# The ₹100-billion wager

## Here's what India can learn from China's electric vehicles programme

VANDANA GOMBAR

As India embarks on a ₹100 billion ($1.4 billion), three-year programme to support electric vehicles (EV) and charging infrastructure, it may be able to reap a late mover advantage by looking at what is happening in the world's largest electric vehicle market — China.

There are four things that stand out in China's strategy for electric vehicles:

**Rewarding efficiency:** The subsidy was always higher for higher-range electric vehicles running over 250 km on a single charge. Support has been substantially slashed for lower range models. For cars with a range of 100-150 km, there is nil subsidy support now.

**Ecosystem approach:** China has the world's most extensive charging system for electric vehicles — comprising public and private chargers — and has the largest capacity for manufacturing batteries for electric vehicle.

**Credit system:** At least one vehicle out of every 10 sold by automakers in China has to be electric in 2019, as per a mandate. Exceeding this would generate credits that can be sold to other automakers falling short on their mandate.

**City restrictions:** Cities like Beijing and Shanghai have significantly curtailed sales of conventional vehicles with internal combustion engines. That has pushed sales of electric vehicles. Around 18 per cent of all EVs sold globally in 2018 were in six Chinese cities, and some of these rank among the top EV markets globally.

India's electric vehicle subsidy policy announced last month is skewed towards two-wheelers (privately-owned vehicles). For three-wheelers, and four-wheelers, "the incentives will be applicable mainly to vehicles used for public transport or registered for commercial purpose," the government statement said. The policy aims to support 1 million two-wheelers, 500,000 three-wheelers, 55,000 four-wheelers and 7,000 buses.

On the renewable energy side, India's capacity reached 75 gigawatts in December 2018. Another 100 gigawatts must be added by 2022 to reach the target of 175 gigawatts. Wind farms accounted for the largest chunk (35 gigawatts) while solar power crossed the 25 gigawatts mark. The balance was biomass and small hydropower. The outlook for 2019 is positive for both solar and wind.

India will be among the top three solar markets in 2019. It is projected to install a little over 12 gigawatts this year, according to BloombergNEF (BNEF), equal to the estimated US installation. China will remain the world's leading solar market, with 39 gigawatts of new solar farms likely to be set up, with the U.S. and India running neck and neck for the second slot, followed by Japan, at about 9 gigawatts.

On wind power, though the market in India was muted in 2018, with just 2.3 gigawatts of new capacity added, the outlook is bullish for the next few years. About 3.7 gigawatts is expected to be added this year, and around 6 gigawatts or slightly more every year over the next three years. Global installations are estimated at around 60 gigawatts this year, and in 2020, according to BNEF.

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### TOP FIVE MARKETS FOR ELECTRIC VEHICLES
(excluding US and China)

Passenger EVs sold in 2018

| | |
|---|---|
| Shenzhen | 84,000 |
| Shanghai | 81,000 |
| Germany | 72,000 |
| Norway | 72,000 |
| UK | 61,000 |

Note: US EV sales in 2018 totaled 350,000 while China's total was 1.1 million
Source: China Passenger Car Association, BloombergNEF

## CHINESE WHISPERS

### The argument continues...

If you thought the battle over *rasogolla* is over, think again. More than a year after the sweet got the Geographical Indication (GI) tag of *Banglar Rasogolla*, the Odisha Small Industries Corporation (OSIC) has filed a rectification petition demanding that the GI tag of the sweet be changed to "*Jagannath Rasgulla*". The GI registry is set to hear the issue in April and has asked the OSIC to submit documents to support its claims in two months. If it fails to do so, the rectification petition will be dismissed. West Bengal and Odisha have been engaged in a bitter legal battle over the origin of the sweet since June 2015.

### Highway blues

An upscale hotel in Pune, located on a highway, serves liquor on its seventh floor restaurant but not in the ground floor restaurant. When a guest enquired about it, he was told that the distance between the highway and the seventh floor via the staircase was more than 500 metres, a senior lawyer tweeted. In December 2016, the Supreme Court had banned sale of alcohol within 500 metres of state and national highways to discourage drunken driving. Seven months later, it clarified that the ban did not apply within city limits. It is not clear if the hotel is within city limits and was aware of this relaxation.

### Strengthening journalism

Tathagata Satpathy *(pictured)*, four-time Biju Janata Dal (BJD) Lok Sabha member from Dhenkanal, Odisha, announced on Tuesday that he was quitting electoral politics to focus on journalism. "There is a need for more fearless voices in journalism now. Distancing myself from politics to refocus on journalism. Grateful to my leader Naveen Patnaik for his support all these years..." the 63-year-old tweeted. The son of former Odisha chief minister Nandini Satpathy and two-time Lok Sabha member Debendra Satpathy, Tathagata is known to take up uncommon causes — demanding legalisation of cannabis and supporting homosexuality when much of India's political elite balked at supporting the cause publicly — to name a few. He said he was quitting at the insistence of his 13-year-old son but rejected speculation that he was headed to the Bharatiya Janata Party, following party colleague B J Panda.

