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Privatization of PSEs: Is the Timing Right?

In her budget speech, the Finance Minister, Nirmala Sitharaman introduced government's Strategic Disinvestment Policy (SDP) 2021, which, she said, intends to privatize Central Public Sector Enterprises (CPSEs) in all sectors except four, viz., one, atomic energy, space and defense; two, transport and telecommunications; three, power, petroleum, coal and minerals; and four, banking, insurance and financial services. Even in these sectors, the government proposes to limit the presence of CPSEs to a 'bare minimum'. The budget also sets a disinvestment target of ₹1.75 lakh cr for the fiscal 2021-22.

To better appreciate the significance of this statement, we need to go back to the Nehru's era during whose tenure as prime minister, public sector enterprises were built with a broader perspective of generating employment, investing in projects that have long gestation periods, setting up industries in backward regions for ensuring equity in growth across the country and regulating prices of their products, etc., besides generating profit. Saddled with multidimensional objectives, these enterprises indeed suffered operational inefficiencies owing to the absence of market competition, political interference, and bureaucratic lethargy.

Ever since reforms were launched in 1991, the government had been disinvesting its stake in PSEs on a piecemeal basis to address their operational inefficiency, while of course, retaining their management control with itself, perhaps not to give a go-by to their social objectives in toto. Over it, for all these years, disinvestment is often resorted to as a means to finance government's increasing fiscal deficit rather than streamlining their functioning.

Now, with the announcement of the government's intention to exit from the PSEs other than the four notified sectors, it becomes evident that the ownership of these enterprises would also be transferred to private sector. It thus becomes clear that henceforth profit-maximization will be the sole objective of these to-be-privatized PSEs.

Although there is no disagreement in general with the government's proposed policy to privatize CPSEs, and use the so generated funds for giving stimulus to economic growth, analysts wonder if its timing is right. For, mere transfer of ownership does not add anything new to the GDP. Nor does it create any fresh employment, which is considered as essential to boost consumption in an economy that is suffering from pandemic-caused recession-kind of a situation. On the other hand, there is no wonder if the new owner of the privatized PSE retrenches employees under the plea of revamping its operational efficiency. Here, it is also worth remembering the fact that many of today's sick PSEs were originally discarded by the private enterprises when they became sick. This fact coupled with mounting NPAs in public sector banks that were created by private sector borrowers subtly points out that privatization is not the sole panacea for industrial sickness. This phenomenon warrants the government to design a process that creates scope for many bidders to participate so that the best value can be realized for the assets to be sold and also find a right entrepreneur who could put the sold assets to the best use. And this is certainly a long-drawn process. Over it, such a sale of PSEs in a recession time erodes the financial sector's capacity to meet the legitimate requirements of the pandemic-stuck economy. The whole scenario thus compels one to wonder if the implementation of the proposed strategy would in any way pump-prime the economic growth.

Here it is worth recalling what the External Affairs Minister S Jaishankar said at the inaugural session of the 5th edition of Asia Economic Dialogue 2021: "The litmus test of good governance, which I would say, is employment. That if you have jobless growth, I don't think that's a great testimony to policies of any country". Observing that, while every government in the world supports their businesses, we in India "haven't done enough", Jaishankar asserted that "We need to stand up for our business. Not just big business but MSMEs." In this context, the budget appears to have not done much for MSMEs. Indeed, "the fiscal stimulus to economy" by the budget as a whole, as the former chief statistician Pronab Sen observed, "was small… as the bulk of increase of fiscal deficit is supply side measure, not demand side".

One should also remember that there is no growth in private sector's investment in manufacturing industry. Indeed, in the last 20 years, no Indian entrepreneur had shown any interest in the core sector production. That being the reality, employment creation is likely to get hit unabatedly. Which is why, it is feared that the move to sell PSEs at the current juncture and use the proceeds to revive the economy may not yield the desired results.

GRK Murty

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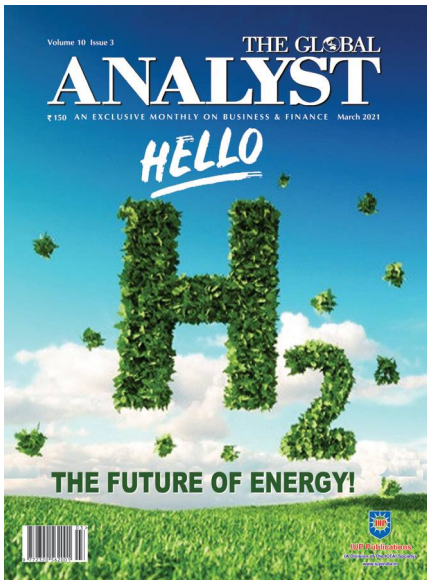


LETTERS TO THE EDITOR

- *The Global ANALYST* maintains internationally acceptable levels of standard in content and presentation. Best Wishes.

  M G Warrier, Ex-GM, RBI

- *The Global ANALYST* magazine is a kind of reservoir of all that financial professionals would require: global economy, financial markets, corporate finance, investment banking, etc. The magazine is always ahead of others in its coverage of topics. It is quite useful for B-School students, young professionals, top management and investors.

  Moses Harding John, President & CEO, IndusInd International Holdings Limited (the promoter company of IndusInd Bank)

- *The Global ANALYST* is a well edited and presented magazine which covers current business and financial market developments in an effective manner and contains well conducted interviews with relevant professionals and practitioners. The magazine is a very good read as well as a must have for students and practitioners of business and finance.

  Sudip Bandyopadhyay, Group Chairman, Inditrade Capital Limited

- I have found the magazine's chosen topic timely and insightful, its overall content rich with bankable information, and its varied coverage relevant to both Indian and international readers.

  Prof. Andrew K P Leung, SBS, FRSA, International and Independent China Strategist based in Hong Kong

- *The Global ANALYST* magazine looks great!

  Prof Nikunj Kapadia, Dept. of Finance, University of Massachusetts, Amherst, USA

- The articles in *The Global ANALYST* seem to be very well put together and appealing to the reader. The wide range of – pertinent – perspectives from appropriate specialist commentators works well.

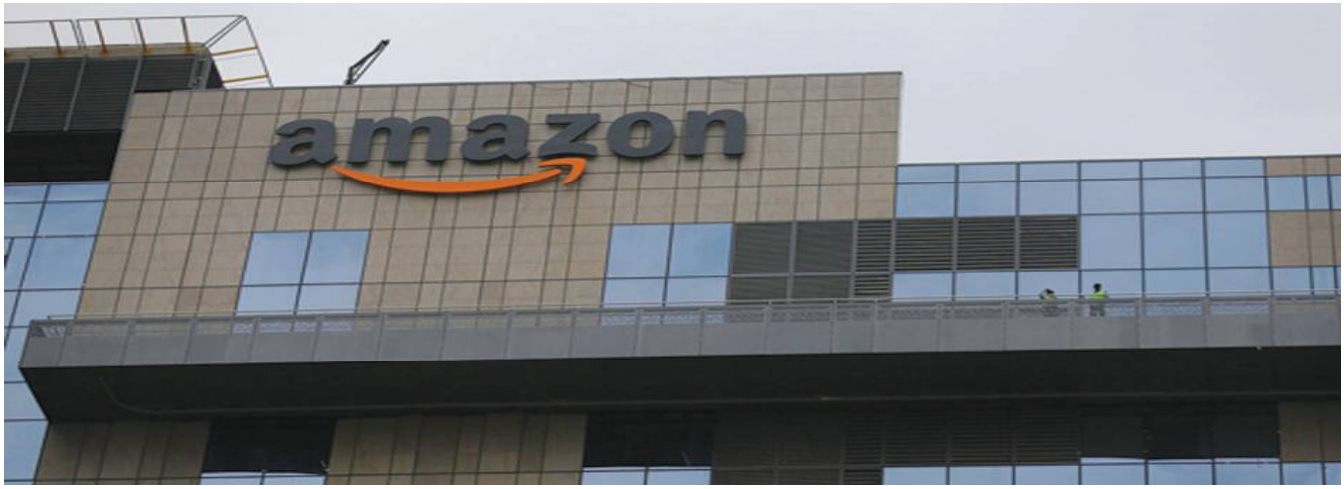
  Dr Michael Walton, PhD, Director, People in Organisations Ltd, UK, and Visiting Professor, Department of Managerial Psychology and Sociology, Prague University of Economics and Business

- This is with reference to the wonderful publication *'The Global ANALYST'*. I must say that this magazine is a very authentic repertoire of knowledge and information on topics related to so many diverse areas which are of relevance for bankers like me. The magazine takes care that topics are not repeated which ensures that in every edition, we get something new which enriches and widens our perspective.

  Arun K Bhardwaj, Manager (Research), State Bank Institute of Credit & Risk Management, Gurugram

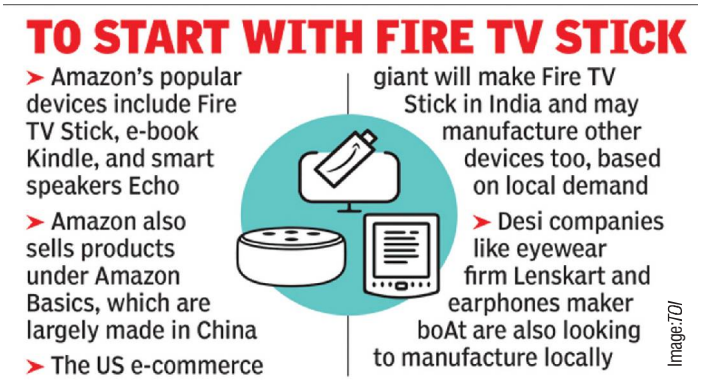
BUSINESS BRIEFS

Atmanirbhar Bharat
Amazon to Make in India, To Reduce Dependence on China



The world's largest e-commerce company has said it is shifting manufacturing of consumer electronics products like FireTV Stick to India, in a bid to cut sourcing from China, which will give a major boost to the Modi Government's 'Make-in-India' mission.

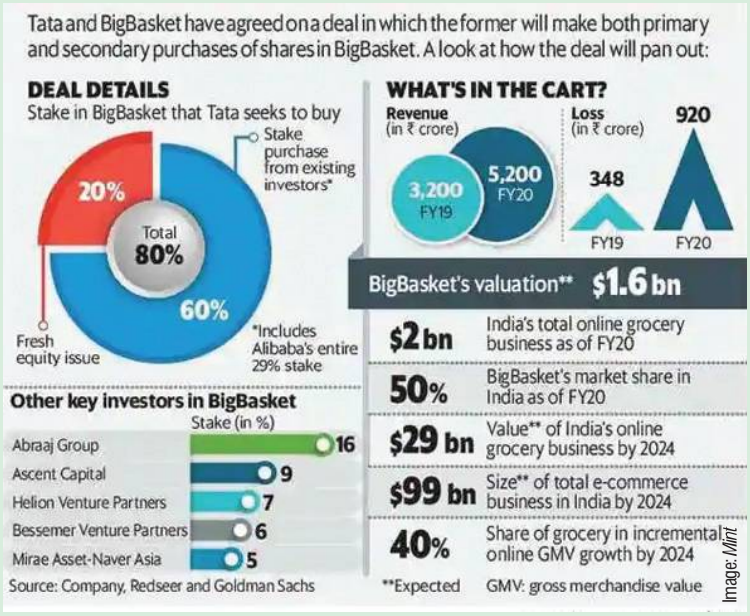
In what could come as a shot in the arm for the Modi government's 'Make in India' program, Amazon India, the local unit of the world's largest e-tailing company has said it will start manufacturing some of its devices here, thereby reducing its dependence on China. According to the firm's blog, the e-tailing giant will work with Foxconn's subsidiary Cloud Network Technology in Chennai to make its streaming device FireTV Stick. The India facility is expected to be operational later this year. Currently, the Jeff Bezos-helmed firm sources devices such as FireTV Stick from China and Taiwan for the India market. Amazon's Indian unit in a blog post said it is looking to make lakhs of devices in India every year and will consider scaling up manufacturing capacity-based on domestic demand. Amazon's some of the popular consumer electronics products in India include gadgets like Fire TV Stick, e-book reader Kindle, and smart speakers Echo. "This is the first Amazon manufacturing line in India, reiterating our commitment to the Government of India's 'Make in India' for an *Atmanirbhar Bharat*," a report on the company's blog post said. Applauding Amazon's decision to start India manufacturing operations, Ravi Shankar Prasad, Minister for Communications, Electronics & Information Technology and Law & Justice, Government of India, said, "Our Government's decision to launch a Production Linked Incentive (PLI) scheme has received tremendous response globally. We welcome Amazon's decision to set up a manufacturing line in Chennai, as it will enhance domestic production capacities, and create jobs as well. This will further our mission of creating an *Atmanirbhar Bharat* which is digitally empowered." According to Amit Agarwal, Global SVP and Country Leader for Amazon India, "Amazon is committed to partner with the Indian government to advance the vision of an *Atmanirbhar Bharat*. We have pledged to invest $1 bn to digitize 10 million small and medium businesses, help Indian businesses sell worldwide thereby enabling US $10 bn in cumulative exports, and create an additional one million jobs by 2025. Today, we are delighted to announce Amazon's first manufacturing line in India to produce hundreds of thousands of Fire TV Stick devices every year catering to the demands of the Indian customers. This further reiterates our commitment to the Government of India's 'Make in India' initiative."

