducing price indexes for some of the most widely used, best-known drugs in the world. It’s a look at whether Trump's rhetoric on prices since he was elected has had a major impact. (Hint: it hasn’t.)

Bloomberg News will update these indexes periodically throughout the year as prices change. Drug companies regularly increase prices often at the beginning of each year, and often mid-year as well.

The Indexes

The prices for 40 commonly used drugs in six categories–diabetes, cancer, HIV, multiple sclerosis, asthma and chronic obstructive pulmonary disease, and autoimmune diseases such as rheumatoid arthritis and psoriasis–are compared over a three-year period. Starting from June 2015, the month Trump declared his candidacy for president and shortly before scandals flared over pricing moves by “Pharma Bro” Martin Shkreli and Valeant Pharmaceuticals International Inc., now known as Bausch Health Companies Inc., the indexes track the average percent increase in drug prices through late June 2018. Prices are based on data from Connecture Inc.

Mouse over to see associated drugs



For all six categories of drugs, list prices rose far faster than inflation. Prices for 10 commonly used diabetes drugs rose 25.6 percent, on average, while average prices for rheumatoid arthritis and other autoimmune treatments rose 40.1 percent.

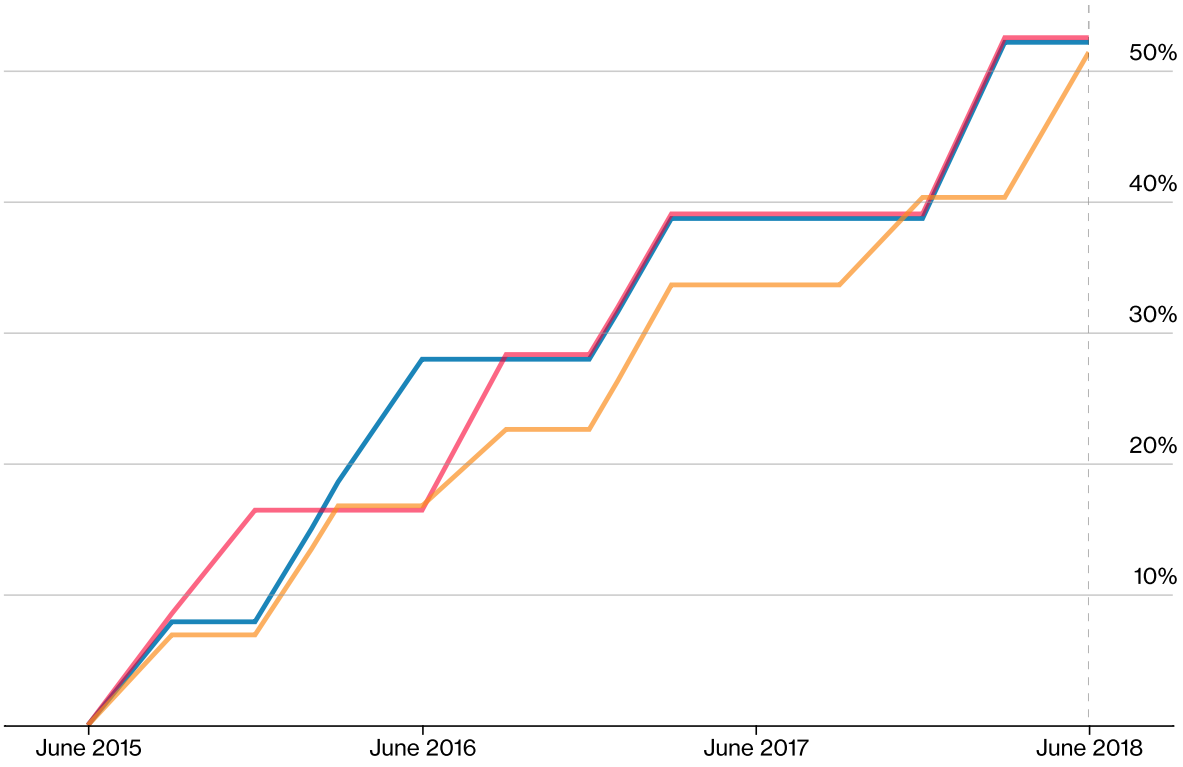
The latter category includes AbbVie Inc.'s Humira, the biggest-selling drug in the world. Prices for the injection soared 52 percent on five separate price increases.

Another drug with an unusually big increase in the period was Bayer AG's liver cancer pill Nexavar, whose cost rose 51 percent on six separate price hikes, to $155.59 per pill, according to Connecture. Nexavar now costs $18,670 per month for patients who take the typical dose.

Drugs Featuring Large Price Hikes

Percent increase in price, from Q2 2015

Humira Enbrel Nexavar



The indexes focus on list prices, not confidential rebates drug companies negotiate with insurers and drug plans to gain better coverage. While drug companies provide big discounts on many classes of drugs, including medicines for diabetes and asthma, patients often don't share in these rebates.

The indexes predominantly include self-administered drugs that tend to be covered under a patient's drug benefit. Patients tend to be more exposed to the costs of these drugs, compared to medicines given in the hospital or doctor's office.

The Trump administration has said it's committed to getting prices down. The list prices matter. Makers of some drugs for cancer and multiple sclerosis provide virtually no discount at all, benefit managers say. The list prices can determine how much patients in Medicare, high-deductible plans, or without insurance have to pay for their drugs out of their own pockets.

Sources: Connecture Inc., data compiled by Bloomberg
Additional reporting assistance by Aziza Kasumov

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SCIENCE WORLD

An Indian whose tech made ketchup glide out of a bottle is now making pesticides stick to crops

Professor Kripa Varanasi of MIT has pioneered a technology that could potentially help lakhs of farmers in India.

by Vijaysree Venkatraman
Published Jul 25, 2018 · 11:30 am

Amit Dave/Reuters

Drops of water bead up or roll right off the leaves of the lotus, making for that metaphysical metaphor – live like a lotus in the water. But the leaves of plants such as wheat, onion and cabbage are also water-repelling, or hydrophobic, and this can be a problem for farmers because pesticides sprayed on the leaves bounce off, leaving only a minuscule portion behind.

Professor Kripa Varanasi's team at Massachusetts Institute of Technology has developed a new technology that has the potential to reduce the amount of pesticide that rebounds off the leaves of crops. Results in the lab indicate that this system could allow farmers to use only a tenth of the usual amount of pesticide to get the same effect they do now. This summer, the system, which promises to benefit both the environment and the farmer, is being tested on the ground.

Unlikely progression

Six years ago, the researchers at Varanasi's lab had demonstrated the concept of a permanently wet slippery surface that would help liquid glide out of a container. Their five-second video of ketchup sliding out of a bottle down to the last drop went viral. Companies around the world began inquiring about the coating that made it possible. The same year, Varanasi co-founded LiquiGlide Inc, a company whose technology enables formulation of coatings for a range of applications – consumer packaged goods, manufacturing processes, medical devices and oil pipelines.

But agricultural sprays, such as pesticides, pose the opposite problem of condiments in a bottle – and so the scientists wanted to find a way to make the liquid stick.