# Combining mammon and morals

## ESG funds are gaining traction in India but conceptual and practical questions about them abound still

SURAJEET DAS GUPTA


TAKE TWO

The $1 billion fund announced recently by three former Tata executives — Mukund Rajan, Alan Rosling and Govind Sankaranarayanan — in alliance with Quantum Advisors wants to invest in small- and mid-cap listed stocks. But this is only part of their strategy: They also want to play an active role in the companies in which they invest to ensure they comply with the objectives of the fund.

On the other hand, KKR-backed Avendus Capital, which is raising a similar amount, wants to take minority stakes in the top 100 companies by market cap. It, too, will attempt to influence management decisions but it is not looking for an active role.

Two funds, two strategies but both purport to be part of the latest trend in global investing: ESG (Environmental, Social and Governance) funds. A post 2008-crash development, ESG funds purport to look beyond a company's financial performance to other factors that may materially impact corporate performance. Such investors also study parameters such as environment (climate change), social (health, safety and human rights) and governance (quality of management or board independence) when investing in a company. Globally some $26 trillion has been sunk into such funds.

A lot of groundwork has already gone into enabling investments in ESG funds. The MSCI, for instance, runs an ESG Index for institutional clients that tracks and rates about 200 Indian companies and hopes to double that number this year. And the experience of "impact funds," which are similar to ESG funds except that they focus on companies producing products and services that promote sustainability, also provides a handy measure.

Belgium-based Incofin, an impact investment firm, has funded and even sold its stakes in Fusion Microfinance (which serves unbanked women) as well as in Annapurna Microfinance for decent returns. Last year Kotak Asset Management became the first in India to sign the United Nations-supported Principles for Responsible Investment, which tries to integrate ESG practices into investment policies and practices. And even State Bank of India has joined the bandwagon — it has renamed one of its older mutual funds SBI Magnum Equity ESG Fund.

The two new-mega funds have ambitious plans. Rajan, who was brand custodian to the Tata group, says they are looking at investing around $50 million in some 20 mid- and small-cap listed companies. "We would like to see at least a 10 per cent stake in the company and become the second-largest investor after the promoter. Our aim is to play an active role in implementing the ESG programme," he says.

The horizon is long-term with an exit route of seven-eight years. To identify targets, the fund is building an internal team that will score 4,000-odd companies on ESG parameters.

Andrew Holland, CEO of Avendus Capital Public Alternative Strategies LLP, the fund will focus on 15-20 companies and has tied up with Institutional Investor Advisory Services to create a ranking framework based on ESG principals. The fund will also track the invested company by scoring its ESG performance once a year.

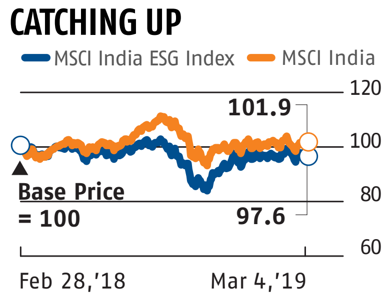
If ESG funds appear to combine mammon and morals, market analysts point to multiple downsides. One, many investors say that ESG funds' return on investment is lower than normal funds because the companies in which they invest face rising ESG compliance costs and, therefore, lower profits. Two, some say ESG is mere "packaging"; most of the companies they choose would also be in the list of, say, a mutual funds based on the BSE 100 scrips. Three, questions have been raised on the arbitrariness of rating companies on ESG performance. This is a global problem — for instance, American Tower Corporation was rated at the bottom as well at the top by different rating agencies on ESG parameters.

The same challenges seems to be evident in India. The MSCI Index, for instance, puts companies in tobacco or alcohol or using fossil fuel in the negative list. But as Rajan points out: "You cannot be a purist in choosing companies, one has to look at its intention as well." So for him Tata Power might be dependent on fossil fuels, but it has put up a plan of action that by 2025 when 40 per cent of its revenues will come from renewable energy, which makes it an attractive ESG bet. An analyst says, ITC might be in tobacco but it could be in the ESG fund list because it scores high on corporate governance and its intention to reduce its dependence on tobacco and move towards consumer goods and other sectors could make it a good bet.

Avendus is assigning a higher weight for companies with good governance parameters and much less to environmental and social ones, principally because the latter two are more difficult to achieve. Holland, however, says if governance is in place all the other parameters become easier to achieve.