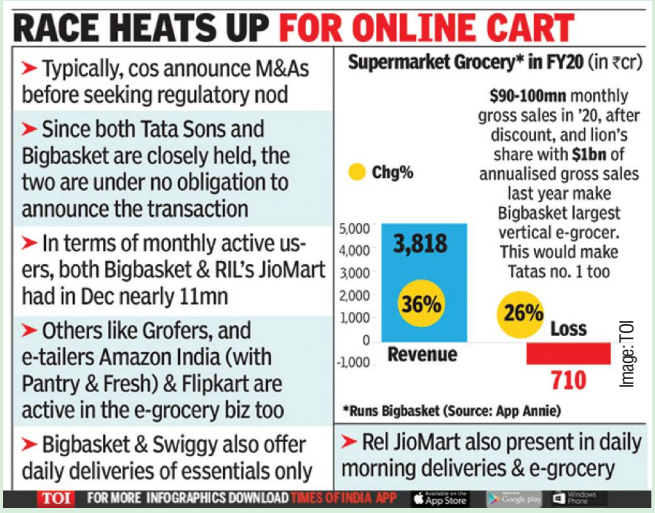


Tatas Buy Majority Stake in BigBasket, India's Top Grocery e-Retailer

In what could be the biggest ever deal in India's start-up space, the Tata Group, India's largest and most revered industrial group announces a $1.2 bn deal to buy a majority stake in Supermarket Grocery Supplies, which owns and operates fast-growing online grocery platform BigBasket. The salt-to-software behemoth is shelling out ₹9,500 cr for a stake of 68% in the Bengaluru-based e-tailing company, valuing it at a massive ₹13,500 cr (approx. $1.85 bn). The deal is subject to approval from the Competition Commission of India (CCI). If approved, it will pave the way for the exit of some of its existing investors including Alibaba, Abraaj and IFC.

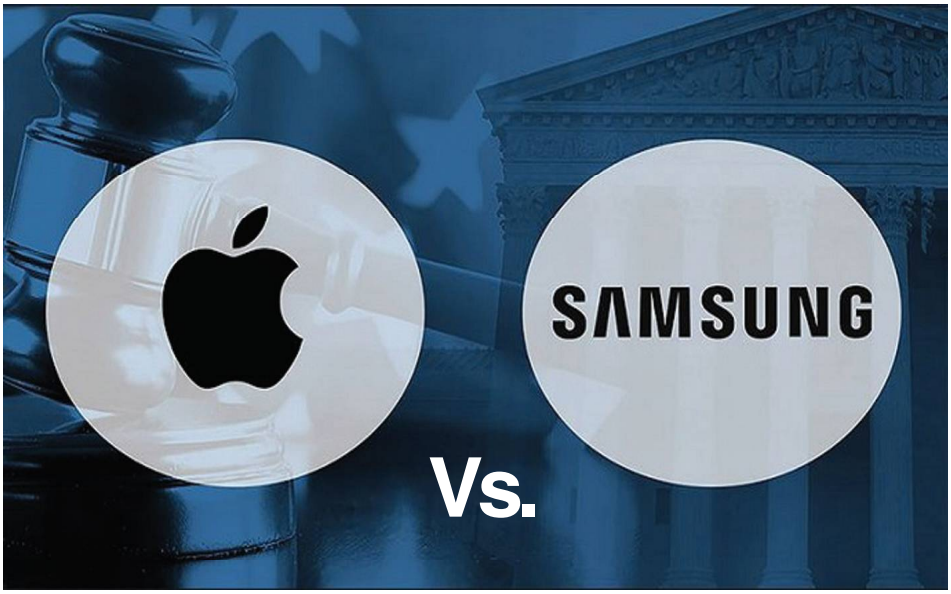
And it is expected to touch a massive $18 bn by 2024, which is a growth rate of 57% per annum. The top management, including co-founder and CEO Hari Menon, will continue to stay on board, several media reports said citing people in the know-how of the things. The development, however, came as a surprise to many as Tatas have so far focused only on jewelry (Tanishq), watches/wearables (Titan), apparels/accessories/fashion (Tata Cliq) segments for making their e-commerce foray, although it also has a sizeable presence in FMCG through subsidiaries like Tata Tea, Tata Chemicals, etc., but most of the products are currently sold through third-party e-commerce platforms like Amazon, Flipkart, etc. The acquisition of BigBasket will not only give it a presence in a key online segment, but will also allow it to dominate that. But there is a much bigger void that it fills as Tatas look to hit the market with what is being billed as India's first super app! "Our e-commerce play will be really big and we'll not contend with a minor stake in any company," a Tata Group spokesperson had last year said in response to a potential stake purchase in BigBasket. According to a RedSeer and BigBasket report, the total size of the e-grocery market in the country is expected to have grown from $1.9 bn in 2019 to $3 bn by the end of 2020. With the entry of Jio Mart, owned by petrochemicals giant Reliance Industries Ltd., apart from the mighty presence of Amazon and Walmart-owned Flipkart, not to mention a slew of small startups including Grofers and proposed pan-India foray by Swiggy into grocery e-retailing, BigBasket, which reported consolidated net loss of ₹611 cr in FY20, up 6.7% from ₹572 cr in the previous financial year, needed to pull up socks, importantly, build war chest, to compete and protect its market share. Given that, it could not have asked for a better deal! BigBasket, which last year acquired micro-delivery firm DailyNinja, is currently recording about 20 million orders per month and has reportedly reached the milestone of $1 bn run-rate in annual revenues last year. Last year, it reported data breach of two crore of its users.





Global Consumer Electronics

Apple reclaims Pole Position as the top global smartphone vendor in Q4 2020



Worldwide smartphone sales declined 5% in fourth quarter of 2020, but it could not prevent Apple from reclaiming the title of top global smartphone vendor, according to IT market research firm, Gartner. The maker of iPhone and iPad bounced back to where it belonged—numero uno global smartphone brand in the fourth quarter, although it had to contend with the second position, after it surpassed Huawei, for the full year 2020.

According to Gartner, the leading global technology research and advisory firm, global sales of smartphones to end-users declined 5.4% in the fourth quarter of 2020. Smartphone sales declined 12.5% in full year 2020. "The sales of more 5G smartphones and lower-to-mid-tier smartphones minimized the market decline in the fourth quarter of 2020," said Anshul Gupta, Senior Research Director at Gartner. "Even as consumers remained cautious in their spending and held off on some discretionary purchases, 5G smartphones and pro-camera features encouraged some end-users to purchase new smartphones or upgrade their current smartphones in the quarter."

Apple could regain lost market share on the back of encouraging response to the launch of the 5G iPhone 12 series that helped the Cupertino Company to record double-digit growth in the fourth quarter of 2020, Gartner said. The last time Apple was the top smartphone vendor was in the fourth quarter for 2016.

Worldwide Top Five Smartphone Sales to End-Users by Vendor in 4Q20 (Units in Thousands)

Vendor	4Q20 Sales	4Q20 Market Share (%)	4Q19 Sales	4Q19 Market Share (%)	4Q20-4Q19 Growth (%)
Apple	79,942.7	20.8	69,550.6	17.1	14.9
Samsung	62,117.0	16.2	70,404.4	17.3	–11.8
Xiaomi	43,430.3	11.3	32,446.9	8.0	33.9
OPPO	34,373.7	8.9	30,452.5	7.5	12.9
Huawei	34,315.7	8.9	58,301.6	14.3	–41.1
Others	130,442.8	33.9	145,482.1	35.8	–10.3
Total	**384,622.3**	**100.0**	**406,638.1**	**100.0**	**–5.4**

Note: Due to rounding, some figures may not add up precisely to the totals shown. Source: Gartner (February 2021)

Full Year 2020 Results

Samsung experienced a year-on-year decline of 14.6% in 2020, but managed to retain its position as the top-ranked global smartphone vendor, during the CY 2020. The South Korean electronics major though faced tough competition from regional smartphone vendors such as Xiaomi, OPPO and Vivo as these brands grew more aggressive in global markets. In 2020, Apple and Xiaomi were the only two smartphone vendors of the top five ranking to experience growth, according to Gartner. The embattled Chinese technology major Huawei recorded the highest decline among the top five smartphone vendors which made it lose the No. 2 position to Apple in 2020. The impact of the ban on use of Google applications on Huawei's smartphones

was detrimental to Huawei's performance in the year and negatively affected sales, the report said.

"In 2021, the availability of lower end 5G smartphones and innovative features will be deciding factors for end-users to upgrade their existing smartphones," Gupta said, adding, "The rising demand for affordable 5G smartphones outside China will boost smartphone sales in 2021."

Worldwide Top Five Smartphone Sales to End-Users by Vendor in CY2020

(Units in Thousands)

Vendor	2020 Sales	2020 Market Share (%)	2019 Sales	2019 Market Share (%)	2020-2019 Growth (%)
Samsung	253,025.0	18.8	296,194.0	19.2	–14.6
Apple	199,847.3	14.8	193,475.1	12.6	3.3
Huawei	182,610.2	13.5	240,615.5	15.6	–24.1
Xiaomi	145,802.7	10.8	126,049.2	8.2	15.7
OPPO	111,785.2	8.3	118,693.2	7.7	–5.8
Others	454,799.4	33.7	565,630.0	36.7	–19.6
Total	**1,347,869.8**	**100.0**	**1,540,657.0**	**100.0**	**–12.5**

Note: Due to rounding, some figures may not add up precisely to the totals shown.

Source: Gartner (February 2021)

Sudan Announces Managed Currency Float to Safeguard Its Economy

In a sudden, though not entirely unexpected, development, Sudan's central bank on Sunday, February 21, said it is taking the unprecedented step of floating its currency. This meets a major demand by international financial institutions, including the IMF, to help transitional authorities overhaul the battered economy. Sudan's currency will now fluctuate according to supply and demand and the Central Bank of Sudan said it will announce a daily flexible indicative rate in a "flexible managed float" that banks and other exchange bureaus are required to trade at within 5% above or below, usnews.com reported. The managed floating system gives the central bank the option to set a rate based on the trading average, Al-Fatih Zayed al-Abidin, the Central Bank Governor said in a news conference. The Central Bank said its decision would help "normalization of ties with international and regional financial institutions and friendly countries to ensure the flow of grants and loans" into Sudan's economy. Sudan's banking regulator said its decision would help "normalization of ties with international and regional financial institutions and friendly countries to ensure the flow of grants and loans" into Sudan's economy. "Our economy is in a situation that cannot be addressed without making such a decision," said Sudan's Finance Minister Gibril Ibrahim. He added, "It is in our interest, in the interest of the country, and in the interest of the citizen." "In concrete terms, the Sudanese Central Bank is aligning itself with the black market rate," commented africanews.com. According to it, the price of the Sudanese pound will rise from 55 pounds for one dollar to 375. "The measure," it said, "is accompanied by increased exchange controls and was expected by donors and the IMF, who demanded 'monetary truth'." The decision (to float its currency) has been hailed as the boldest economic measure taken by the transitional government that took over the reins of the power after a popular uprising led to the military's overthrow of autocrat Omar al-Bashir's government about two years ago, in April 2019. According to Volker Perthes, the UN envoy for Sudan, "It demonstrates that the transitional authorities can reach consensus, take difficult decisions and carry them through." Sudan's economy has been ravaged by years of dwindling food supplies while inflation has flared up. Sudan has for years struggled with an array of economic woes, including a huge budget deficit and widespread shortages of essential goods and soaring prices of bread and other staples, says the news website. Sudan's annual inflation soared past 300% early this year, one of the highest in the world. "The country was plunged into an economic crisis when the oil-rich south seceded in 2011 after decades of war, taking with it more than half of public revenues and 95% of exports," said africanews.com. The country's economic situation has worsened over the years, especially after the US put it on the list of state sponsors of terror early in the 1990s. Years of economic isolation and boycott by international institutions proved disastrous for Sudan's economy.

European Banks Face Major Headwinds

European banks have seemingly weathered the coronavirus crisis well, but there are still some major challenges ahead that have the potential to rattle the sector, cautions a report by CNBC. There's been a noticeable difference between the pandemic and the global financial crisis of 2008: European banks have a much stronger capital position now than they did before. This is in part thanks to much tougher requirements imposed by regulators in the wake of the 2008 shock—and it looks to be paying off, the report said. European banks are so confident about their capital positions that some are even ready to resume dividend payouts this year, despite regulators asking for caution. "The most important takeaway is that we have not seen a deterioration in asset quality yet since the onset of the crisis," Arnaud Journois, Vice-President at DBRS Morningstar, said about the latest set of quarterly results from European banks.

Major lenders in Europe have benefitted from stimulus measures introduced by governments, but also from policies from the European Central Bank and Bank of England. Their steps have contained the number of business failures and have boosted lending. But the report warns the situation could change over the next year as these fiscal and monetary interventions are potentially scaled back.

"Bad loans will start to appear over the next year or so. That's when we will get a clearer picture of how bad the situation is in the corporate sector," Nick Andrews, Europe Analyst at investment research firm Gavekal, told CNBC. Elisabeth Rudman, Head of European financial institutions at DBRS Morningstar, cautioned that "the full level of non-performing loans is still to materialize."