Every year, some 5.6 billion pounds of pesticides are used worldwide. A bulk of these chemicals, up to 98%, eventually make their way into groundwater, lakes and rivers, hurting aquatic ecosystems. This is disastrous for the environment and a major loss for farmers worldwide, who annually spend roughly $100 billion on pesticides. “With our solution, there is a 10-fold reduction in lab scale, but assuming 50% (or two-fold reduction) at farm scale, we would still estimate savings in billions of dollars per year,” said Varanasi.

What does all this mean for the small farmer? Substantial savings. According to some estimates, they currently spend up to half the production cost on pesticides. Further, in developing countries, small farmers tend to spray crops without using protective gear because either they cannot afford it or they are unaware that exposure to pesticides can lead to certain nervous diseases, reproductive problems and cancer.

To minimise such costs to society, Varanasi considered this – can the surface of the leaf be altered so the pesticide sticks better? Farmers had already tried agents like surfactants, or soap-like chemicals, to lower the surface tension of the droplets and moisten the leaves better, but the results have been less than convincing. The bouncing off happens in a matter of tens of milliseconds, which is too short a time frame for the surfactant to be effective, Varanasi explained.

It was time for a new approach.

Bring opposites together

In 2013, MIT’s newly-formed Tata Center for Technology and Design, whose stated goal is “to bring rich technical talent and experience to bear on the persistent and emerging challenges in developing world countries”, funded Varanasi’s initiative. Along with his graduate student Maher Damak, he visited agricultural universities in Junagadh and Hyderabad. The farm visits were an eye-opener for the city-bred visitors.

“Depending on the crop, farmers deal with different bugs at different stages,” Varanasi said. “Even before the leaves start sprouting and right up to the harvest, they are up against something or the other.” The spraying must be relentless to match. How can pesticide usage possibly be lowered?

This time, Varanasi’s lab came up with a technology that was the very opposite of LiquiGlide, one whose goal was to transform droplets that tend to bounce off into sticking droplets. This could be achieved thanks to two different additives, both of which are non-toxic, biocompatible, and biodegradable.

Photo credit: MIT.

Here is how it works: The pesticide is split into two portions and each gets a specific additive. One additive is a polymer which gives the solution a negative charge and the other gives it a positive charge. As the two solutions with opposite charges spread and meet on the surface of leaf, they create “pinning points” that help the pesticide stick better. This process increases the retention of pesticides up to ten-fold.

In 2016, when the paper which described the efficacy of the modified spray was published in *Nature Communications*, the popular press also publicised the discovery. Immediately, the group received calls and emails from crop growers on different continents, said Varanasi. This was like LiquiGlide story, Part Two.

Putting it to the test

Crop growers eager to reduce their pesticide footprint clamoured for field tests. The researchers had many potential candidates to choose from and three sites made the cut – a vineyard in Italy, a citrus grove in Florida, and a berry farm in Sharon, Massachusetts, a short drive away from the MIT campus. In the lab, the researchers ensured that that the additives did not harm the leaves in any way.

Starting this April, Varanasi and Damak have been visiting the chosen three farms to supervise the field trials. Already, there are encouraging reports that the pesticides are “spreading well”. Data collected at these sites will tell the researchers just how effective the additives have been. The feedback will help them refine their formulations for clients in the future.

The design of the spraying machine, which varies slightly in different countries, may also come in for some tweaking. In large mechanised farms, typically, tractors are fitted with nozzles to do the spraying. “Our goal is to make the delivery of pesticides as efficient as possible,” said Damak, who is now a post-doctoral researcher at MIT. “The retrofitting should be minimal, the usage seamless.”

Researcher Maher Damak (left) and Professor Kripa Varanasi. Photo credit: MIT.

Like LiquiGlide, this technology too is likely to be commercialized soon. This is the typical route innovation takes at top research universities like MIT these days – research paper and prototype for field testing, to product from a spin-off company.

Though the project has other sources of funding now, Tata Center’s initial funding got it off the ground. Later this year, the researchers will be testing their system in India – the details are yet to be finalised. This development should make Varanasi’s mother, who lives in Hyderabad, happy. When farmer suicides were constantly in the news in India, moved by their plight, she had asked her son once – “Can’t you do something about this problem?” Finally, he seems to be taking steps in that direction with an innovation that might just benefit farmers not just in India, but the world over.

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The FAANGs are all different stocks – but they'll all crash together

By: John Stepek (https://moneyweek.com/author/john-stepek/)
01/08/2018

Apple is very different from Netflix. But that won't save it when the market turns

It's been a hairy week for the most important stocks in the market.

The so-called FAANGs (Facebook, Apple, Amazon, Netflix and Google/Alphabet) were having a wobble.

But last night, Apple announced its latest set of results. It beat expectations and cheered everyone right up.

So now everyone is keen to point out that the FAANGs aren't really all the same.

But will that be enough to save them when the crash comes?

A magnificent triumph of branding

Apple is a magnificent example of the triumph of branding, combined with the power of networks.

"Who would pay a grand for a smartphone?" we all sneered, when the iPhone X launched. Lots of folk, it seems. While Apple's main rival Samsung has seen disappointing sales of its latest flagship phone, the same can't be said for Apple.

It's little wonder. If you own an iPhone X, you're making a statement. That statement will range from "hipster legend" to "flash twit", depending on your audience, but it's a statement. Pull out the latest Samsung (or other model), and it's just not the same thing. (I say this as the owner of an elderly Samsung).

And once you're invested enough in Apple to slap down a grand for a phone, you're also heavily invested in the Apple ecosystem. Your music library, your backup storage – all conducted and kept in Apple's carefully curated walled garden.

The more you invest, the harder it is to walk out of the door. That's a powerful business model.

Anyway – Apple's results were decent. They beat Wall Street expectations. And after disappointments from the likes of Facebook and Netflix (and angry ickle Twitter, chirruping away in the corner like a demented, venomous sparrow), suddenly everyone's breathing a sigh of relief.

You know what else is a magnificent example of branding? The whole idea of FAANGs. "Hot tech stocks" doesn't quite have the same ring.

But an acronym only goes so far. Once some of the stocks start to look less hot than others, it gets tricky.

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By: Alex Rankine (https://moneyweek.com/author/alexrankine/)

Bitcoin's big bounceback – can it continue? (https://moneyweek.com/bitcoin-price-bounce-can-it-continue/)

Bitcoin has risen by 40% in the last two weeks to over $8,000. Dominic Frisby looks at what's behind the spectacular rally, and where the price might go next.

By: Dominic Frisby (https://moneyweek.com/author/dominic-frisby/)

So now, the industry voices are harrumphing, “Of course, you can’t lump all of these companies in together”. Keenly aware that we must be somewhere close to the end of the run for this sector of the bull market, fund managers and other pundits are now trying to break up the supergroup that has been responsible for the best part of the gains seen in the S&P 500 in recent years.

Which FAANG would you buy and hold for ten years?

They have a point. I mean, clearly there are huge differences between these companies. For example, which of the FAANGs would you bet on still being around in something close to their current incarnations in ten years’ time?

We’d probably all have different answers. But I’d be comfortable betting that Apple and Amazon will almost certainly be there. They might be the IBM and Walmart of the day – big but boring – but an extinction event seems unlikely. Of the two, Amazon is probably more vulnerable to a political backlash, but consumers like cheap, convenient stuff, which also gives it a bit of protection.