Both Holland and Rajan aver that criticism that ESG funds give low returns is a myth. The MSCI ESG India Leaders Index has continuously outperformed that of the MSCI India Index, the point out. And the trend is similar, globally too. The question is whether ESG funds will catch on as they did in other global markets. With corporate governance suddenly leaping to forefront of newspaper headlines in India — from ICICI Bank to IL&FS — ESG funds in India may find more takers than the cynics suggest.

### CATCHING UP




Source: Bloomberg/BS Research Bureau

## DECODED

**Subhayan Chakraborty** explains the Generalised System of Preferences, the largest trade preference scheme of the US, and how it will affect India's exports.

# Clearing a hurdle

**What is the Generalised System of Preferences (GSP)?**

The GSP is the United States' largest and oldest trade preference programme. Established by the Trade Act of 1974, the GSP promotes economic development by eliminating duties on thousands of products when imported from one of the 120 designated beneficiary countries and territories. Rolled out at a time when the US economy was booming, the programme sought to expand and cement the country's trade relations with numerous nations across the global south, including the vast majority of African nations struggling with economic issues after independence.

At the height of the cold war, the scheme projected American power across the globe and aimed to bring nations at risk of courting the USSR and allied nations into its economic fold. On Monday night, India was made non-eligible to receive GSP benefits.

**Why should India bother?**

India has consistently remained the largest beneficiary nation under the scheme. In the last financial year, it received a total of $190 million as duty benefits. Upwards of 3,700 Indian products are entitled to receive GSP benefits. In essence, spread across tariff lines and categories, this enables India to access the US market at zero duty costs for thousands of goods.

The country exported goods worth $5.6 billion to the US in 2017-18 through the scheme, representing 11 per cent of the total exports to the US, pegged at $47.87 billion. It is a significant catalyst for boosting exports state bound in multiple sectors such as inorganic and organic chemicals, agricultural and marine products, among others.

**What does the US want?**

In November 2018, the US president had signed an executive order to end the duty-free status of 50 Indian exports to the US. The country has attracted the wrath of the current Donald Trump administration which has repeatedly pointed to the large trade deficit run up by the US with India. America's current trade deficit stands at $ 21.2 billion, up from $ 16.63 billion five years back.

Since China does not figure in the list of GSP eligible list, the United States Trade Representatives (USTR) Office has sharpened its attacks against India, which it feels should not seek benefits intended for less developed economies.

India's GSP eligibility had been under threat ever since it was clubbed with Indonesia and Kazakhstan to be scrutinised by a sub-committee under the USTR. The sub-committee came down heavily on New Delhi for continuing to take advantage of liberal trade policies while restricting market access for US goods.

**Has India benefited from GSP?**

The government data suggests India managed to export only 1,900 items through the GSP, showing the nation's inability to build up trade competitiveness. Most export items are raw materials and intermediary goods. India's exports have helped in cost effectiveness and price competitiveness of US downstream industry. On the flipside, the GSP withdrawal is also expected to impact the competitiveness of many manufacturing sectors in the US and will hit US consumers at the same time, according to trade experts.

**India's GSP eligibility had been under threat ever since it was clubbed with Indonesia and Kazakhstan to be scrutinised by a sub-committee under the United States Trade Representatives. The sub-committee came down heavily on New Delhi for continuing to take advantage of liberal trade policies while restricting market access for US goods.**

**Will India's exports be adversely affected now?**

Since GSP exports account for only 0.4 per cent of all exports, its withdrawal is expected to have marginal impact, according to the largest export body, Federation of Indian Export Organisations. This is echoed by the government as well. Some others believe that since export orders to developed markets such as the US have cutthroat competition and margins have remained depressed across sectors, major export share is at stake. Since other developing nations are operating on similar margins and costs, entire chunks of the export market may be lost.

**Where does this leave India-US trade relations?**

The first casualty of the latest developments is widely expected to be the mutually acceptable trade package between the nations, under negotiation for months. The package has been in the works for the past one year and trade officials have met as many as five times to hammer out a deal that provides an amicable solution to grouses from both sides.

On the other hand, India may also announce retaliatory tariffs. Officials also feel that India can't yet again delay the imposition of the already announced higher duties on 29 key imports from the US. These have been deferred a record six times. Expected since June last year, the tariffs are set to go live from April 1.

## LETTERS

### Electoral politics

I found the edit "Off target" (March 5) quite intriguing. India's diplomatic victory over Pakistan in the context of the Balakot air strike is as much due to Prime Minister Narendra Modi's incessant efforts to build close relationship with nations that are of strategic importance to it (including Saudi Arabia) as being a democracy. In search of accuracy in the number of Pakistanis killed, the Opposition is missing the strategic significance of established facts. That Indian Air Force penetrated Pakistan territory and that Pakistan's retaliation was feeble and was confined to sending a F-16 plane to Indian borders put to rest the threat it represents as a nuclear power.