Governments have not announced that they are lifting financial support, but as the health crisis slows down and economies reopen they will likely pull back on their contributions. That will put pressure on certain firms, which might end up missing their debt repayments and file for insolvency. "When these measures are withdrawn, we expect to see an increase in defaults and non-performing loans at banks," the broadcaster quoted Rudman as saying.

Another key challenge is the expectation of a flare-up in prices, or interest rates. "One risk given the level of government spending is if interest rates do start to move up markedly, that will increase the cost of trying to respond to the pandemic," Jes Staley, CEO of Barclays, told CNBC on Thursday. Interest rates were cut to record low levels in the wake of the pandemic, but central banks could consider raising them back up if prices rise significantly in the near future. This is a smaller risk in the eurozone where recent increases in inflation were associated with one-off events, such as new consumer tax rules in Germany, Andrews of Gavekal told CNBC.

UK too faced the risk of price rise. According to a section of economists, prices are likely to overshoot the Bank of England's inflation target later this year, which would likely lead to the central bank increasing rates. "It will be tougher for the overall economy," Staley warned. Higher rates will mean that business owners and property buyers will find it more expensive to take on new debt.

However, there is one bright spot that could help European banks in the recovery phase, says the website CNBC.com. Economists believe that consumers will return to the shops and restaurants, and start to make the economy move again the moment that social restrictions are eased. "We could see a stronger rebound on the back of pent-up demand," Andrews told CNBC. This could lead to more business investment and end up supporting banks' balance sheets too, the website explains. ■

Contributed by Amit Singh Sisodiya

Reference # 20M-2021-03-01-10

Money Matters

Home Loan Rates Below 7%
Comparative Interest Rates Across Select Banks

S.No	Bank	Home Loan Rate	Benchmark Type	S.No.	Bank	Home Loan Rate	Benchmark Type
1	HSBC Bank	6.74%	RLLR	12	Bajaj Finserv	6.90%	PLR
2	Citibank	6.75%	TBLR	13	Tata Capital	6.90%	PLR
3	Axis Bank	6.75%	RLLR	14	UCO Bank	6.90%	RLLR
4	Kotak Bank	6.75%	RLLR	15	Syndicate Bank	6.90%	RLLR
5	SBI	6.80%	RLLR	16	Canara Bank	6.90%	RLLR
6	HDFC	6.80%	PLR	17	PNB	6.95%	RLLR
7	ICICI Bank	6.80%		18	OBC	6.95%	RLLR
8	Corporation Bank	6.80%	RLLR	19	Bank of India	6.95%	RLLR
9	Andhra Bank	6.80%	RLLR	20	United Bank of India	6.95%	RLLR
10	Bank of Baroda	6.85%	RLLR	21	Bank of Maharashtra	7.00%	RLLR
11	LIC Housing Finance	6.90%	PLR	22	Indian Overseas Bank	7.05%	RLLR

Note: RLLR - Repo Linked Lending Rate; PLR - Prime Lending Rate; MCLR - Marginal Cost of Fund based Lending Rate.

Source: myloancare.in

Savings Accounts - Earn Upto 7%
Best Savings Accounts Online

SavingsAccount	Interest Rate	Minimum Balance Requirement
Kotak Bank Savings Account	6% p.a.	Zero Balance Savings Account
DBS digibank Saving Account	7%	Zero Balance Savings Account
Axis Bank Savings Account	7.25%	Zero Balance Savings Account
State Bank of India Savings Account	4%	Metro & Urban – ₹3,000 Semi-Urban – ₹2,000 Rural – ₹1,000
Standard Chartered Bank Digital Savings Account	3.5%	₹10,000
IDFC Bank Savings Account	4%	₹25,000
ICICI Bank Regular Savings Account	4%	₹10,000
IndusInd Bank Savings Account	6%	₹100,000
Yes Bank Savings Account	6%	₹100,000

Source: bankbazaar.com

Best Term Insurance Plan in India

Insurance Company	Product Name	Policy Term		Min Age Entry	Covers Up to	Sum Assured	Claim Set Ratio
		Min	Max		Max Age	Min	(2017-18)
LIC	Jeevan Amar	10 Years	40 Years	18 Years	80	25 Lakh	98.04%
LIC	e-Term Plan	10 Years	35 Years	18 Years	75	50 Lakh	98.04%
ICICI PRUDENTIAL	iProtect Smart	10 Years	30 Years	18 Years	75	8 Lakh	97.88%
HDFC Life	Click 2 Protect 3D Plus	5 Years	40 Years	18 Years	65	10 Lakh	97.80%
MAX LIFE INSURANCE	Max Life Online Term Plan Plus	10 Years	35 Years	18 Years	85	25 Lakh	98.26%
SBI Life INSURANCE	eShield	5 Years	30 Years	18 Years	75	35 Lakh	96.76%

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Form IV

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I, E N Murthy, hereby declare that the particulars given above are true to the best of my knowledge and belief.

Date
March 2021

Sd/-
Signature of Publisher

Which Is Better? Equity or Bond or Gold or Real Estate?

HOW ASSETS FARED IN 2020

	Returns (%)
Bank Fixed Deposits	6.25
Equity: Large Cap	15.46
Equity: Mid Cap	24.3
Equity: Small Cap	30.41
Short Duration Bond Funds	9.73
Long Duration Bond Funds	12.53
Liquid Funds	4.16
International Funds	19.08
Gold	27.32
Real estate - commercial	8.25
Real estate - residential	2

Data is for calendar year 2020

Source: Moneycontrol.com

Contributed by Amit Singh Sisodiya

Reference # 20M-2021-03-02-10

Monetary Policy Committee

Message from the Mint Street

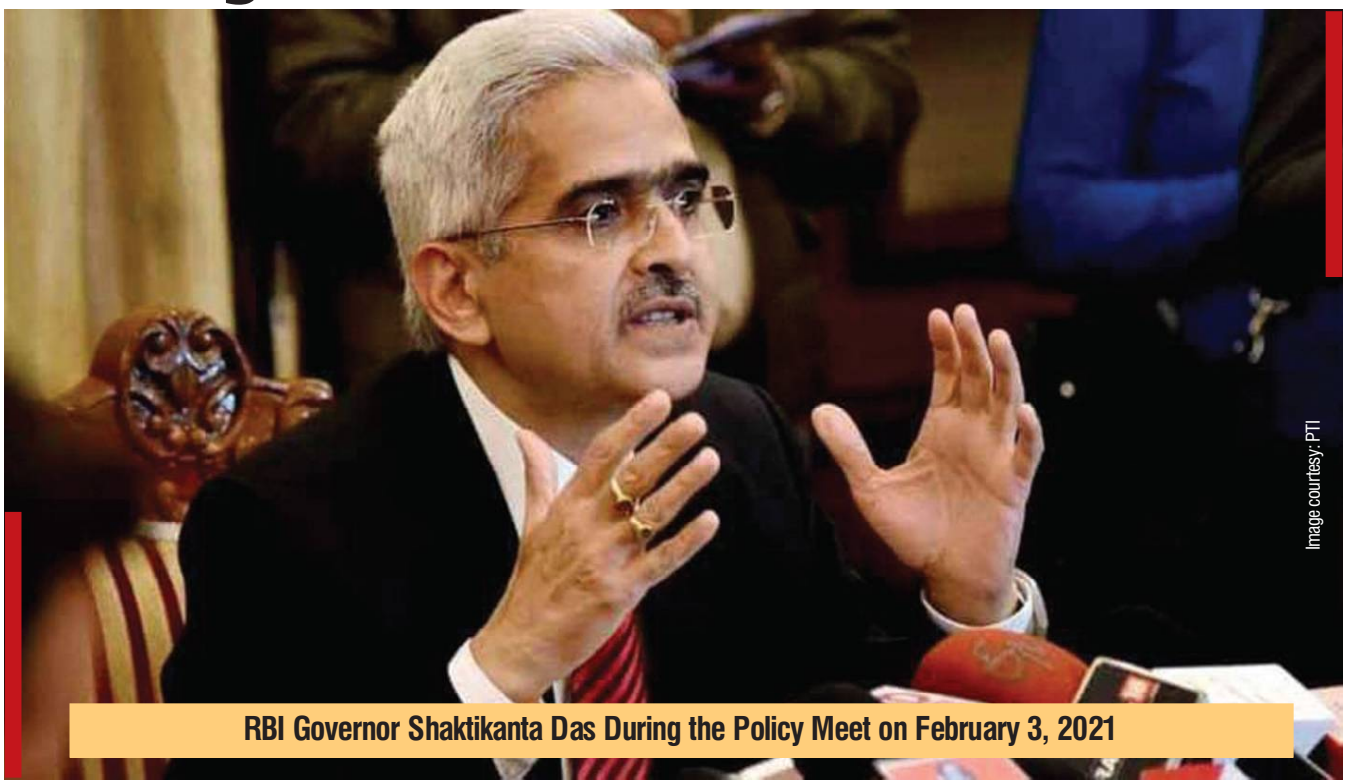


Image courtesy: PTI

RBI Governor Shaktikanta Das During the Policy Meet on February 3, 2021

Those expecting another round of rate cut must be a disappointed lot as the Monetary Policy Committee (MPC) in its latest February 3-5, 2021 meet decides to leave the policy repo rate unchanged, giving enough hints that the central bank is not abandoning the agenda to keep inflation under control, crucial for supporting the nascent economic recovery post the pandemic shocks of last year.

If growth is to be achieved with stability, much depends on how monetary policy is operated. Results depend on the sagacity and wisdom of the policy makers.

– C Rangarajan

The Reserve Bank of India's Monetary Policy Committee (MPC) had its customary three-day bimonthly meeting on February 3, 4 and 5, 2021. It deliberated on current and evolving macroeconomic and financial developments, both national and international. As expected, the MPC voted unanimously to leave the policy repo rate unchanged at 4%. The committee members also unanimously decided to continue with the accommodative stance of monetary policy as long as necessary—at least through the current financial year and into the next year—to revive growth on a durable basis and mitigate the impact of Covid-19, while ensuring that inflation remains within the target, going forward. The Marginal Standing Facility (MSF) rate and the bank rate too have been left unchanged at 4.25%. The members also chose not to tinker with the reverse repo rate. It currently stands at 3.35%.

The Reserve Bank of India's MPC had its customary three-day bimonthly meeting on February 3, 4 and 5, 2021. The Committee decides to leave the key policy rates, including the repo rate, unchanged in a clear sign that it wants the economic recovery to gather pace sans any price shocks (read: inflation)

It sounds simple. Well, that is what my intention is. The purpose behind highlighting the key takeaways from the Guv's February 5, 2021 monetary policy statement is two-fold: One, it straightaway details out the outcome of the three-day MPC meeting. Two, those who get it only through media reports and social media to know about monetary policy, will entertain a genuine doubt as to what these three days' deliberations were about, if the

purpose was to maintain status quo. A quick run through the apex bank's boss statement helps understand things in perspective: "Inflation outturns in the last two months have turned out to be better than what was expected at the time of the December (2020) meeting. For the first time during the Covid-19 period, inflation has eased below the upper tolerance level of 6%. Going ahead, factors that could shape the food inflation trajectory in coming months, including the likely bumper kharif harvest arrivals in markets, rising prospects of a good rabi crop, larger winter supplies of key vegetables and softer poultry demand on fears of avian flu are all indicative of a stable near-term outlook."

This formed the basis for the committee's decision of not tweaking the rates. However, the governor emphasized that the yield curve is a public good. Interestingly, the central bank with its explicit forward guidance has perfected the art of managing expectations better as its auction outcomes are turning out to be mostly in line with market expectations.