Alphabet I’d assume would be there, although its business model strikes me as being vulnerable to a radical change in search technology (I don’t know how this might happen, but I can imagine in a world in which “Googling” is seen as a quaint way to find stuff).

Facebook I can see as being vulnerable to a number of things, from a social backlash to tighter regulation. Facebook, of course, owns a lot more than just the Facebook social media site itself, but I can certainly imagine the company facing full-on existential challenges in the near to mid-term.

Probably the most vulnerable is Netflix. It’s a good service and I’m all for it – for those of us who still harbour secret ambitions of being Hollywood screenwriters, it’s comforting to see huge amounts of money being invested in a vast make-work scheme for experimental (or just plain bad) telly, with the occasional absolute gem being churned out in the process.

I’m not saying it can’t go the distance. But of all the big tech stocks, it’s the one that looks most vulnerable, to my mind. Certainly, if you told me that I absolutely had to choose a FAANG in which to lock up all my money for ten years, I’d probably stick it in Amazon, and Netflix would be last on my list. (We can hopefully return to this prediction in 2028 and you can laugh at me.)

If the FAANGs fall out of favour, they’ll all fall together

However. The nice thing about being an investor in a relatively free market is that you don’t have to invest in any of the FAANGs if you don’t want to.

And the point I’m making here is this: it’s perfectly possible – indeed, normal – for a group of popular stocks to have little in common beyond a stupid acronym. Remember the BRICs? In retrospect, it really is hard to think of four less similar economies – Brazil, Russia (oil exporters), India, China (oil importers). But they were all lumped together as the hot emerging markets at one point.

And a lot of the money that flooded into them indiscriminately flooded out of them with just as little thought.

The same happened with the so-called “Nifty Fifty” stocks in the late 1960s and early 1970s. Big “one-decision” stocks (ie, buy and hold forever) were all the rage. And then they weren’t. Just as with the FAANGs, some of those were a lot better than others: Coca-Cola was a keeper; Polaroid wasn’t.

Are individual FAANGs overvalued? Some look better value than others. But as a group, until Facebook’s little mishap the other day, those five stocks between them had a higher market capitalisation than the entire FTSE 100 or the entire Nikkei 225.

In other words, you could have bought the entire equity of every big UK bank, the big oil majors, the big pharma companies, the odd utility, a bunch of miners – and it would have cost you less than purchasing the FAANGs.

Those companies are valuable. But they're not that valuable.

In short – I'm not a buyer of any of the FAANGs right now. I'll happily hang on to them as part of a well-run, high-growth investment trust (eg, **Scottish Mortgage (LSE: SMT (http://www.google.co.uk/finance?q=LON%3ASMT))**, because I know that it's impossible to call the high in these stocks.

But my main point is – don't fall for the new hype. Yes the FAANGs are all different. But too many people have bought them for the same reason – because they're hot tech stocks. And that means the same people will sell them en masse when they're not hot anymore.

• Don't miss the chance to see MoneyWeek editor-in-chief Merryn Somerset Webb and guests live at the Edinburgh Festival Fringe this year. Merryn will be talking economics, politics and money at Panmure House – Adam Smith's only surviving home – from 16 to 25 August. Book now! (https://tickets.edfringe.com/whats-on/butcher-the-brewer-the-baker-and-merryn-somerset-webb)

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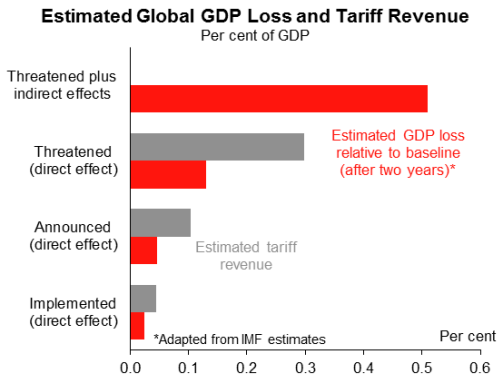
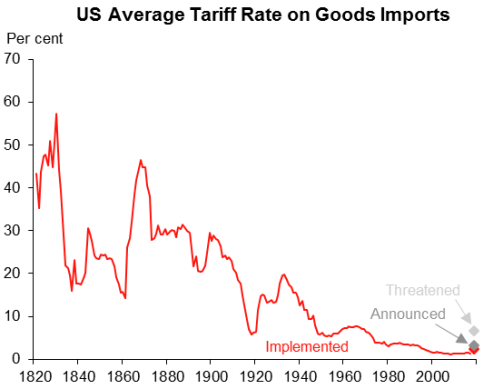
25 July 2018 Global

ECONOMICS





Source: IMF, US Census Bureau, USITC, USTR, Macquarie Macro Strategy

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The Great Trade War of 2018…
Peering Through the Fog…

The trade war of 2018 kicked off in earnest on 6 July, with the US and China imposing 25% tariffs on a significant volume of imports. With further escalation likely, in this note we attempt to quantify the direct impact on the global economy.

The first port of call for most economists is a global dynamic stochastic general equilibrium model (DSGE). Somewhat reassuringly, these models suggest that the initial direct hit to global growth will be small. For example, based on IMF estimates, the tariffs announced to-date (including the not yet implemented 10% on $200 billion of US imports from China plus reciprocation) will directly reduce global output by only 0.05%, while the direct impact of adding the threatened tariffs (including all autos and effectively all US imports from China plus reciprocation) would cut output by only 0.13% over 2 years.

The DSGE models are also used to estimate likely indirect effects, which by their nature are more difficult to gauge as they reflect behavioural assumptions related to confidence etc. Interestingly, in the IMF's view these confidence effects at the global level could be bigger than the direct impact – they forecast that threatened tariffs would cut output by around 0.5% of global GDP over 2 years, after accounting for the shock to confidence (0.38 ppts bigger than the direct effect).

One of the problems with such models, however, is that the "black box" nature of their output often provokes scepticism, particularly when related to indirect effects. In an attempt to clarify the working assumptions, in this note we strip the analysis back to basics by outlining a framework for thinking about how the tariffs will directly impact activity. We treat a tariff as a change in fiscal policy (a tax on imports), with transmission to output gains or losses similar to that of other tax changes.

- If a 10% tariff is applied to a range of goods, the price of the impacted goods will increase. The first round impact on consumption (and output) will depend on consumers' reaction to higher prices. If all goods were to attract the new tax, over time (assuming no change in incomes and saving habits and full pass through), the fall would be around 10%.
- If, however, the tariff only applies to some goods (as is currently occurring), consumers will substitute towards other goods with the fall in overall consumption significantly less. This suggests that the **maximum** first round direct impact on output would be the amount of revenue raised.
- The maximum amount of revenue that could be raised by tariffs announced to-date would be $80 billion per year (even without substitution), which is only 0.10% of global GDP. Even if we account for the threatened additional tariffs, the maximum revenue raised would be only $240 billion – 0.3% of global GDP. **This accords with the IMF view that policies discussed to-date will have only a small direct impact.**

Estimating the indirect effect is more difficult, with DSGE-based estimates of economic collapse following Brexit an example of the imprecision. While growth is likely to slow a little next year, we do not expect a significant slump in the near term, as the fiscal stimulus offsets the drag from higher tariffs and supports consumer and business confidence (note that President Trump has now proposed a $12 billion subsidy for farmers). **Indeed, rather than driving a global recession, we feel that the main impact will be at a country and sectoral level, with trade likely to be redirected and supply chains recalibrated.**

So we're finally in a trade war…

But what does it mean for growth?