Why depend on international media and question the truth of damage done in Balakot? If the casualties in Pakistan were little or non-existent, the media in Pakistan would have been the first to publicise them with pictures calling out the Indian bluff. Instead, its government agreed to release the captured Indian pilot within two days. This was due to the active global pressure on it by world powers like the US, France, Russia and even China considering India's striking power.

Separating the Balakot strike from electoral politics is not possible. By staging the Pulwama attack killing 40 CRPF jawans just two months before the Lok Sabha elections, Pakistan most likely wanted to facilitate Modi's defeat. If Modi had not attacked quickly, his party and he would have faced an angry electorate. The unexpected and daring response came as a shock to Pakistan as well as the Opposition. Hence, the outcry for details.

**Y G Chouksey** Pune

### Changing farm scenario

This refers to Surinder Sud's "Beyond loan waivers & doles" (March 5). The issues raised and the points made look rational and suggestions worth pursuing. Obviously, the "agricultural agenda" is presented at this point of time to garner support from as many political parties as possible that may be participating in the 2019 general elections. A mention has been made about the need for bringing agriculture and irrigation in the concurrent list of the Constitution to let the Union government play a more meaningful role in their development. There would be no two views on the desirability of revisiting the subjects in the central, state and concurrent lists of the Constitution as political formations have undergone a change from what they were decades ago.

In the present scenario, pending large scale changes in statutes, the NITI Aayog should be in a position to play a proactive role in guiding the Centre and the states where necessary, in the formulation of policies affecting prices, wages and income across sectors. After the NITI Aayog took over most of the roles of the erstwhile Planning Commission, the impression one got was that the new dispensation was listening to all stakeholders before advising government on the policy issues. From the article, it is not clear whether the Consortium of Indian Farmers Association did approach NITI Aayog to brief it about its concerns about farm sector policy.

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# Trade error

## US goes too far, but India's response could have been better

The United States administration has decided to exclude imports from India and Turkey from its Generalised System of Preferences (GSP) scheme. The scheme allows for certain sets of goods to be imported into the US with zero tariffs. India is currently the largest beneficiary of this scheme, with about $5.6 billion worth of imports benefiting. This is a disturbing development for Indian exporters who are already stressed, and shows the US in poor light. It's true India's tariffs are generally high, and its general stance on trade is protective, but the US government's moves have also been inconsistent. For example, US President Donald Trump's repeated insistence on balancing bilateral trade runs counter to all the canons of free trade. He has complained about tariffs on solar panels while imposing such tariffs himself.

However, the Indian government's sanguine reaction to the GSP withdrawal appears misplaced. The government has argued that the concessions amounted to a duty reduction of less than $200 million a year, so there is unlikely to be any effect on exporters. This is an unfortunate response to what is a serious setback to Indo-US trade ties. Many exports from India have wafer thin competitive advantages. Thus, the difference made by this change could be more substantial than the figure cited by the government. It is also worthwhile to consider what this means for Indo-US economic relations more generally. India runs a moderate trade surplus with the US, only about $23 billion. Even given the current US administration's protectionist impulses, this should not have been allowed to devolve into a major confrontation that led to excluding India from a programme that it has benefited from since the 1970s. It is not as if India has not made concessions — for example, duties on motorcycle imports from the US have been slashed, following Mr Trump's repeated invocation of the tariffs India imposes on iconic Harley-Davidson machines, which are made in an electorally significant state. But it is clear that it has not made the strategic case for more integrated economies effectively enough to the US. Among the trade lines that are due to be hurt are chemicals and engineering — precisely the sort of manufacturing exports that India needs to grow going forward in order to create sustainable jobs within the country.

Unfortunately, there has been a certain myopia in the Indian trade establishment about the national interest. Recent Indian populist moves can be held responsible for this state of affairs. For example, restrictions on US-made medical devices, particularly cardiac stents and knee implants, have inflamed opinion in Washington DC. The unfortunate fact is that Indian patients have themselves not benefited considerably from price controls in this sector, given that hospitals find it easy to merely shift the cost burden elsewhere. The dairy sector is another flashpoint. India has essentially argued that "religious reasons" prevent the import of dairy products from the US. One of the issues is that the US has not banned the use of bovine somatotropin, or "bovine growth hormone", produced from cattle's pituitary glands, as a supplement in dairy farming. It is unclear why a compromise involving labelling could not have been found, even if religious reasons were considered sufficient for such a major breakdown in trade relations. India's options are limited. For example, it had proposed retaliatory tariffs of about $235 million on 29 American goods, but has put off implementing these six times already in the hope that a negotiated trade settlement will come through. Such fruitless exercise does not mean much. At a point of inflection in world trade, when pressure is gathering on the People's Republic of China and trading networks are in flux, India should have been more proactive.