In yet another development, the RBI has decided to extend the on-tap targeted Long-Term Repo Operations (LTRO) issued by entities in 26 eligible stressed sectors to non-banking financial companies. The normalization of the Cash Reserve Ratio (CRR) will drain approximately ₹1.5 tn of liquidity from the system and will create room for the apex bank to do more open market operations to support government borrowing. It is to be mentioned that the central bank has decided to gradually raise the CRR—a part of the deposits that banks need to maintain with the central bank—in two phases: CRR will be hiked from 3% to 3.5% effective March 27, and to 4% with effect from May 22, 2021. The regulator has also extended the facility to avail funds under the Marginal Standing Facility (MSF) by dipping into the Statutory Liquidity Ratio (SLR) till September 30, 2021. In a move to ensure that banks do not face any liquidity crunch in the wake of the Covid-19 pandemic, the central bank on March 27, 2020 had allowed scheduled commercial banks to avail of funds under the MSF by dipping into the SLR by up to an additional one percent of Net Demand and Time Liabilities (NDTL), i.e., cumulatively up to 3% of NDTL. This facility, which was initially available up to June 30, 2020, was extended on June 26, 2020 up to September 30, 2020, in view of the disruptions caused by the virus outbreak. This dispensation, as per the regulator, provides increased access to funds to the extent of ₹1.49 lakh cr, and also qualifies as High-Quality Liquid Assets (HQLA) for the Liquidity Coverage Ratio (LCR). With a view to providing comfort to banks on their liquidity requirements as also to enable to continue to meet LCR requirements, it was decided to continue with the MSF relaxation for a further period of six months, i.e., up to March 31, 2021, which has now been extended further till the end of the second quarter of FY 2021-22. In another step, the Reserve Bank has extended the enhanced Held-to-Maturity (HTM) limit of 22% (from 19.5%) of the NDTL till March 31, 2023. Banks have also been allowed to deduct credit disbursed to 'new MSME borrowers' from their NDTL (some of the examples of demand liabilities are current deposits, demand liabilities portion of savings bank deposits, Demand Drafts or DDs, etc., while time liabilities may include things such as FDs, recurring deposits, gold deposits, etc.) for calculation of CRR only for exposures up to ₹25 lakh per borrower. Experts expect that banks will be able to potentially give around ₹23 tn fresh loans to MSMEs till the end-September 2021. RBI has also deferred the implementation of the last tranche of the Capital Conservation Buffer (CCB) along with the net stable funding ratio guidelines. This can have a capital ease of around ₹65,000 cr. The CCB is designed to ensure that banks build up capital buffers during normal times (i.e., outside periods of stress) which can be drawn down as losses are incurred during a stressed period. As per Basel norms, the CCB was to be implemented in tranches of 0.625%, and the transition to full CCB of 2.5% was set to be completed by March 31, 2019. It was subsequently decided to defer the implementation of the last tranche of 0.625% of the CCB from March 31, 2019 to March 31 2020. However, considering the potential stress on account of Covid-19, the implementation of the last tranche of 0.625% of the CCB was deferred once again to September 30, 2020. As per the latest MPC report, in view of the continuing stress on account of the pandemic and in order to aid in the recovery process, the implementation of the last tranche of 0.625% of the CCB will now come into force with effect from October 1, 2021, instead of April 1, 2021 as announced earlier.

> One of the key highlights of the February MPC review meeting is the decision to allow retail investors to buy and sell G-secs in both primary and secondary markets directly through an online portal called 'Retail Direct'.

M G Warrier
Former General Manager,
Reserve Bank of India

Besides these measures, the latest, February 2021 monetary policy report also gains significance on account of several other significant features, the impact of which will reflect in real terms in due course. One such measure is the decision to allow retail investors to buy and sell Government Securities (G-secs) in both primary and secondary markets directly through an online portal called 'Retail Direct'.

It is a major structural reform that will go a long way in not only deepening the bonds market in the country, but

Highlights of the Monetary Policy Committee Meeting, February 3-5, 2021

On the basis of an assessment of the current and evolving macroeconomic situation, the Monetary Policy Committee (MPC) at its meeting today (February 5, 2021) decided to:

- Keep the policy repo rate under the Liquidity Adjustment Facility (LAF) unchanged at 4.0%.
  Consequently, the reverse repo rate under the LAF remains unchanged at 3.35% and the Marginal Standing Facility (MSF) rate and the Bank Rate at 4.25%.
- The MPC also decided to continue with the accommodative stance as long as necessary—at least during the current financial year and into the next financial year—to revive growth on a durable basis and mitigate the impact of Covid-19 on the economy, while ensuring that inflation remains within the target going forward.

These decisions are in consonance with the objective of achieving the medium-term target for Consumer Price Index (CPI) inflation of 4% within a band of +/- 2%, while supporting growth.

The main considerations underlying the decision are set out in the statement as follows:

Assessment

Global Economy: The global economic recovery slackened in Q4 (October-December) of 2020 relative to Q3 (July-September) as several countries battle second waves of Covid-19 infections, including more virulent strains. With massive vaccination drives underway, risks to the recovery may abate and economic activity is expected to gain momentum in the second half of 2021. In its January 2021 update, the International Monetary Fund (IMF) has revised upward its estimate of global growth in 2020 to (–)3.5% from (–)4.4% and increased the projection of global growth for 2021 by 30 basis points to 5.5%. Barring some emerging market economies, inflation remains benign on weak aggregate demand, although rising commodity prices carry upside risks. Financial markets remain buoyant, supported by easy monetary conditions, abundant liquidity and optimism from the vaccine rollout. Global trade is also expected to rebound in 2021, with services trade on a slower recovery than merchandise trade.

Domestic Economy: The first advance estimates of GDP for 2020-21 released by the National Statistical Office (NSO) on January 7, 2021 estimated real GDP to contract by 7.7%, in line with the projection of (–)7.5% set out in the December 2020 resolution of the MPC. High frequency indicators—railway freight traffic; toll collection; e-way bills; and steel consumption—suggest that revival of some constituents of the services sector gained traction in Q3 (October-December). The agriculture sector remains resilient—rabi sowing was higher by 2.9% year-on-year (y-o-y) as on January 29, 2021, supported by above normal north-east monsoon rainfall and adequate reservoir level of 61% (as on February 4, 2021) of full capacity, above the 10 years average of 50%.

After breaching the upper tolerance threshold of 6% for six consecutive months (June-November 2020), CPI inflation fell to 4.6% in December on the back of easing food prices and favorable base effects. Food inflation collapsed to 3.9% in December after averaging 9.6% during the previous three months (September-November) due to a sharp correction in vegetable prices and softening of cereal prices with kharif harvest arrivals, alongside supply side interventions. On the other hand, core inflation, i.e. CPI inflation excluding food and fuel remained elevated at 5.5% in December with marginal moderation from a month ago. In the January 2021 round of the Reserve Bank's survey, inflation expectations of households softened further over a three month ahead horizon in tandem with the moderation in food inflation; one year ahead inflation expectations, however, remained unchanged.

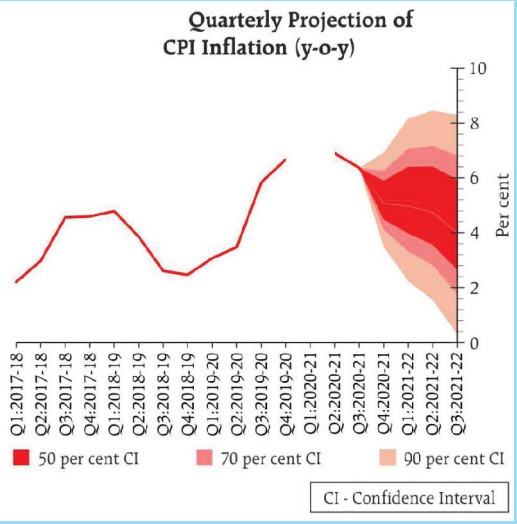
Systemic liquidity remained in large surplus in December 2020 and January 2021, engendering easy financial conditions. Reserve money rose by 14.5% y-o-y (on January 29, 2021), led by currency demand. Money supply (M_3), on the other hand, grew by only 12.5% as on January 15, 2021, but with non-food credit growth of scheduled commercial banks accelerating to 6.4%. Corporate bond issuances at ₹5.8 lakh cr during April-December 2020 were higher than ₹4.6 lakh cr in the same period of last year. India's foreign exchange reserves were at $590.2 bn on January 29, 2021—an increase of $112.4 bn over end-March 2020.

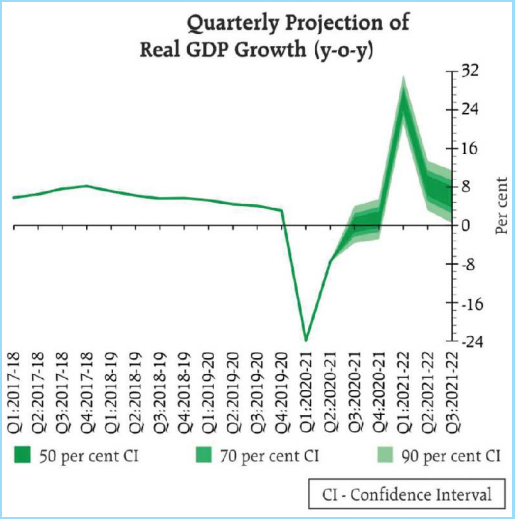
Outlook: With the larger than anticipated deflation in vegetable prices in December bringing down headline closer to the target, it is likely that the food inflation trajectory will shape the near-term outlook. The bumper kharif crop, rising prospects of a good rabi harvest, larger winter arrivals of key vegetables and softer egg and poultry demand on avian flu fears are factors auguring a benign inflation outcome in the months ahead. On the other hand, price pressures may persist in respect of pulses, edible oils, spices and non-alcoholic beverages. The outlook for core inflation is likely to be impacted by further easing in supply chains; however, broad-based escalation in cost-push pressures in services and manufacturing prices due to increase in industrial raw material prices could impart upward pressure. Furthermore, there could be increased pass-through to output prices as demand normalises as indicated in the Reserve Bank's industrial outlook, services and infrastructure outlook surveys and Purchasing Managers' Indices (PMIs) and firms regain pricing power. International crude oil prices may remain supported by demand build up on optimism from vaccination and continuing production cuts by OPEC plus. The crude oil futures curve has become downward sloping since December 2020. Taking into consideration all these factors, the projection for CPI inflation has been revised to 5.2% in Q4:2020-21, 5.2% to 5.0% in H1:2021-22 and 4.3% in Q3: 2021-22, with risks broadly balanced.

Turning to the growth outlook, rural demand is likely to remain resilient on good prospects of agriculture. Urban demand and demand for contact-intensive services is expected to strengthen with the substantial fall in Covid-19 cases and the spread of vaccination. Consumer confidence is reviving and business expectations of manufacturing, services and infrastructure remain upbeat. The fiscal stimulus under Atmanirbhar 2.0 and 3.0 schemes of government will likely accelerate public investment, although private investment remains sluggish amidst still low capacity utilization. The Union Budget 2021-22, with its thrust on sectors such as health and well-being, infrastructure, innovation and research, among others, should help accelerate the growth momentum.

Taking these factors into consideration, real GDP growth is projected at 10.5% in 2021-22—in the range of 26.2 to 8.3% in H1 and 6.0% in Q3.

The MPC notes that the sharp correction in food prices has improved the food price outlook, but some pressures persist, and core inflation remains elevated. Pump prices of petrol and diesel have reached historical highs. An unwinding of taxes on petroleum products by both the centre and the states could ease the cost push pressures. What is needed at this point is to create conditions that result in a durable disinflation. This is contingent also on proactive supply side measures. Growth is recovering, and the outlook has improved significantly with the rollout of the vaccine programme in the country. The Union Budget 2021-22 has introduced several measures to provide an impetus to growth. The projected increase in capital expenditure augurs well for capacity creation thereby improving the prospects for growth and building credibility around the quality of expenditure. The recovery, however, is still to gather firm traction and hence continued policy support is crucial. Taking these developments into consideration, the MPC in its meeting today decided to continue with an accommodative stance of monetary policy till the prospects of a sustained recovery are well secured while closely monitoring the evolving outlook for inflation.





All members of the MPC – Shashanka Bhide; Ashima Goyal; Jayanth R. Varma; Mridul K. Saggar; Michael Debabrata Patra; and Shaktikanta Das—unanimously voted for keeping the policy repo rate unchanged at 4%. Furthermore, all members of the MPC voted to continue with the accommodative stance as long as necessary—at least during the current financial year and into the next financial year—to revive growth on a durable basis and mitigate the impact of Covid-19 on the economy, while ensuring that inflation remains within the target going forward.

The next meeting of the MPC is scheduled during April 5 to 7, 2021.

Source: RBI

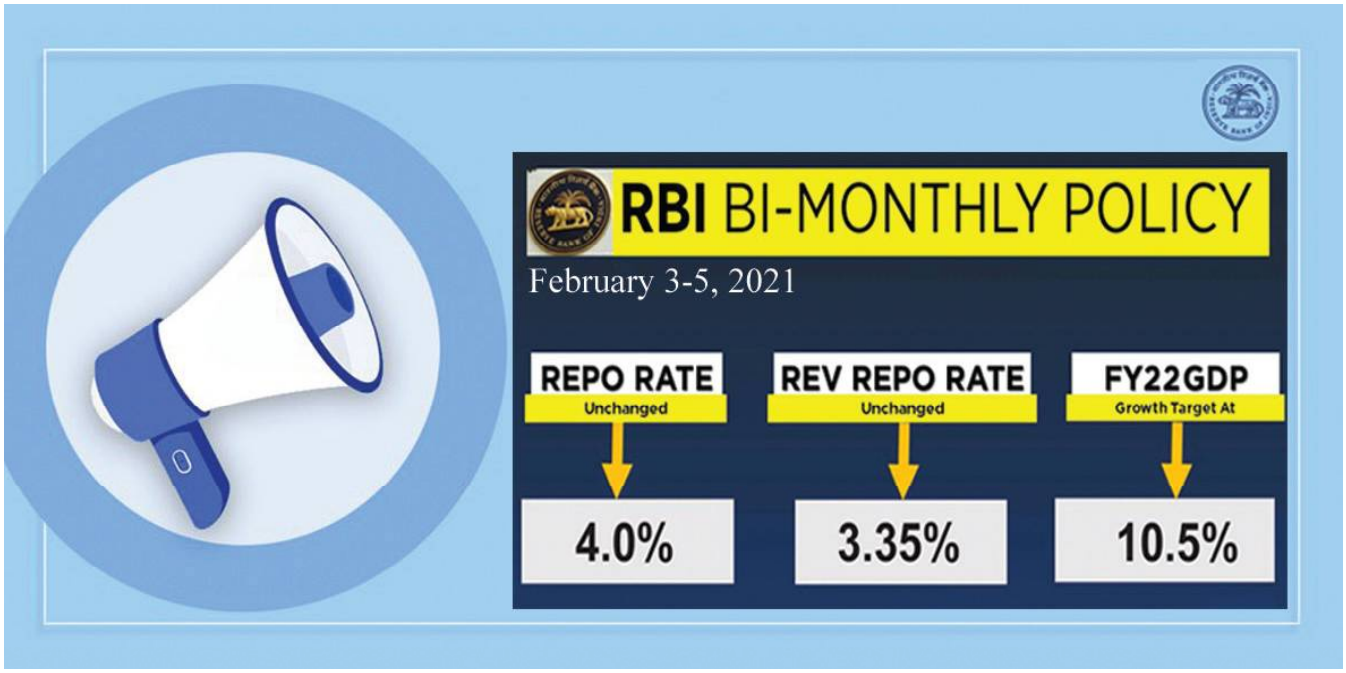
also in boosting liquidity and thus better price discovery. It is expected that retail participation can further help improve market efficiency. With this, India joins a select group of nations where retail participation in G-Secs (considered the safest as they carry no risk of default) is permitted. Detailed guidelines from the RBI in this regard are expected soon. Meanwhile, to trade in government bonds, retail investors will need to open gilt accounts with the RBI.