Over the past few months, markets have been buffeted by constant developments on the trade front, with agreements apparently being reached, only to be followed by the announcement of further tariffs. With the situation changing so frequently, it can be difficult to keep track of the relative scale of tariff actions to-date, and those that may be forthcoming. In this note, we provide a stocktake of measures taken and threatened (see appendices for detail) and attempt to quantify the likely impact on the global economy.

The IMF's modelled estimates of the direct impact

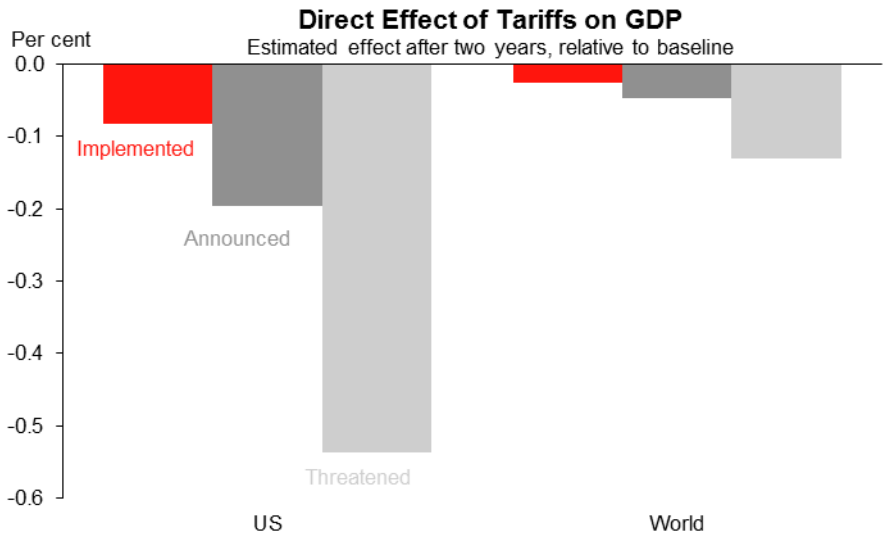
The first port of call for most economists when assessing the likely impact of tariffs is a global dynamic stochastic general equilibrium (DSGE) model. Somewhat reassuringly, these models continue to suggest that the direct drag on global growth will be relatively modest, even after allowing for significant escalation. For example, in a recent assessment, the IMF estimated that the **direct effects** of tariffs implemented to-date are likely to shave off only 0.02-0.03% from global GDP.[1] Implementation of announced tariffs (including the second and third tranches of the section 301 tariffs) would roughly double this drag, while threatened tariffs would generate losses 5-6 times as large (around 0.13% of global GDP).[2]

- Note that the direct impact on the US is relatively small for the implemented and announced tariffs (around 0.1% and 0.2%, respectively) but becomes more significant if the further threatened escalation occurs (around 0.5% of GDP).

  ⇒ This highlights the risk that US growth could slow materially next year under an escalation scenario. However, with fiscal policy expanding by a further 0.7% of GDP next year, this should in large part offset the impact, suggesting that the probability of a serious slowdown in the US remains relatively small.

- Somewhat bizarrely, the IMF's model does not include a standalone unit for China, rather including China in the broader Emerging Asia category. They estimate that for the broader region, even if all the threatened tariffs come into being, it would only take 0.1-0.2% off GDP. However, in our view this is likely to significantly underestimate the effect on China, given that it includes positive effects of trade diversion within the region.

Fig 1 The direct hit to GDP remains small to-date and should remain relatively contained even following the expected further escalation, particularly at the global level



Source: IMF, Macquarie Macro Strategy

[1] We assume the IMF's estimated effects are linear and adjust their estimates to be consistent with the assumptions and scenarios used in this note (see appendices) – the resulting figures are almost identical to those in the IMF's scenarios. We also use two years as the reference point given that the IMF's modelled confidence shock (discussed later) is assumed to peak after two years.

[2] Note that estimates of tariff effects can vary substantially across models. For example, the Bank of England recently estimated that the direct effect of 10% tariffs on all US trade (roughly two-thirds larger again than the threatened tariffs considered herein) could take as much as 2.5% off US GDP and 1% off global GDP.

Modelling the indirect impact – the IMF view

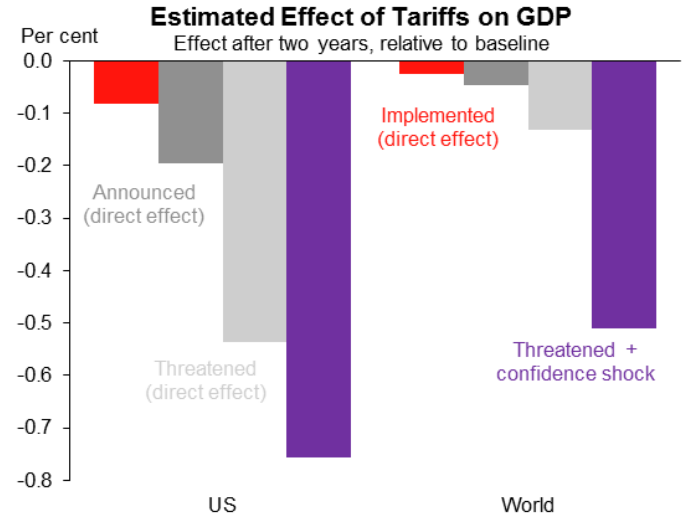
DSGE models are also used to estimate likely indirect effects, which by their nature are more difficult to gauge as they reflect behavioural assumptions related to confidence, spill-over effects through the global supply chain, etc. Notably, in the IMF's view these confidence effects could be bigger than the direct impact for global growth – they forecast that including sentiment effects the threatened tariffs would cut output by around 0.5% of global GDP over 2 years (0.38 ppts bigger than the direct).

Interestingly, the IMF model suggests that the indirect impact, which is additive over and above the direct effects, is most prevalent outside of the US:

- For the US, confidence effects are assumed to result in a drag of 0.2% of GDP over the next two years, similar to the effects for "rest of world" (regions not captured separately in the IMF model).
- For Japan, the Eurozone, and Latin America, indirect effects are estimated to be around 0.5% of GDP, much larger than any direct effects of the tariffs.
- Finally, for EM Asia the indirect effects are estimated to be somewhat larger than for other countries, at around 0.6-0.7% of GDP.