# Beyond a boundary

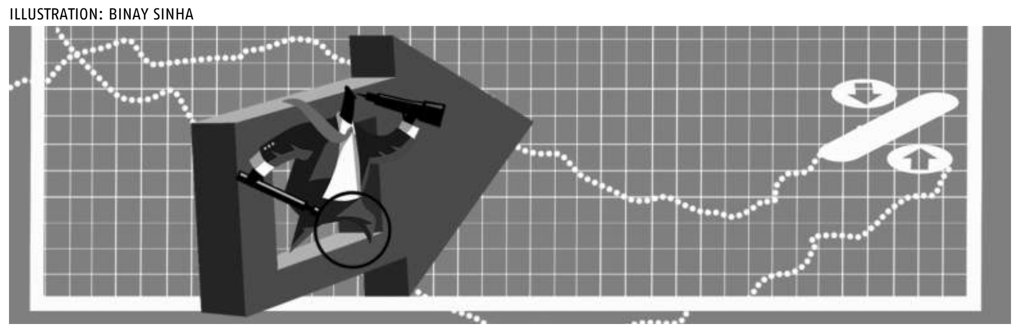
## Why ICC should have a say in IPL

The Board of Control for Cricket in India (BCCI) has recently stated that the International Cricket Council (ICC) will not have a say in the administration of the Indian Premier League (IPL). The proposal, made at a meeting in Dubai recently, was part of ICC's larger plan to "monitor" the burgeoning T20 tournaments around the world — IPL may be the richest but every cricketing nation has a similar tournament on its annual calendar. The Indian cricketing body has said that IPL is a domestically organised tournament, just like the Ranji Trophy, in which the ICC has no say. To that extent, BCCI is correct as ICC does not have the jurisdiction to get involved in domestic tournaments until requested, and it does not get involved in similar domestic tournaments in Pakistan, Australia and elsewhere. But that should change.

The BCCI's apprehensions principally centre on the possibility that ICC would want to muscle in on the enormous profits that the 11-year-old cash cow generates — its brand value crossed $5 billion in 2017. This may be a valid concern, but a disingenuous one too. First, it is worth recalling the IPL concept is not an original one. It came up as a result of some formidable competition from Subhash Chandra's Indian Cricket League (ICL) that, Kerry Packer-style, was attracting international cricketers — not to speak of BCCI board members — to an attractive tournament format. The BCCI at the time had complained that the ICL operated outside the purview of the ICC. It imposed lifetime bans on ICL players and then launched its own fantastically successful copycat version that killed off the ICL. Its founding values alone, therefore, contradict its current arguments. This apart, unlike the Ranji Trophy, IPL's enormous profits are predicated on the participation of international players, umpires and a host of other officials who also serve in other ICC tournaments, including the World Cup. Indeed, all other cricketing events on the calendar tend to be put on hold when the IPL is underway. Given that the resources of the global cricketing community are being leveraged, the argument that this most significant tournament in the annual calendar should claim some sort of an exception appears weak.

There is another good reason for the IPL and all other similar tournaments to be under the ICC's umbrella. Around the world, T20 is becoming the most popular format of the sport, and has the potential for an explosive multiplier effect in creating higher levels of tournaments for cricketers — just as the domestic premier European football leagues feed into the hugely popular inter-club Champions League. A Champions League T20 tournament flopped because it was run by BCCI, Cricket Australia and Cricket South Africa, without any cohesion among the other major cricketing nations — England, West Indies, Bangladesh, Pakistan. A similar tournament involving all nations under the ICC's umbrella would have a better chance of success, and also introduce a healthy, genuinely sporting dynamism into T20 tournaments beyond the hoopla of money-making and, inevitably, new standards of corruption. Indeed, the exclusion of the IPL and other T20 tournaments from the ICC's remit is *sui generis* in the sporting world. Associations such as FIFA, ATP, or NBA may not be models of great administration but their roles as global supervisory bodies for each sport has enhanced the popularity of their respective sports. Cricket, on the other hand, has a diminishing audience except for the individual T20 leagues. For this format to survive as a sporting property rather than a short-term way for cricketers and administrators to bolster their income, it demands a global not a parochial approach.

ILLUSTRATION: BINAY SINHA



# What can be done to revive growth?

## Economic growth solves many problems. Can lower interest rates help reverse the slowdown?

TESSELLATUM

NEELKANTH MISHRA

Debatable as the analytical utility of quarterly GDP statistics in India may be, the continuing drop in growth rates as recently reported for the December quarter surprised no one: If anything the magnitude of the drop was larger than expected. Over the last several months, economic momentum has steadily worsened, as measured by the growth of monthly sales of largely formal sectors. Even the decline in prices of crude oil did not provide the relief that was expected by many. Growth in the current quarter is projected to slow further.

Is this the new normal? Far from it; there are too many positive structural changes that the Indian economy is undergoing for its potential growth rate to fall so steeply. But then, what can revive growth?