The other measures initiated by the RBI include: Setting up a centralized industry-wide 24x7 helpline for addressing customer queries about digital payment products and giving information on grievance redress mechanisms; and to make the Ombudsman mechanism simpler and more responsive, RBI proposes to integrate all ombudsman schemes and introduce centralized processing of grievances following a 'One Nation One Ombudsman' approach; RBI also proposes to bring all 18,000 non-clearing bank branches under CTS clearing by September 2021.

> *In order to make the Ombudsman mechanism simpler and more responsive, the central bank proposes to integrate all ombudsman schemes and introduce centralized processing of grievances following a 'One Nation One Ombudsman' approach.*

Government's support complements RBI's efforts

The central bank is well supported in its endeavor to aid the economic recovery from policy support by the Government of India. It is well captured in the Union Budget 2021-22 that elaborates on the measures taken by the central government from time to time. Let me quote a related paragraph from the same, which states, "The Union Budget 2021-22 has provided a strong impetus for revival of sectors such as health and well-being, infrastructure, innovation and research, among others. This will have a cascading multiplier effect going forward, particularly in improving the investment climate and reinvigorating domestic demand, income and employment. The investment-oriented stimulus under Atmanirbhar 2.0 and 3.0 (given during the peak of the pandemic) has started working its way through and is improving the spending momentum along with the quality of public investment. Both will facilitate regaining India's growth potential over the medium-term. The projected increase in capital expenditure augurs well for capacity creation and crowding in private



investment, thereby improving the prospects for growth and building credibility around the quality of expenditure."

I am not aware whether any serious research has been taken up on the subject "Evolution of RBI's Monetary Policy: Before and After Monetary Policy Committee" by any individual or organization. If not, time is opportune for such an effort. For historic reasons, RBI Governor's role in Indian economy and financial sector is similar to the responsibilities of the district collector in regard to administration and maintenance of law and order in a district. I will not elaborate that much, but will definitely share some thoughts which prompted me to say so. Till January 2016, in S S Tarapore, the former Deputy Governor of Reserve Bank of India, Indian financial sector had a friend, philosopher and guide who was watching the functioning of RBI with parental affection, and encouraging and guiding the institution through his regular column in *The Hindu Business Line* and his public speeches. The following excerpts from one such article published in *The Hindu Business Line* during 2015, months before his departure from the scene, will give us a fair idea about his approach to monetary policy and functioning of RBI in general: "I have, on many occasions, been accused of being an apologist for the RBI, but when I have been critical of the RBI my critics conveniently forget that! Nonetheless I am emboldened to say that when the definitive history of the recent period is written up, Governor Raghuram Rajan's June 2, 2015 policy will go down in history as a percipient and well nuanced one."

It is the duty of the RBI to nag the government—central banks are uniquely placed to do so. Most of the other institutions find it politic to agree with every word the government says. Central bankers are traditionally a reticent lot but Governor Rajan is an exception in that he is comfortable interacting with government, bankers, industry, the media and students. He takes the critics head on when he says, "If I cut interest rates it means I want to please the government. If I don't cut interest rates it is because I want a fight with the government. Make up your mind." Governor Rajan stresses that his job is not to be part of the cheer squads on the sidelines and that he has a task (inflation control) which he has to focus on, but it is not as if the RBI does not take into account other economic parameters.

Given the ground realities, the RBI has been right to hint that at this stage, it does not see any prospects of further cuts in policy interest rates in the ensuing few months. Further policy responses would be data-driven. This should disabuse people of the popular perception that policy interest rates would be reduced at every policy review!

While setting out policy interest rates the RBI needs to maintain a fine balance between the cost of credit to borrowers and the return for depositors. The government needs to appreciate that any further reduction in deposit rates will result in a backlash by savers who would turn to risky non-bank assets as also physical assets.

Let monetary policy do what it does best: Inflation control!

Monetary policy should be allowed to deliver on what it is best suited to do, namely, inflation control. While facing brickbats for obviously right policies, Governor Rajan could take solace in the famous statement by Montagu Norman, the longest serving governor of the Bank of England: "Dogs may bark but the caravan moves on." It is not for nothing that former Prime Minister Manmohan Singh, who was governor of the RBI in the early 1980s, called the job the loneliest in the country.

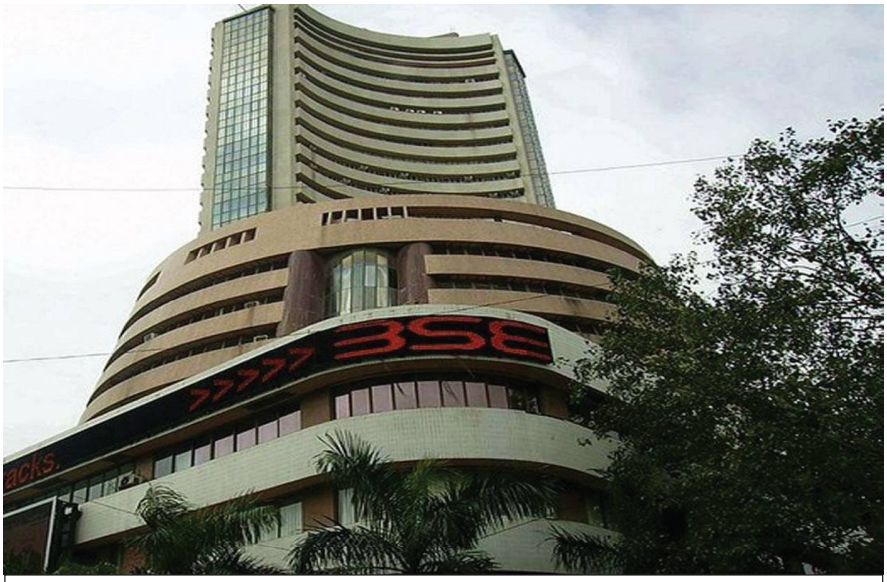
Having started this piece with a quote from C Rangarajan, it would be appropriate to end with the conclusion

he recorded in his contribution to the commemorative volume, "India Transformed", to mark 25 years of Economic Reforms in India, edited by Rakesh Mohan and published by Penguin in 2017. I quote: "One broader issue involving the relationship between innovation and regulation needs to be kept in mind. Banking development has taken big strides in the last two decades. A question that is being asked increasingly is whether the financial sector today is inherently more volatile and vulnerable than before. The very factors that have contributed to the growth of the financial sector may well have contributed to increased fragility. Close interdependence among markets and market participants has increased the potential of adverse events to spread quickly. It has significantly increased the scope and speed of contagion. Some question whether the new financial products serve any socially useful purpose. It has been argued that much of the recent innovation in the financial system has sought to increase the short term profitability of the financial sector rather than increase the ability of financial markets to better perform their essential functions of managing risks and allocating capital. It would be inappropriate to classify all or even most of the financial innovations introduced in the last few decades as socially useless. Many of the financial products satisfy a felt need. There is no argument that the regulatory regime needs to be structured to make the banking system sound. Excessive risk-taking and leveraging by banks need to be discouraged with appropriate regulatory measures or controls. In developing economies like India, the structure of the economy is undergoing a rapid change. The financial system must be able to meet the diversified needs of a growing economy. In this context, we must encourage financial innovations. Too little regulation may lead to financial instability, but too much of it can impede financial innovations which are badly needed. The policymakers must strike an appropriate balance between the need for financial innovations to promote growth and the need for regulation to ensure stability."

It is comforting to find that after a gap, this year (2021), there is a harmonious synchronization of approach among the Economic Survey, Central Budget and RBI's Monetary Policy Announcement in February 2021. Desperate times call for desperate measures. Let us hope these are not! ■

Markets Respond Positively to the RBI's Continued Accommodative Stance

Markets cheered the policy announcements with the benchmark indices Sensex, Nifty extending post Budget rally to 5th straight day



The 30-scrip Sensex ended 117 points or 0.23% up 50,732, while the Nifty 50 index closed with a gain of 29 points or 0.19% at 14,924, at the end of day's trading on February 5, 2021, which also marked record closing for the two leading indices.

Trends in Repo Rate
RBI Presses the Pause Button, for Now!

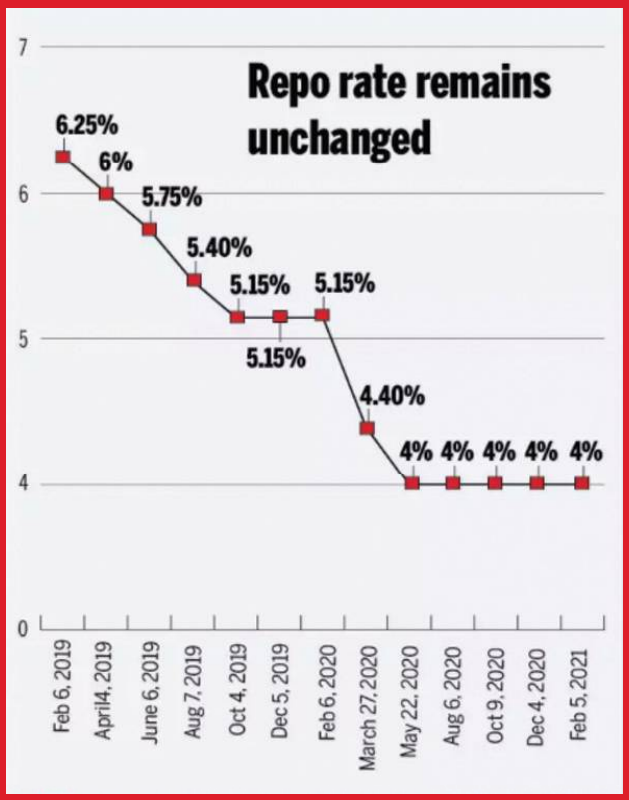
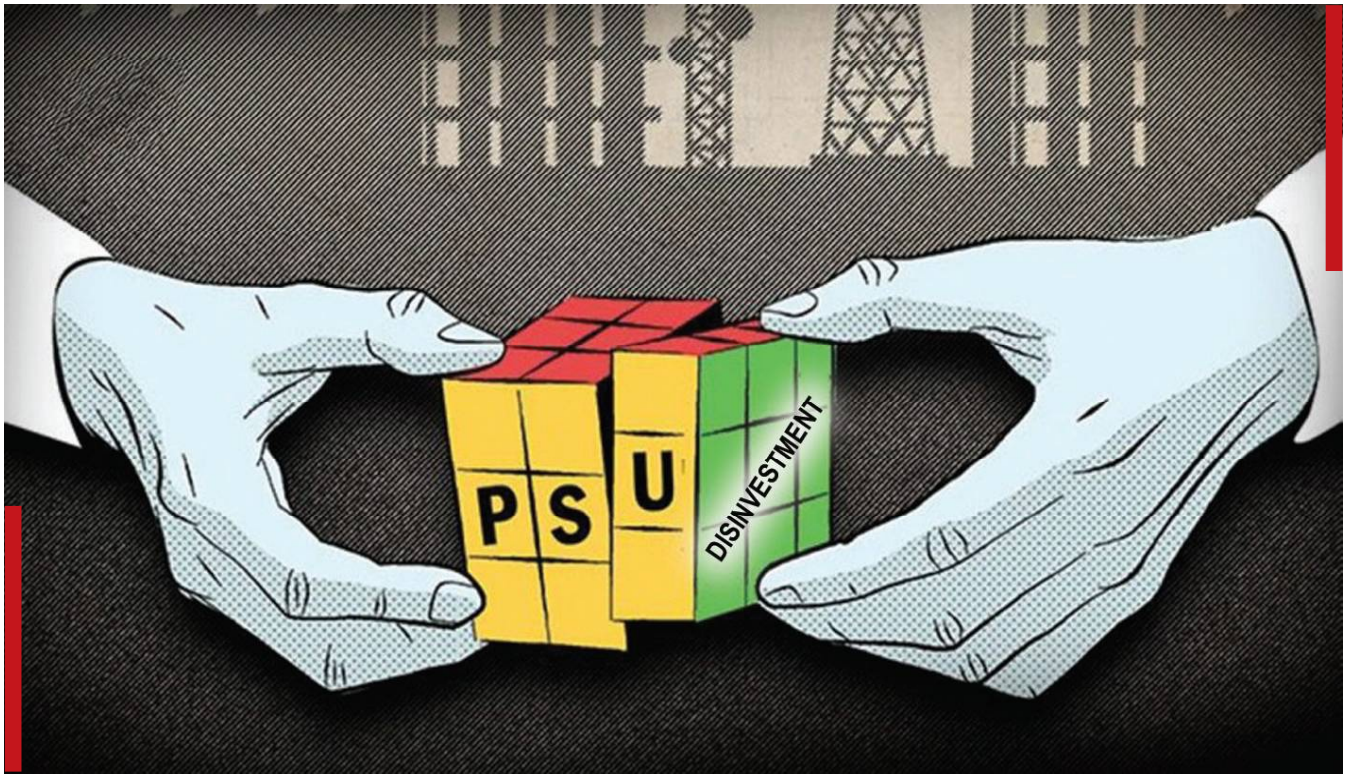


Image: *Times of India*

Reference # 20M-2021-03-03-01

PSU Disinvestment

Selling Family Silver!