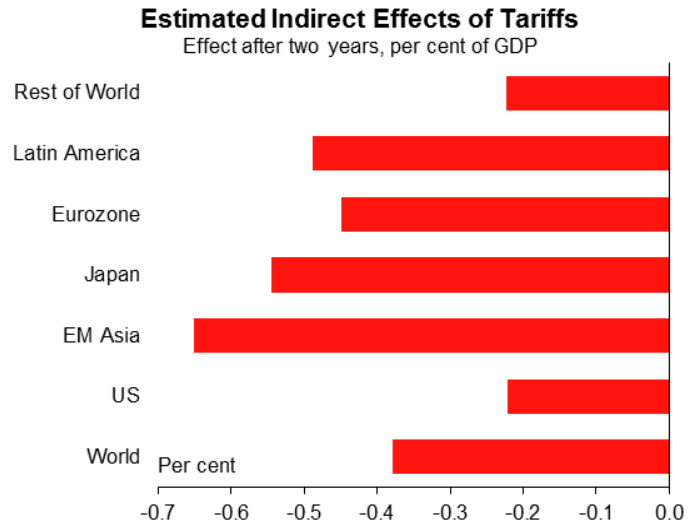
  ⇒ While this suggests a potentially significant growth slowdown in China next year, we note that it seems implausible that China (a still closed economy) would see a bigger confidence impact than elsewhere. It is also notable that China was tightening monetary policy in the first half of this year with credit growth slowing noticeably. If the trade-induced confidence shock were to occur, we suspect the authorities would implement stimulus to ensure that the growth impact was relatively modest.

Fig 2 Indirect effects could be more significant at a global level, however these are much harder to estimate



Source: IMF, Macquarie Macro Strategy

Fig 3 Indirect effects vary across country, but are estimated to be larger outside the US



Source: IMF, Macquarie Macro Strategy

Decomposing the impact – a first principle approach

While models are always a good initial approach to complex problems, the "black box" nature of DSGE output often provokes scepticism. In an effort to simplify the analytical process, we therefore strip the analysis back to basics by providing a framework for thinking about the tariffs and a simple quantitative assessment of their likely scale. When thinking about the impact of the trade war, it is first useful to note that the imposition of a tariff is comparable to a change in fiscal policy (a tax on imports).

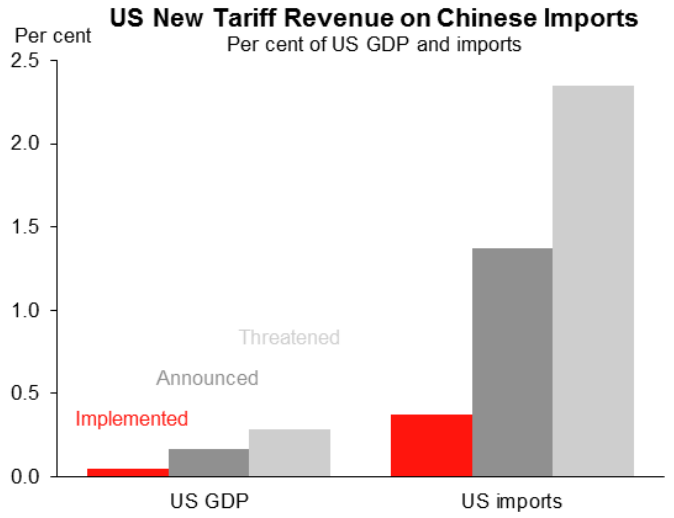
- If a 10% tariff is applied to a range of goods, the price of the impacted goods will increase, with the ultimate price rise faced by consumers depending on the extent to which companies absorb the hike.
- Any reduction in consumption will then depend on consumers' behaviour when faced with higher prices. If all goods were to attract the new tax, over time (assuming no change in incomes and saving habits), real consumption and output would fall by something like 10%.
- If the tariff only applies to some goods (as is currently occurring), however, consumers will substitute towards other goods with overall consumption much less impacted.

This suggests that the maximum direct impact on output would be the amount of revenue raised, assuming trade flows are unaffected by the tariffs. In the current situation, the direct hit to global growth is likely to be significantly less as the proposed tariffs are mainly bilateral in nature, permitting cross-country substitution. Note that this is much simpler to estimate than a "deadweight loss" and is essentially the relevant concept for countries adopting retaliatory actions through the WTO.

We use this approach to estimate the maximum direct effect of the tariffs mooted to-date. In particular, we take the tariffs implemented, announced, or threatened by the US and assume that the affected trading partners retaliate in-kind, which has typically been the case to-date.[3] We then compare the revenue generated with relevant macroeconomic aggregates:

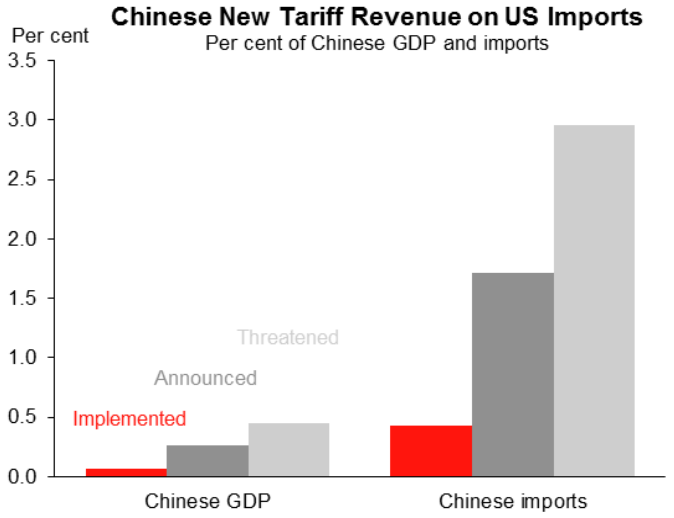
- For US tariffs on Chinese exports, we compare the revenue generated to US GDP and total US imports (Figure 4). Revenue from tariffs implemented on Chinese imports is fairly insignificant at only 0.04% of US GDP and 0.4% of US imports, while threatened tariffs equate to **0.3% of GDP** (2.3% of imports)
- For China's retaliatory tariffs on US exports, we compare the revenue generated to Chinese GDP and total Chinese imports (Figure 5). Similarly, implemented Chinese tariffs are small thus far, at around 0.07% of Chinese GDP and 0.4% of Chinese imports. If all mooted tariffs were to be implemented, revenues would amount to **0.5% of Chinese GDP** or 3.0% of total Chinese imports.

Fig 4 Threatened US tariffs on Chinese imports would amount to around 0.3% of GDP if put in place



Source: US Census Bureau, USTR, Macquarie Macro Strategy

Fig 5 Chinese tariff revenues on US imports would be equivalent to around 0.5% of GDP under similar assumptions