It is clear that the slowdown has been consumption driven. Investments, on the other hand, as measured by Gross Fixed Capital Formation (GFCF), continued to grow in double-digits for the fifth quarter in a row, and the ratio of GFCF to GDP continued to inch up, though, to be sure, there is no euphoria yet. In earlier editions of this column, we have discussed the two primary drivers of slowing consumption: Weak food prices stalling income transfers from the rich to the poor, and the end of the pay commission cycle.

It is worth repeating that we have gone through the seventh pay commission implementation in the last three years without the aggregate deficit blowing up. In contrast, during the last two pay commissions (there is one every decade), the fiscal deficit rose sharply, as the pension and salary expenditures of governments rose by 2 to 2.5 per cent of GDP. Observers wringing their hands at fiscal deficits in India being unchanged for five years also forget that these are still among the lowest in India's history (absolute deficits are no doubt among the highest in the world: State plus central government deficits add up to more than 6 per cent of GDP). As a share of financial savings, the ratio has fallen, implying less crowding out. Further, with the salary bill now rising at a pace slower than nominal GDP, more than 1 per cent of GDP of fiscal space could open up in the next three years.

Yet the bond market has continued to punish the government with bond yields that are higher than they need to be. The term premium, which is the difference between the repo rate set by the RBI and the yield on the 10-year government bond, is elevated compared to its history. Many observers think the market is efficient, and that elevated yields are just the markets disciplining the government. That may indeed be a factor, but one must not forget that markets often misprice assets, and that the Indian bond market is far from liquid: Nearly half the bond buying is conducted by treasury departments of banks that are often passive. That is perhaps one reason why technical charts are used to price bonds. By terming the government bond as just another security whose price they do not seek to control, policymakers have under-estimated the critical role their yields play in the pricing of debt in the economy.

This high term premium is on top of very high real interest rates, due to the Monetary Policy Committee (MPC) missing an inflection point in agricultural surpluses, and persistently overestimating inflation. While moving from an era where the RBI governor set the rates using a touchy-feely approach to a much more quantitative committee-based approach is progress, this move was made without any improvement in the inflation and growth forecasting capability of the MPC. Observers have pointed to the problem of every member relying on only one set of inflation projections — if these are wrong the economy suffers, as it has done for many quarters. Recent MPC commentary points to improvements being brought about in the inflation forecasting process — another sign of improving systemic maturity.

Even though the MPC has in the last two meetings brought down its inflation projections substantially, inflation is still below its forecasts. Now, the MPC's growth projection for the coming year of 7.2 to 7.4 per cent also seems too high, as the Central Statistics Office (CSO) projects just 6.3 per cent growth in the current quarter. Can growth accelerate a full per cent point without a meaningful catalyst?

Would the MPC cutting rates make a difference? The Indian economy is not known to be particularly rate sensitive, but in the current environment it might just be. If the short end of the rate curve (that is, the repo rate) is pushed down, either the term premium expands further, which would be hard to justify, or the 10-year government bond yields would fall. This may in fact provide some relief to the beleaguered bond mutual funds struggling with outflows, as well as the funding availability for non-banking finance companies (NBFCs).

The most important takeaway for us from the December quarter results reported by companies was the sharp slowdown in NBFC credit disbursement. Banking system credit data is made available every fortnight but even though non-banking sources of finance have become much more important in recent years than they have ever been, there is no systemic credit measure that is reported frequently. Quarterly results were therefore the first available indicator of the extent of the slowdown in aggregate credit. Anecdotally this has become worse in the current quarter: Lower yields would at least prevent further deterioration even if they do not quickly bring back growth.

There are four fiscal boosts as well that will become effective in a few months: The GST rate cut for real-estate may help break the buyers' strike and restart cash flows in real estate. The income transfer scheme is of a meaningful size, but it might need to be recalibrated (the frequency and size of transfers, as well as the number of beneficiaries) for greater economic impact. Thirdly, if farm loan waivers get executed in time, and banks restart agricultural credit disbursement (they hold back while loan waivers are being implemented), it could support cash flows in the agricultural economy. And lastly, the recapitalisation of PSU banks adds some capacity to the financial system.

Without the financial system breaking out of its current stasis however, these measures may not be sufficient to push India back to its potential growth rate again.

*The writer is co-head of Asia Pacific Strategy and India Strategist for Credit Suisse*

# GST revenue conceals more than it reveals

V BHASKAR

Data on GST revenue is now available from several official sources. An examination of these numbers raises three concerns. These relate to recognition of revenue, reporting of revenue and allocation of revenue. We focus only on the revenues from the IGST and Compensation cess for the year 2017-18.