Perhaps fed up with piecemeal disinvestment so far, the government is reportedly mulling to launch an ambitious drive with the aim to trim the number of PSUs from more than 300 currently to not more than two dozen or so over the next few years. Noble intentions, but the fact that many of these state-owned enterprises stare at weak balance sheets may prove to be spoilsport.

In what could be the biggest disinvestment drive ever in the country's history, the central government is reportedly mulling a mega sale of state-owned enterprises with the aim to reduce their number from over 300 currently to just around two dozen odd or so! Though a timeline is yet not announced. During her Budget speech on February 1, the Finance Minister Nirmala Sitharaman observed that bare minimum Central Public Sector Enterprises (CPSEs) will be maintained, while the rest will be privatized in four strategic sectors. The idea though makes great sense, it may not be easier to execute given that most of the state-owned enterprises do not look to be in the pink of health, which in turn would make it difficult to find potential suitors.

The idea (of disinvestment) though makes great sense, it may not be easier to execute, given that most of the state-owned enterprises do not appear to be in the pink of health, which in turn could make it difficult to find potential suitors

Meanwhile, the government is aiming to realize disinvestment proceeds of ₹175,000 cr, to be raised in the forthcoming FY 2021-22. The Public Sector Undertakings (PSUs) which are likely to be put on the block include BPCL, Air India, Shipping Corporation of India, Container Corporation of India, IDBI Bank, BEML, Pawan Hans, Neelachal Ispat Nigam Limited, along with the two public sector banks and one general insurance company. Given such marquee names, it is hoped the policymakers may not have much difficulty realizing disinvestment target for the said fiscal. Towards that end, a disinvestment policy was also approved in the recently presented budget. A key objective of this policy is to minimize the presence of the government in the industry except for in four strategic areas, namely, 'atomic energy, space, and defense', 'transport and telecommunications', 'power, petroleum, coal and minerals', and 'banking, insurance and financial services'. Further, even in these sectors, the government is reportedly planning not to have more than one PSU in each of these sectors. "The policy provides a clear roadmap for

disinvestment in all nonstrategic and strategic sectors. We have kept four areas that are strategic where bare minimum CPSEs will be maintained and rest privatized. In the remaining sectors, all CPSEs will be privatized," the FM had said. All the other public sector enterprises are expected to be either merged or strategically divested, while sick units are to be closed. This is expected to create new investment space for the private sector players. The identification of strategic sectors was first announced as a part of the Atmanirbhar Bharat package, the government's measures to provide relief during the Covid-19 pandemic. In non-strategic sectors, as per media reports, the government is planning to exit several PSUs and ultimately have not more than 24.

Nirupama Soundararajan
Head of Research & Senior Fellow
Pahle India Foundation

> As of now, there is not much clarity on how the implementation and execution of the disinvestment policy will take place. Also, there are concerns over the valuation of CPSEs, which may make it difficult for the government to make sure the proposed IPOs/FPOs sail through smoothly.

Arindam Goswami
Fellow
Pahle India Foundation

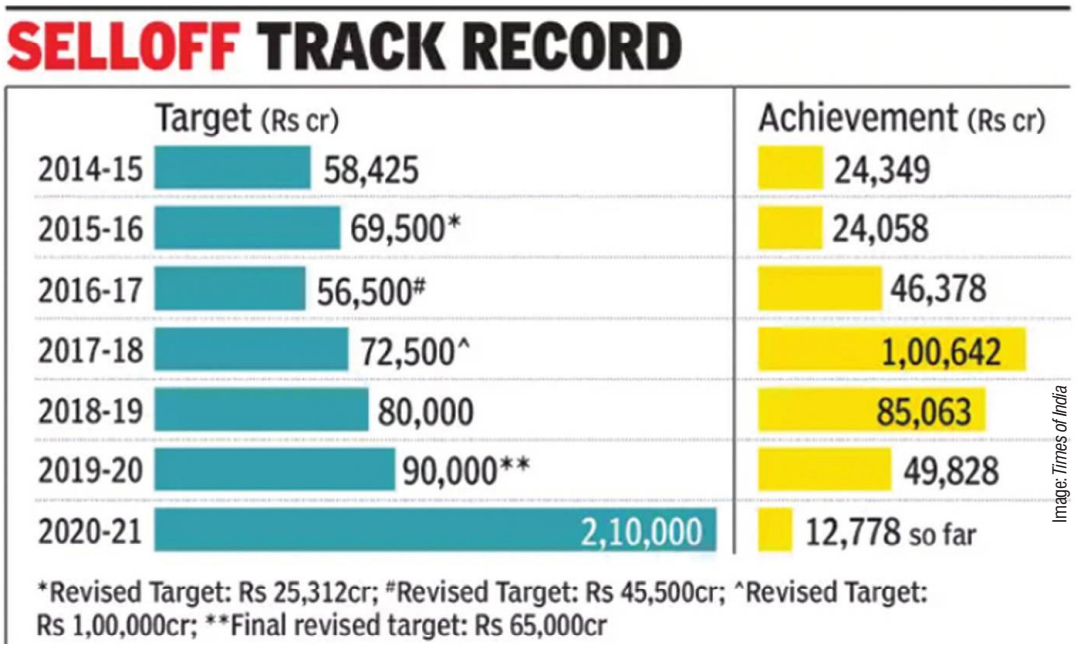
Fiscal deficit, not an issue, at least for now!

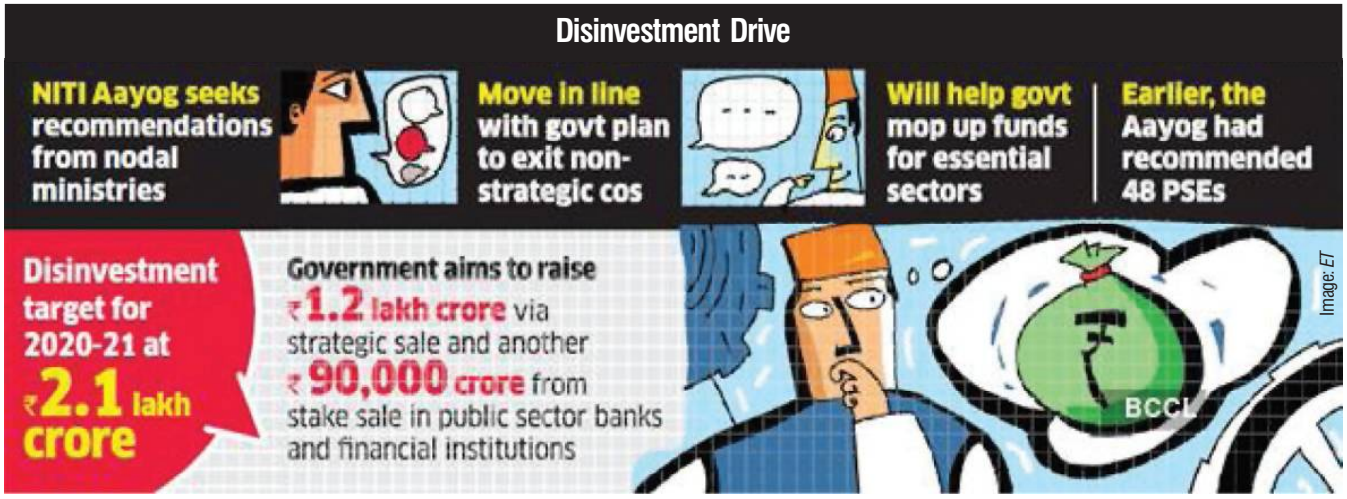
Budget 2021 takes cognisance of the immediate needs of the Indian economy given the unprecedented business environment caus-ed by the Covid-19 pandemic and thus rightly concentrates on capital expenditure, stimulating consumer demand, and job creation. Although, there has been significant deviation in terms of fiscal deficit as a percentage of Gross Domestic Product (GDP) from the targeted rate of 3.5% to 9.5%, credit must be given to the government for keeping the fiscal deficit rate in single digits, which has been possible because of the various calibrated medium size economic stimulus packages announced in the aftermath of the pandemic-induced lockdown announced last year, before ramping them up as the lockdown-related curbs began to be relaxed.

While current circumstances can certainly justify the huge divergence in the fiscal deficit, it is, however, necessary to have some kind of a plan towards fiscal consolidation. As per the budget, the fiscal deficit target for FY 2022-23 is 6.8%, while efforts would be made to reach 4.5% over the next three years, that is, by 2025-26. While these targets are certainly not unachievable, they do come with certain challenges.

To reach the intended goals, the FM plans to raise a small portion of money through market borrowings and by boosting tax collections, besides also through monetization of assets, including public sector enterprises and land. There is also a plan to divest two banks, apart from the IDBI Bank and a general insurance company. The government is also mulling IPO of LIC, one of India's most profitable state-owned entities. Though the IPO of India's largest insurer is expected to sail through comfortably, not everyone seems to be so convinced when it comes to the government's disinvestment targets.

It should be noted that the government missed its target of divestment in 2016-17, having managed to raise just about a little over ₹46,000 cr as against the target of ₹56,500 cr. Things though took a positive turn in the next fiscal





when the divestment proceeds touched a whopping ₹1,00,056 cr mark, well above the targeted level of ₹1,00,000 cr, which also meant it met its disinvestment targets for the first time in many years. The next fiscal saw another good year with the government mopping up ₹84,972 cr, which was over and above the targeted ₹80,000 cr. But it failed to repeat its performance the next year, missing the target (of ₹1.05 lakh cr) by more than a half. For the record, the disinvestment proceeds stood at a mere ₹50,298 cr in FY20. In 2020-21, disinvestment target was nearly doubled to ₹2.1 lakh cr, but the proceeds stood at a measly ₹19,499 cr, hit by the economic devastation caused by Covid-19 induced pandemic.

Given recent experiences, there is not much clarity on how the implementation and execution of the policy will take place. Further, political challenges aside, there are also concerns over valuation of the CPSEs and in the government's ability to secure adequate market demand for the proposed IPO/FFO, given the lacklustre demand for PSU shares. For a successful IPO or FFO, valuation holds key. Public perception, not entirely unfounded, is that the government usually disinvests those CPSEs that are not profitable. Most CPSE IPOs have to battle this perception bias. However, with the new policy, the intent is clear: the government, for the first time, has admitted openly it has no business to be in business! And that is reassuring.

While the LIC IPO may be a success, the same cannot be said of non-financial sector CPSE IPOs. In the past, retail demand for such IPOs has been vapid. Institutional investors, on the other hand, have often benefitted from these IPOs. For firms already listed on the exchange, the government usually opts for an Offer For Sale (OFS). However, a major limitation of this approach is that the existing investors short their holdings, thereby driving prices down. A substantial reduction in share price is seen, which erodes the market capitalization of the company and adversely affects the valuation of the floor price for sale. This is usually in anticipation of short-term speculative gains as market participants expect the government to divest, even if valuations are unfavorable, to meet budgetary targets.

Labor unions also have to be reckoned with. In the past, many bank unions vehemently protested the government's intention to consolidate banks. This time too, such problems will in all probability arise. It is therefore imperative that the government thinks of possible solutions ahead, so that deals are not held up. Options such as voluntary retirement schemes and mandatory upskilling may all be considered.

But the real concern has been over identifying prospective buyers for disinvestment. So far, LIC has always come to the rescue of the government as the buyer of last resort. However, in the previous budget, after much criticism for always turning to LIC to meet disinvestment targets, the government announced that the definition of government shareholding will not just include direct shareholding, but also indirect shareholding. While change encapsulates the true meaning of disinvestment, the fundamental challenges to disinvestment are yet to be addressed. In a similar vein, even though the current budget details the government's intent and objective for disinvestment, the policy does little to deal with the practical problems. For instance, there is no clarity as to how it is going to create value for the prospective buyer, given most CPSEs are loss-making entities. Hence to assume that any private investor would be keen to invest in an asset that does not generate value is far-fetched. Furthermore, the policy also does not speak of the way to solve current governance lacunae in the CPSEs, whether it be vacant board seats or meeting minority shareholder targets, laid down by SEBI. All of these have a bearing on valuation. Further, there is also no discussion on how to deal with the transition from being a loss-making entity to a reasonably attractive investment option, which need not necessarily mean profit-making.