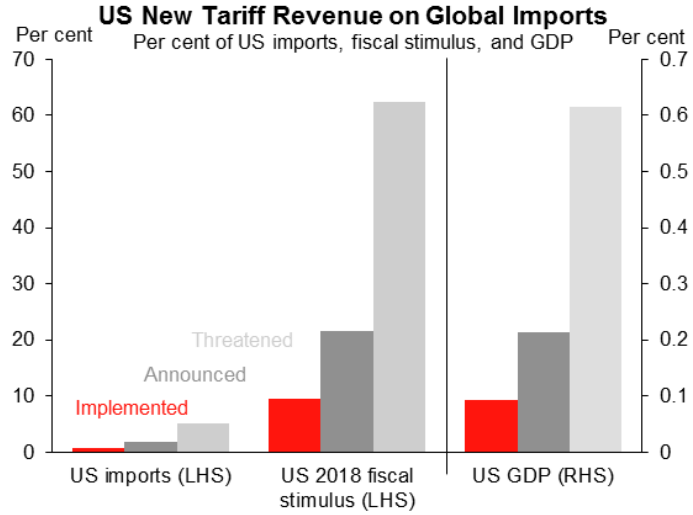


Source: US Census Bureau, USTR, Macquarie Macro Strategy

- For all of the US's new tariffs (including those affecting countries other than China), we compare the revenue generated to US imports, the additional fiscal stimulus in 2018, and US GDP (Figure 6). Even under the assumption that all threatened tariffs are imposed, US tariff revenue would only be around 5% of US imports, 60% of the fiscal stimulus coming on-stream in 2018, **or 0.6% of GDP**.
- For global tariffs, capturing the US's tariffs and like-for-like retaliation, we compare the revenue generated to 2017 global GDP and global trade (Figure 7). Tariff actions implemented thus far equate to around 0.05% of global GDP or 0.2% of global trade, while escalation to the extent threatened would see this increase to around **0.3% of GDP** and 1.3% of trade.

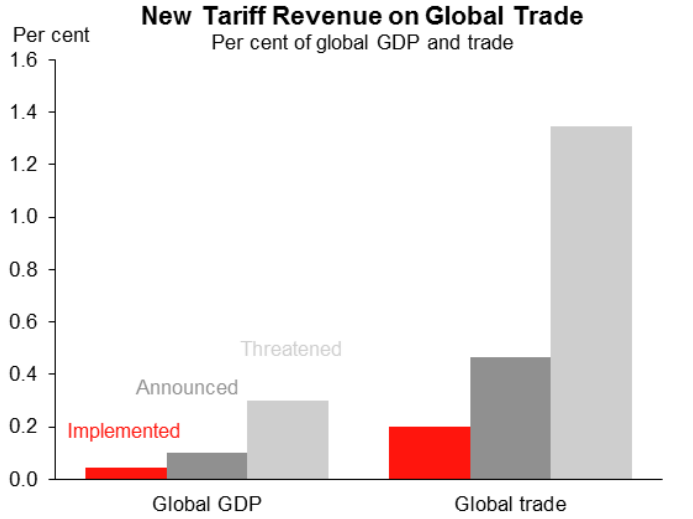
[3] In the case of China, which imports around $130 billion of goods from the US annually, compared to over $500 billion in exports, retaliation could take the form of higher tariffs or non-tariff barriers.

Fig 6 Including the threatened US tariffs on all countries (e.g. autos) brings the scale up to around 0.6% of US GDP



Source: IMF, US Census Bureau, USTR, Macquarie Macro Strategy

Fig 7 Global tariff revenues are equivalent to around 0.04% of global GDP to-date, but could rise to 0.3%

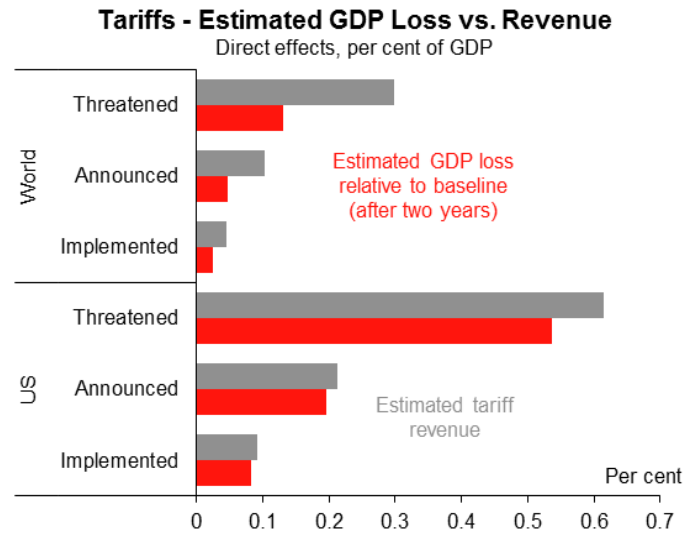


Source: IMF, US Census Bureau, USTR, Macquarie Macro Strategy

Note that this approach yields fairly similar estimates to the IMF's general equilibrium model, particularly in the case of the US (Figure 8). This suggests that our approach offers a useful rule of thumb – the direct reduction in GDP associated with a tariff is likely to be of a similar magnitude to the annual revenue it would generate if trade patterns were unchanged.

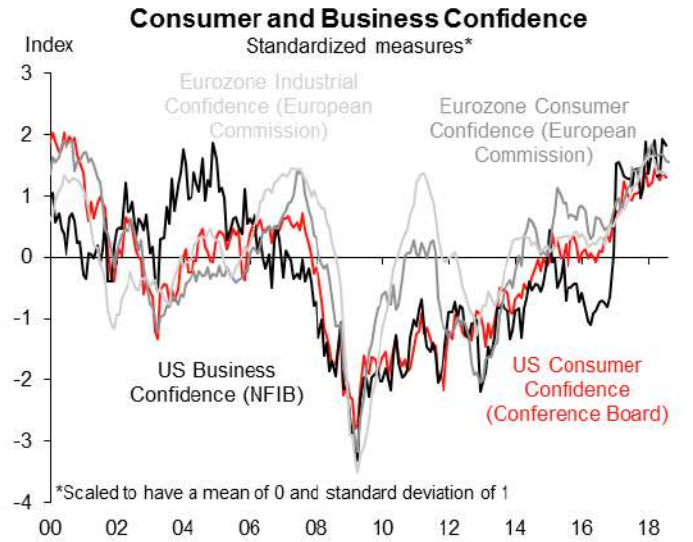
While the IMF also rightly highlights the risk of large indirect effects, we note that DSGE-based estimates of economic collapse following Brexit provides an example of their imprecision. Moreover, policy uncertainty surrounding President Trump's administration is not a new thing, with consumer and business confidence currently high despite market nerves. While growth will probably slow a little next year, we do not expect a significant slump in the near term, as the fiscal stimulus offsets the drag from higher tariffs (note Trump has now proposed a $12 billion subsidy for farmers hurt by retaliatory tariffs). **Indeed, rather than driving a global recession, we feel that the main impact will be at a country and sectoral level, with trade likely to be redirected and supply chains recalibrated.**

Fig 8 The estimated GDP loss due to tariffs is fairly similar to the amount of associated tariff revenue



Source: IMF, US Census Bureau, USTR, Macquarie Macro Strategy

Fig 9 Consumer and business confidence remain high, despite market nerves



Source: Macrobond, Macquarie Macro Strategy

Appendix 1: US tariffs – what has been announced to-date?