**Recognition of revenue**

Article 269A of the Constitution, specifies that the state share of the IGST together with the CGST paid set off against IGST payable shall not form part of the Consolidated Fund of India(CFI) . Further IGST revenues are to be allocated between the Centre and the states complying with the IGST Act, the IGST rules and the GST (Settlement of Funds) Rules. All outstanding refunds and input tax credit claims must be fully settled or earmarked. The balance comprises IGST paid on interstate sales to consumers, unregistered and composition dealers, ineligible supplies and time barred claims. IGST tax credits cannot be claimed in respect of these categories, so this represents the true IGST revenue.

The outstanding balance in the IGST account includes pending refund claims and unadjusted amounts due to dealers. This cannot be considered as revenue. What percentage of IGST collections represents such commitments? It is difficult to estimate, but three points need consideration. One, IGST on exports and imports yields more than 50 per cent of aggregate IGST collections. Both will have to be refunded, the former immediately on export and the latter to the extent the imported goods are exported after passing through the manufacturing cycle. Two, IGST has also to be refunded on returns from interstate branch transfers and consignment sales, regular interstate sales returns, deemed exports, refund of accumulated credit due to inverted duty structure, year-end or volume-based incentives and refund to tourists and embassies. Three, there is an unknown amount of refund claims pending. In February 2018, the erstwhile Central Board of Excise and Customs (CBEC) reportedly admitted that 70 per cent of its refund claims were stuck. It can thus be argued that ₹1,76,688 crore recognised as IGST revenue in 2017-18 includes the above mentioned commitments and needs to be excluded. Even after the true IGST revenue is arrived at, half of it belongs to the states.

The Compensation Cess Act requires that the proceeds of the cess shall be credited to a non-lapsable Fund known as the Goods and Services Tax Compensation Fund (Fund), which shall form part of the public account of India. For 2017-18, the Budget documents show revenue of ₹62,612 crore as compensation cess. Of this, only ₹56,146 crore was transferred to the Fund. What should be recognised as cess revenue for the Government of India(GoI)? Legally nil, as the entire collections should be kept in the Fund in the public account. At best the ₹6,466 crore which was retained by the GoI in CFI.

**Reporting of revenues**

Of the ₹1,76,688 crore IGST collection reported for 2017-18, ₹35,000 crore was equally shared between the Centre and the states as ad hoc IGST settlement in February 2018. Since ₹17,500 crore was disbursed to states in February 2018, the net IGST can be only ₹1,59,188 crore, if the issues raised earlier are ignored.

Regarding the compensation cess, an amount of ₹41,146 crore was paid to the states during the year. The net collections after deducting this amount was ₹21,450 crore. This figure finds no place in the Budget documents which shows the gross revenue of ₹62,612 crore.

**Allocation of GST revenue**

The GST (Settlement of Funds) Rules was amended in February and June 2018 empowering the GoI to "provisionally settle any sum of IGST which has not been settled so far" which is to be adjusted subsequently. On this basis, a sum of ₹30,000 crore and ₹1,76,688 crore was shared between the states and the Centre in the early 2018. The state's share of ₹15,000 crore was distributed amongst states based upon their revenue in 2015-16. The ₹1,76,688 crore amount was taken into the CFI and settled as per 14 FC award. There are two problems with this. First, there is no whisper of "provisional settlement" in the IGST Act. The amendment to the rules providing for such provisional settlement can thus be seen as exceeding the delegation authorised in the Act. Secondly, the Act provides for distribution of IGST revenue amongst states on the basis of sales made in the state of consumption. The use of the 2015-16 revenue and the 14 FC award appears inconsistent with the law.

The compensation cess paid by a dealer is not eligible to be set off as input tax credit. This leads to tax cascading and inefficiency. For this reason, the Act clearly specifies that the collections should be utilised exclusively for providing compensation. The spirit of the Act is that cess rates should be adjusted periodically so that collections are calibrated to meet only the need of the states. Militating against this, the Compensation Cess Act was amended in August 2018 to allow for distribution of "unutilised" balances in the Fund equally between the Centre and the states at any time. The share of states is to be distributed on the basis of 2015-16 revenues. There are three problems here. One, the amendment changes the spirit of the Act. It is now seen as a source of revenue. Two, it is not clear why the GoI should share the revenue in a Fund constituted solely to address revenue losses of states. Three, if at all "excess" compensation cess is to be distributed as revenue amongst states, it should be based on need rather than history. However, this distribution process has not yet been activated. Of the ₹90,000 crore estimated to be collected as cess in 2018-19 (RE), the GoI proposes to retain ₹38,265 crore in the CFI and distribute the balance as compensation to the states.

It can be argued that the GoI is utilising the IGST and Compensation Cess Fund Accounts simultaneously as a source of revenue and as a source of ways and means financing. This approach sets up perverse incentives to delay IGST refunds and Compensation Fund payments. The former significantly emasculates exporters, manufacturers and traders, with downstream consequences. The latter debilitates the fiscal position of state governments. Both are undesirable. The GST Council needs to address these issues urgently.