Greater clarity needed

The pandemic has resulted in serious wealth erosion. In fact, a quick look at budgeted tax collections from the corporate sector will indicate that the government estimates lower tax collection from the corporate sector for 2021-22 in

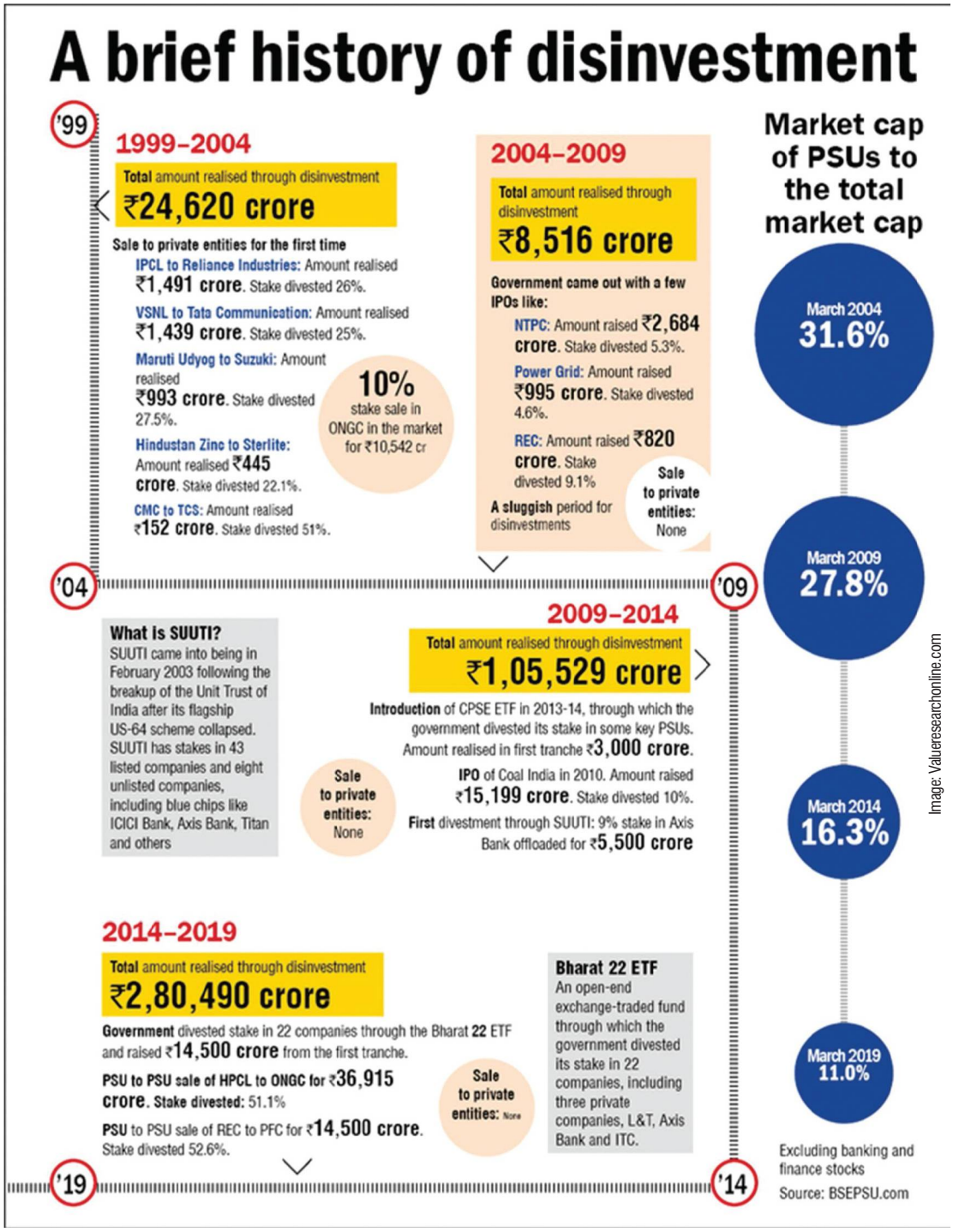


Image: Valueresearchonline.com

comparison to 2019-20. At a time when the industry is struggling to get back on its feet, finding investors may not be easier, especially in the case of those PSUs which are loss-making or face uncertain future. Also, even though the government is clear it would only remain in business in the aforementioned strategic sectors, there is no discussion on how they plan to merge the various CPSEs that do exist in these sectors. Defence, for example, has almost seven CPSEs, and each of them is a behemoth. Hindustan Aeronautical Limited (HAL), the largest and by far the most popular Defence Public Sector Unit (DPSU), did not have takers during previous disinvestment rounds. As always, LIC was the largest buyer. The question that the government must ask itself is, if merging CPSEs is a good idea. Behemoths rarely work efficiently. In fact, it might make more sense to split large CPSEs to create a tiered manufacturing system. The smaller units may become more profitable and generate enough value for investors to be interested.

Clearly, greater clarity is needed and perhaps a revisit to the policy framework would be needed to make disinvestment a truly success story. Achieving a 3% reduction in just one financial year would imply that the government has a game plan for disinvestment. But, in reality, a more controlled spending would invariably lower the fiscal deficit automatically. This implies the government may meet immediate fiscal deficit target even with poor success rate on disinvestment. This is supported by the fact that the disinvestment target is significantly lower than that of last year. However, the real challenge will be in reducing the fiscal deficit from 6.8% to 4.5%, and for that, the policymakers would have to find a better way of divestment and asset monetization that has value creation at its core. ■

Reference # 20M-2021-03-04-01

The global quest for a clean and sustainable fuel could end with Hydrogen.

More than 200 years after French businessmen and brothers Joseph (1740-1810) and Etienne (1745-1799) Montgolfier successfully demonstrated what was the world's first gas balloon flight (on June 4, 1783) that was powered by Hydrogen and took place in Annonay, a small town in Southern France, near the city of Lyon, giving wings to human dream of flying, the world's simplest (has an atomic number of 1) but highly inflammable chemical element is in the limelight once again, raising hopes the world might have found in it an effective substitute to fossil fuels, which are largely blamed for contributing to the rising levels of worldwide greenhouse gas emissions (gases released by millions of factories and vehicles around us which absorb and radiate overtime the heat that enters earth's atmosphere in the form of sunlight—a phenomenon that is akin to bricks in a fireplace after the fire goes out, according to climate.gov. Without this natural greenhouse effect, says the web site, earth's average annual temperature would be below freezing point instead of close to 60°F (15.5°C). But increases in greenhouse gases have tipped the Earth's energy budget out of balance, trapping additional heat and raising earth's average temperature), which in turn have added to the growing threats of climate change and global warming, which could also be a potent, sustainable, clean energy source. Such beliefs also stem from NASA's successful experiment that showed Hydrogen can be used as a propulsion or rocket

fuel. Since the 1950s, the American space agency has been using liquid Hydrogen not just as rocket fuel, but also uses Hydrogen fuel cells to power the electrical systems on its spacecrafts. There were also stories that suggested successful use of liquid Hydrogen as fuel in spy planes of American security agencies. According to NASAs official website, the largest and most extraordinary project for using Hydrogen as a fuel was carried out by the US Air Force in 1956-1958 in supersecrecy. "Very few people are aware of it, even now, yet over a hundred million dollars were spent-perhaps as much as a quarter of a billion dollars. Although the project was cancelled before completion, it led directly to the first rocket engine that flew using hydrogen. The project was codenamed Suntan, and even this was kept secret. It had all the air of cloak and dagger melodrama and indeed, its principal precursor was just that. Suntan was an effort by the Air Force to develop a hydrogen-fueled airplane with performance superior to the secret spy plane, the U-2," the NASA website says. Successes of NASA and some other research organizations fired popular imagination, resulting into growing worldwide interest in the chemical element that is considered as versatile as its periodic table peer carbon, which has though also added to the Earth's growing environmental deterioration. More recently, a few success stories, especially in the auto industry, have helped further arisen the interest in the element, with the governments and enterprises across the globe scrambling to explore if Hydrogen (and yes, we are referring to the "Green Hydrogen"— Hydrogen made without fossil fuels; the other forms include grey and blue amongst several others) can also be the answer to human's quest for a cheaper, sustainable renewable energy form that ticks all the right boxes!

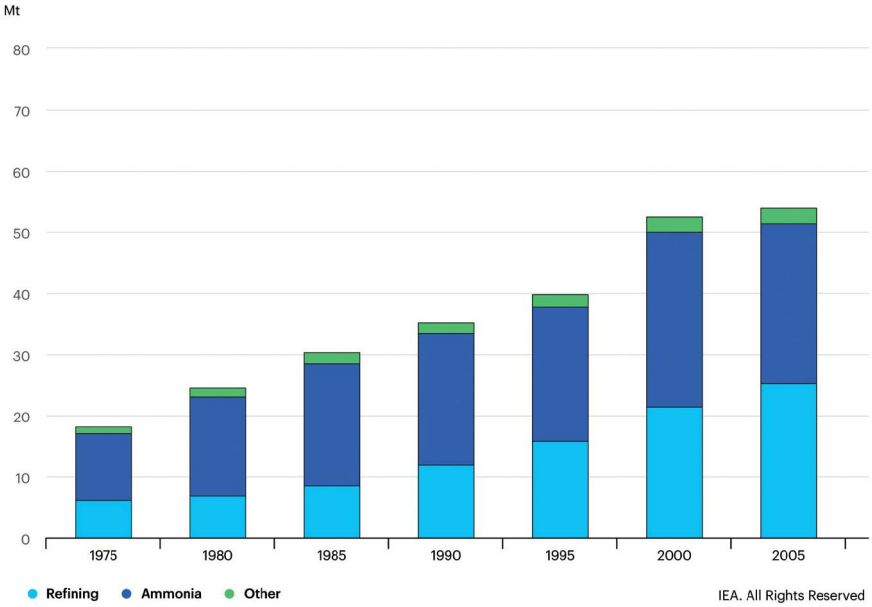
Why the world is seeking Hydrogen?

Discovered in 1766 by a British physicist by the name of Henry Cavendish, Hydrogen is the first element in the periodic table and is represented by the symbol 'H'. It derives its name from the Greek words, hydro (meaning water) and genes (meaning forming). Hydrogen is essential for life and is present in nearly all the molecules in living things, according to the Royal Society of Chemistry. But Hydrogen is not found in its pure form, rather it is present in our environment mostly as compounds such as hydrocarbons (carbon + Hydrogen), which means that any Hydrogen that actually enters the atmosphere rapidly escapes earth's gravity. Though its most popularly known form is water or H_2O. Some of its other compounds include ammonia (NH_3), methane (CH_4), table sugar ($C_{12}H_{22}O_{11}$), Hydrogen peroxide (H_2O_2) and hydrochloric acid (HCl). It is perhaps this ability(to combine, and which is why it is available in so many matters around us)—ironically the only other element with could show such versatility, or perhaps more, is carbon, responsible for environmental degradation—that makes Hydrogen the red-hot renewable energy source, which the world is currently seeking.

It, nonetheless, needs to be separated from its molecules, using various techniques (often expensive, which has proved to be a major deterrent in its wider adoption so far). One widely known method to produce Hydrogen is by heating natural gas with steam to form a mixture of Hydrogen and carbon monoxide called syngas, which is then separated to produce hydrogen, as per the Royal Society. A key feature of Hydrogen is its light weight—it is the lightest of all the chemical elements known to humans. In fact, Hydrogen is about 14 times lighter than air!

Besides, Hydrogen is also the most abundant of all the elements found in the universe—it makes up more than 90% all of the atoms, which account for nearly three-quarters or 75% of the mass of the universe, according to the Los Alamos National Laboratory. These factors make Hydrogen a promising new source of renewal energy that could be a potential game-changer, enabling mankind to not only address the growing demands for clean fuels, but to also tackle

Global Demand for Pure Hydrogen, 1975-2018



Source: https://www.iea.org/data-and-statistics/charts/global-demand-for-pure-hydrogen-1975-2018

Hydrogen Discovery

Robert Boyle produced hydrogen gas in 1671 while he was experimenting with iron and acids, but it wasn't until 1766 that Henry Cavendish recognized it as a distinct element, according to Jefferson Lab. The element was named hydrogen by the French chemist Antoine Lavoisier.