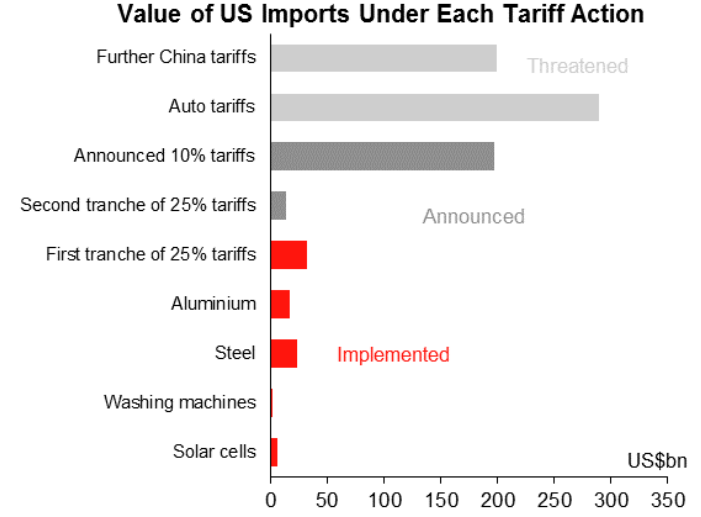
Over the year to-date, several rounds of tariffs have been proposed, following through with President Trump's campaign pledge to take action on trade. These include:

- On 22 January, President Trump announced "safeguard tariffs" under section 201, covering solar cells and modules, as well as large residential washing machines. Tariffs, which came into effect on 7 February, vary over time and are subject to some thresholds and exemptions (see here for details). Based on 2017 trade values, in the first year:
  - ⇒ Average tariffs of around 25% apply to $6.6 billion of solar cells and modules imports.
  - ⇒ Average tariffs of around 40% apply to $1.9 billion of washing machine imports.
- On 1 March, the US announced its intention to impose tariffs on "national security" grounds under section 232, covering imports of aluminium and steel (initially discussed here). The tariffs came into effect on 23 March, with exemptions for Argentina, Australia, Brazil, Canada, the EU, Mexico, and South Korea. On 1 June, the tariffs began to apply to aluminium and steel imports from Canada, the EU, and Mexico, and aluminium imports from South Korea. Based on 2017 trade values:
  - ⇒ Tariffs of 10% apply to $16.5 billion of aluminium imports.
  - ⇒ Tariffs of 25% apply to $23.4 billion of steel imports.
- On 22 March, President Trump announced tariffs on "$50 billion" of imports from China under section 301.[4] The initial tariffs, which were in response to alleged forced technology transfer and intellectual property theft, were to take place in two stages. Based on 2017 trade values:
  - ⇒ The first set of tariffs, at a rate of 25%, apply to $32.3 billion of imports from China and came into effect on 6 July (detailed here).
  - ⇒ The second tranche of tariffs, also at a rate of 25%, will apply to $14.1 billion of imports from China, but no set date has been scheduled for their implementation.
- On 18 June, the White House released a statement instructing tariffs on $200 billion worth of Chinese goods (previously $100 billion had been threatened).
  - ⇒ While the list of products, released on 10 July, is still subject to public consultation, tariffs of 10% would apply to around $197 billion of imports from China, based on 2017 trade values (see here for further details). Based on the timing of the consultation process, these tariffs could come into effect as early as September.
  - ⇒ President Trump also threatened to impose 10% tariffs on a further $200 billion of imports if China responded in-kind to these tariffs.
- Finally, with much of the President's pre-election focus being on the auto industry, there has been much discussion about potential tariffs on auto imports. On 23 May, the US announced an investigation into placing tariffs on autos and automotive parts imports under section 232.
  - ⇒ While the scope of these potential tariffs has not been explicitly defined, a fairly broad definition could see $290 billion auto imports facing a tariff of 20%. More detail is likely to emerge on the scope and likelihood of these potential tariffs in the coming weeks.

Evidently, the various rounds of tariffs mooted vary dramatically across a number of dimensions, which we summarise in Figures 10-15. Those implemented to-date are comparatively small, covering less than $100 billion of goods imports in aggregate (predominantly from China). As the year has progressed, the scope of threatened tariffs has increased considerably, nearing $800 billion. If these tariffs were to be imposed, and trade flows were to be unaffected (an upper bound on the estimated effect), average US tariff rates would increase to around 6.5 percent, back to 1970s levels. Note that when considering the differing tariff rates, the auto tariffs are by far the largest, roughly equivalent to all other threatened actions to-date.

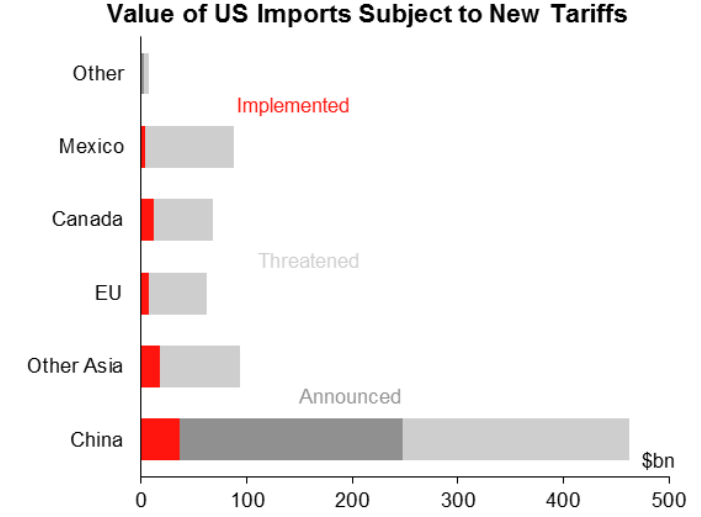
[4] As we use 2017 values to demonstrate the relative magnitude of trade actions to-date, our totals differ from those quoted by the US Trade Representative (which are based on 2018 projections).

Fig 10 The tariffs implemented to-date are relatively small, covering less than $100 billion of imports



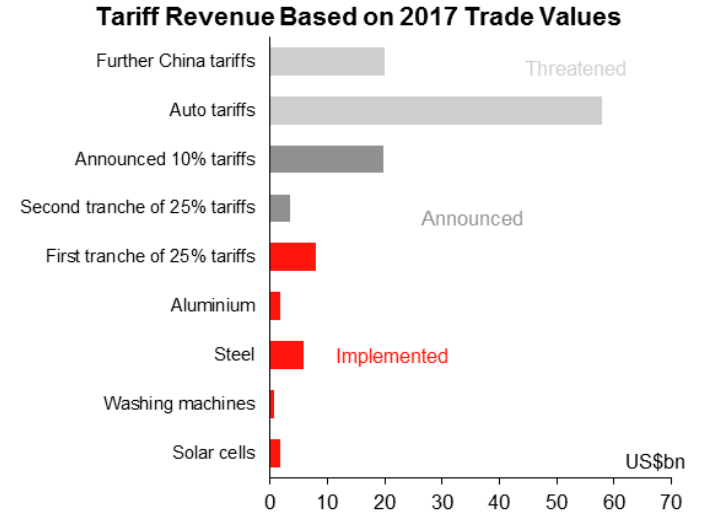
Source: US Census Bureau, USTR, Macquarie Macro Strategy

Fig 11 Although some of the actions affect other countries, China is clearly the primary target