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# Superhuman learning

BOOK REVIEW

DEVANGSHU DATTA

The ability to learn is a sign of intelligence. So is the ability to teach. What about the ability to teach oneself? Children learn their first language by decoding conversations, even without formal help. Really bright people teach themselves stretching beyond the known. A lot of artificial intelligence (AI) involves setting a few rules, and crunching tons of data to look for patterns and insights. This is akin to a child learning language.

What can AI most effectively learn via this auto-didacticism? The AlphaZero algorithms provide some answers, and proof of concept. The algorithms were created by DeepMind, a British AI company founded by neuroscientist and game playing prodigy, Demis Hassabis (DeepMind is a subsidiary of Alphabet). It is, at the moment, the best player of the ancient game of Go, Shogi (a Japanese version of chess) and chess.

*Game Changer* examines AlphaZero from the chess players' perspective. Mr Regan and Ms Sadler are strong chess players, with mathematics and IT backgrounds. It would have been great to have a take from Go and Shogi professionals, but that is lacking, in English at least.

Of the three, chess is the easiest to play, or program and it's by far, the most popular. Computers have long since outstripped humans at chess, which has "only" about 10€50 legal positions (that's 10 followed by 49 zeros). For reference, the best guess is that there are about 10€78 atoms in the universe. Shogi has about 10€71 legal positions. Go has about 2x10€170 legal positions (20 followed by 169 zeros) making it, by far, the most complex. Most Shogi programs are as good as the best humans. Until 2016, no Go program had beaten any professional Go player. DeepMind's first algorithm, AlphaGo, learnt by being fed a database of Go games, which helped it derive strategic principles. It played against itself on a very fast network to refine its understanding.

The algorithms use a "Monte Carlo Tree Search" (MCTS) to choose moves. In MCTS, the program plays out many thousands of games every second against itself, starting from a given position. It selects moves at random and assigns probabilities of success to each move, depending on results. This trains the neural network to find strategic patterns. In March 2016, AlphaGo beat Lee Sedol, the Go world champion. It had derived strategic principles that Go grandmasters concede supersede anything humans know.

The next iteration, AlphaGo Zero was self-taught. "Zero" was just given the rules of Go. It played against itself, without a database. It beat AlphaGo. The third generation, AlphaZero is a "generic reinforcement learning algorithm", which taught itself to play Shogi and chess, by playing itself. It had just the basic rules of these games, with no databases, no opening manuals, or endgame tablebases. It took just four hours, working on a very fast system with over 5,000 specialised chips to train its neural network. It was playing many million of games every minute, so that isn't as crazy as it sounds.

It reinvented and surpassed human understanding, discovering every strategic concept humans have learnt in five centuries, and adding its own secret sauce to play in ways humans never thought possible. It thrashed one of the best conventional chess engines, Stockfish, first under very restrictive conditions. It repeated the feat more convincingly, under equal conditions. It also beat one of the best Shogi programs, Elmo.

AlphaZero has a "superhuman" playing style that experts describe as "intuitive". It has changed the way humans play, and inspired a new approach to engine development, using MCTS. AlphaZero runs on specialised chips but crowd-sourced projects like LeelaChessZero use commercial hardware to implement similar principles.

Conventional engines are programmed with strategic rules fed by human "teachers". Instead of MCTS, they calculate via an "alpha-beta" algorithm. In the second AlphaZero-Stockfish match, Stockfish was crunching 70 million moves per second, analysing to great depths to select the "best" moves. It calculates 900 times as much as AlphaZero (which sees about 80,000 positions a second). But AlphaZero "understood" chess better.

Stockfish evaluates a given position as superior for one side or equal, by assigning a numeric value using a pawn as the basic unit. This is misleading for humans since it will not distinguish between a dynamic position, where there's only one good move, and a stable situation with many equivalent moves.

AlphaZero estimates probabilistically. It says white (or black) will score 55 per cent (or 75 per cent) after it has played out the position millions of times internally, using MCTS. This is more helpful because a dynamic position may have a lower probability than a stable position.

Moreover, AlphaZero is not afraid to sacrifice material for mobility, or other long-term gains. The authors did a lot of analysis to illustrate the stylistic quirks. Intriguingly, DeepMind is trying to open the black box of these self-taught heuristics to get a sense of how the neural network "thinks".

So now we know that an autodidactic algorithm can discover new things. But chess, Shogi and Go are closed systems with complete information. In theory, these games can be "solved" with every position judged a win or a draw.

This is a fascinating book for game players, and chess players in particular. It also offers insights about AI development. Well worth a deep dive.

**GAME CHANGER: AlphaZero's Groundbreaking Chess Strategies and the Promise of AI**
Natasha Regan, Matthew Sadler
New In Chess, 416 pages, ₹1,544