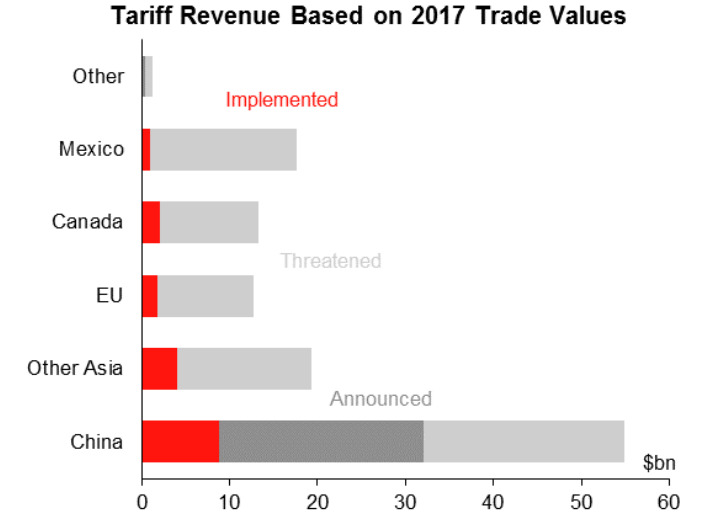
Source: US Census Bureau, USTR, Macquarie Macro Strategy

Fig 12 In terms of revenue at 2017 trade values, the auto tariffs would be roughly as large as all other threats to-date



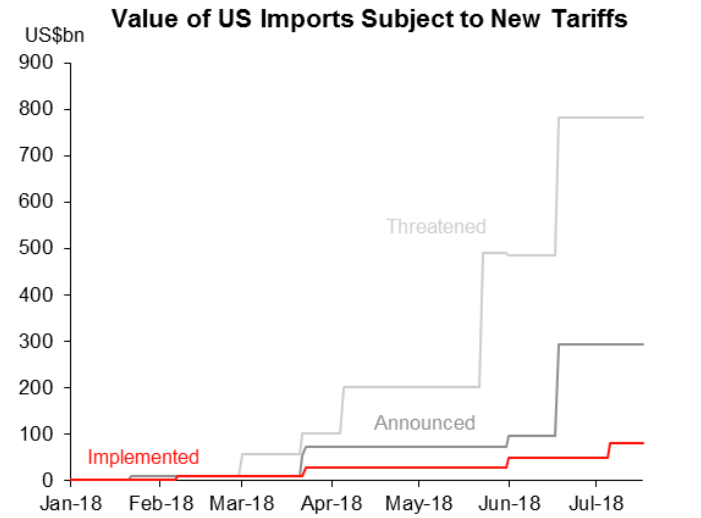
Source: US Census Bureau, USTR, Macquarie Macro Strategy

Fig 13 These tariffs would most heavily affect Canada, the EU, and Mexico



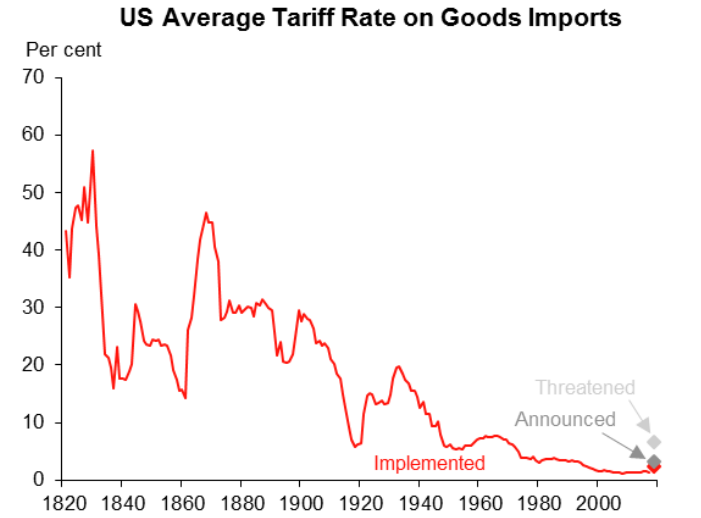
Source: US Census Bureau, USTR, Macquarie Macro Strategy

Fig 14 As the year has progressed, the scope of threatened tariffs has ramped up considerably



Source: US Census Bureau, USTR, Macquarie Macro Strategy

Fig 15 If the US followed through on all threatened actions, average tariffs could move back towards 1970s levels



Source: US Census Bureau, USITC, USTR, Macquarie Macro Strategy

Appendix 2: Other countries – retaliation to US tariffs

While the tariffs have primarily targeted China, the tariffs on solar cells and modules, washing machines, aluminium, and steel have evidently hit a broader group of countries. Moreover, the threatened auto tariffs would primarily hurt Canada, the EU and Mexico. It is therefore not surprising that the retaliatory response to US actions have been fairly broad-based. Figure 16 details the retaliatory actions to-date in response to the US's imposition of steel and aluminium tariffs, showing that more than $30 billion worth of US goods have thus far been targeted.[5] Moreover, other trading partners such as Japan have notified the WTO of their intention to retaliate in-kind should the US tariffs remain in place.

Fig 16 Retaliation to the US's steel and aluminium tariffs

Country	Tariff effective date	Main products	2017 trade value ($US)	Tariff rate
China	2 April	Aluminium and pork	$1.7 billion	25%
		Wine, fruits, and nuts	$0.8 billion	15%
Mexico	5 June	Pork, steel, fruit, and cheese	~$3 billion	5-25%
Turkey	21 June	Coal and petroleum coke	$0.6 billion	5-10%
		Nuts, steel, vehicles, wood, and whiskey	$1.2 billion	5-40%
EU	22 June	Steel, bourbon, motorcycles, and aluminium	$3.2 billion	25%**
	21 March 2021*	Vehicles, vehicle parts, apparel, footwear, and electronics	$4.3 billion	10-50%
Canada	1 July	Steel	$4.3 billion	25%
		Aluminium, agriculture, and consumer goods	$8.5 billion	10%
Russia	6 July	Road construction equipment, and oil and gas equipment	~$0.3 billion	25-40%
	21 March 2021*	TBC***	TBC	TBC
India	4 August	Wheat, soybean oil, dried peas, cashew nuts, and palmolein	$10.5 billion	5-10%
		Shelled almonds, walnuts, apples, and motorcycles	$140 million	20-100%

Source: Mexico Official Federal Gazette, PIIE, USTR, Russian Ministry of Economic Development, WTO, Macquarie Macro Strategy. *Or upon a positive finding in the WTP dispute settlement process, whichever occurs first. **Playing cards are only subject to a 10% tariff, totalling $134 million in EU imports from the US in 2017. ***Additional tariffs imposed would generate duties of $460 million, but no products, values, or rates have been specified.

On 4 April, China also announced its response to the US's section 301 tariffs, covering "$50 billion" of imports from the US. Similarly to the US tariffs, these were to take place in two stages:

- The first tranche of tariffs, at a rate of 25%, apply to $29.2 billion of imports from the US and came into effect on 6 July.
- The second tranche, also at a rate of 25%, covers $15.3 billion of imports from the US, and will become effective immediately after the second tranche of US tariffs are implemented.

Finally, while no specific responses to the US's other threatened tariffs have been detailed, the US's major trading partners, such as Canada, China, the EU, Japan, and Mexico have stated their intention to retaliate in-kind should these be given the green light. This would represent a significant escalation from the tariffs implemented in recent months.

[5] In response to the tariffs on solar cells and washing machines, China imposed duties of 179% on sorghum imports from the US on 17 April, but these were removed on 18 May.