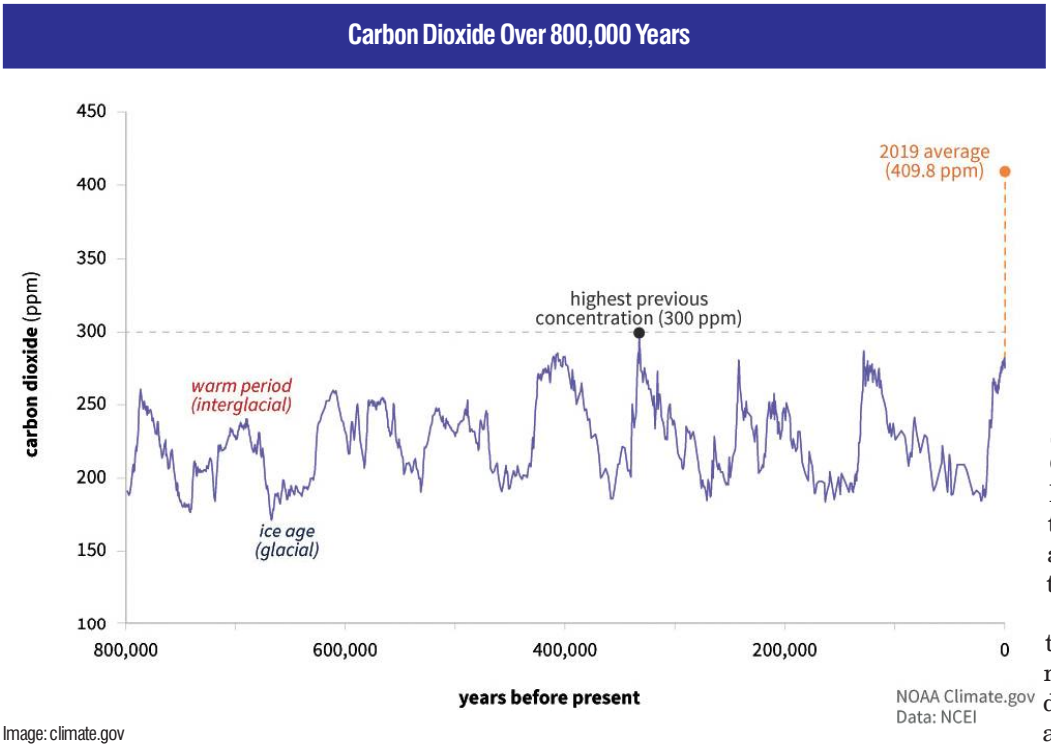


Image: climate.gov

the twin threats of global warming and climate change, caused by growing global carbon footprint.

Unlimited potential

Interestingly, the craze for Hydrogen is not new, at least in case of the transportation industry. As history shows, hydrogen's potential as an alternative fuel was recognized much earlier, as far back as 1806, when a Swiss engineer by the name of François Isaac de Rivaz invented an internal combustion engine that used a mixture of Hydrogen and oxygen as fuel. Though the experiment had failed, it gave automakers enough hint of what Hydrogen could do. Some 25 years later, electric cars debuted. Although they quickly went into oblivion, owing to their high prices (in 1912, electric cars sold on average for $1,950 vis-à-vis $280 for the iconic Model T) as well as concerns over mileage, or in EV parlance, 'range anxiety', their failure paved way for fossil fuel-based automobiles to become mainstream.

Meanwhile, the idea (of Hydrogen-powered vehicles) though got nipped in the bird, it did not disappear completely from the global industrial scene as it continued to find applications in certain industries such as refinery (to remove the sulphur that is naturally contained in oil to produce cleaner fuels), iron and steel, chemicals, textiles, glass, electronics and metallurgy, to name a few; although even today it's known more for its role in the space industry, as a propulsion fuel for space shuttle and other launch vehicles. According to Air Liquide, the France-based world's second largest supplier of industrial gases, Hydrogen is preferred due to the fact that it concentrates the most energy (that is, it has the highest energy content of any common fuel by weight): 1 kg of Hydrogen contains three times more energy than 1 kg of gasoline (although it also has the lowest energy content by volume—about four times less than gasoline, as per the US Energy Information Administration). This is a critical criterion considering that a launcher must be as light as possible. Hydrogen, combined with a fuel cell, is also a great vector of clean energy, since it makes it possible to produce electricity directly on-board electric vehicles or in remote areas that are cut off from the power grid, as per Air Liquide. Hydrogen is also storable, energy-dense, and produces no direct emissions of pollutants or greenhouse gases. These characteristics make Hydrogen a hot topic and have generated massive curiosity among not just researchers, but have also got the governments around the globe, including India, interested in what appears to be a promising fuel source. "Hydrogen is an energy carrier with no carbon in it, so when you burn it, you only produce water," which makes it a clean fuel, with no emissions at all, said Richard Chahine, the director of the Hydrogen Research Institute at University of Québec at Trois-Rivières, Canada, told Live Science.

It is interesting to know that there is a growing number of flourishing Hydrogen-based businesses around the globe, in the industrial sector. According to the Paris-based International Energy Agency (IEA), supplying Hydrogen to industrial users is now a thriving business around the world. As per a study by the agency, the demand for Hydrogen has grown more than threefold since 1975. Ironically though almost all the world's Hydrogen supplies come from fossil fuels, which, the report says, has led to CO_2 emissions of around 830 million tonnes of carbon dioxide per year,, equivalent to the CO_2 emissions of the UK and Indonesia combined! This is forcing researcher community to take a relook at the way Hydrogen is produced, or essentially, explore alternative ways to produce/source hydrogen. Also, as the IEA report highlights, for Hydrogen to make a significant contribution to clean energy transitions, it needs to be adopted in sectors where it is almost completely absent, such as transport, buildings and power generation.

Cost is a major deterrent

But a major hindrance in greater adoption of hydrogen, especially in the transportation sector, is its high production cost: producing Hydrogen fuel is more expensive than natural gas. According to Bob Carter, Senior Vice-President,

How hydrogen and Electric Cars Work

A hydrogen fuel cell car has a hydrogen tank that feeds a fuel cell with high pressured hydrogen gas that'll mix with oxygen. This mix starts an electrochemical reaction that produces electricity to power the electric motor. This means hydrogen cars have characteristics of both electric cars (due to the use of electric energy and motor) and conventional petrol cars (because of the tank). However, they represent a unique share of the transportation market and they're also called Fuel Cell Vehicles (FCVs) or Full Cell Electric Vehicles (FCEVs).
Fuel cells are the main component of hydrogen-powered cars. Think of them as the maestro of all the processes happening inside the car so that it has the energy to move. Long story short, fuel cells turn the stored hydrogen gas (by mixing it with oxygen) into electricity. This electricity is then used to power an electric motor to propel the vehicle, without any toxic tailpipe emissions. In fact, the only by-product of the whole process is water and heat, as the result of the connection of hydrogen and oxygen atoms that forms H_20 molecules. I know—it seems perfect, right?

Increasing hydrogen infrastructure across Europe
Hydrogen Mobility Europe (H2ME) is a flagship project aimed at developing the first truly pan-European network of hydrogen refueling stations. This is a giant leap forward for the hydrogen society, giving drivers of hydrogen-powered vehicles access to fueling stations on a much more basic level. The aim of the H2ME Project is to demonstrate the technical and commercial readiness of hydrogen vehicles, fueling stations and production techniques, through significantly expanding the European hydrogen-powered vehicles fleet.

Courtesy: Toyota Motor Company

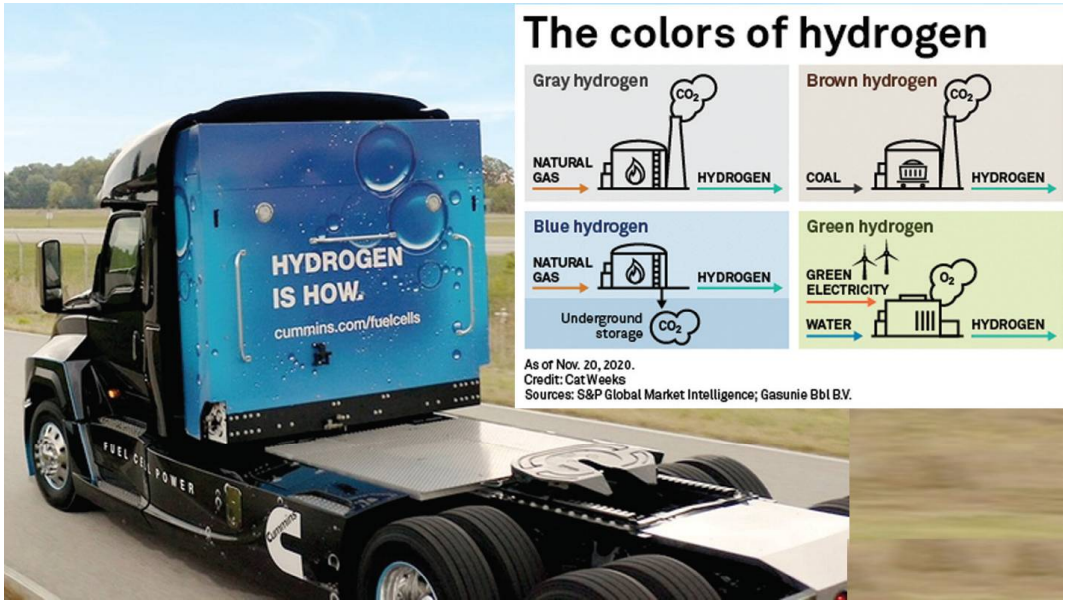
Toyota Motor Company, one of the pioneers of Hydrogen-powered vehicles, a full tank of compressed Hydrogen would initially cost around $50. In general, costs associated with Hydrogen fuel technology are "a very challenging barrier because, as of now, people would prefer to have better technologies at the ongoing price," Chahine told Live Science in an interview.

According to the IEA, Hydrogen can be extracted from fossil fuels and biomass, from water, or from a mix of both. Natural gas gas (a fossil energy source) is currently the primary source of Hydrogen production, accounting for around three quarters of the annual global dedicated Hydrogen production of around 70 million tons. This accounts for about 6% of global natural gas use. It is followed by coal (2%, due to its dominant role in China), while a small fraction is produced from the use of oil and electricity. The production cost of Hydrogen from natural gas is influenced by a range of technical and economic factors, with gas prices and capital expenditures being the two most important, as per the IEA report. Fuel costs are in fact the largest cost component, accounting for between 45% and 75% of the total production cost. Nonetheless, low gas prices in regions like the Middle East, Russia and North America has given rise to some of the lowest Hydrogen production costs. However, in case of gas importers like Japan, Korea, China and India, they need to contend with higher gas import prices, leading to their higher Hydrogen production costs, suggests the IEA study. However, there is some hope. According to the Agency, while less than 0.1% of global dedicated Hydrogen production today comes from water electrolysis, with declining costs for renewable electricity (in the form of solar PV and wind energy), interest is growing in electrolytic Hydrogen. Further, dedicated electricity generation from renewables or nuclear power too offers an alternative to the use of grid electricity for Hydrogen production. A number of demonstration projects have been executed successfully in recent times. However, as the IEA report advises, there is a flipside: producing all of today's dedicated Hydrogen output from electricity would result in an electricity demand of 3,600 TWh, more than the total annual electricity generation of the European Union!

Yet, it's advantage Hydrogen!

Notwithstanding such hurdles, benefits of using Hydrogen as fuel are immense with the biggest being the opportunity to decarbonise the transportation sector - one of the world's biggest polluters! Besides, the opportunity to reduce carbon footprint of sectors like iron and steel, chemicals, refinery, etc., too is equally enticing if not more, as it could have long-lasting impact on the air quality, given the fact that global energy-related carbon dioxide emissions have reached a record high; according to America's climate.gov website, the global average atmospheric carbon dioxide in 2019 was 409.8 parts per million (ppm for short), with a range of uncertainty of plus or minus 0.1 ppm. In fact, the outdoor air pollution remains a pressing problem, with around 3 million people dying prematurely each year, shows IEA data.

What also adds to the lure of Hydrogen is the fact it can be transported: it is



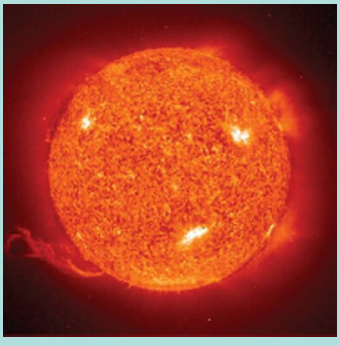
possible to transport Hydrogen as a gas by pipelines or in liquid form by ships, much like Liquefied Natural Gas (LNG). Further, it can also be transformed into electricity and methane to power homes and feed industry, and into fuels for cars, trucks, ships and planes. Apart, Hydrogen can also help improve our ability to harness renewables well, says IEA report. It is to be noted that despite immense potential of renewables like solar and wind energy sources, there is a wide gap between the supply and demand, as technology for storing and transportation of these energies is not yet well developed. However, Hydrogen can help address this problem to a great extent. According to the IEA, Hydrogen is one of the leading options for storing energy from renewables and that looks promising as it offers the lowest-cost option for storing electricity over days, weeks or even months! Further, Hydrogen and hydrogen-based fuels can also transport energy from renewables over long distances—from regions with abundant solar and wind resources, such as Australia or Latin America, to energy-hungry cities thousands of kilometres away, the report suggests.

Interestingly, there is more to the Hydrogen story. As per IEA's forecasts, the cost of producing Hydrogen from renewable electricity is likely to fall by nearly a third, or 30% by 2030, as a result of declining costs of renewables and the scaling up of Hydrogen production. Fuel cells, refuelling equipment and electrolysers (which produce Hydrogen from electricity and water) can all benefit from mass manufacturing. However, one major drawback has been the lack of Hydrogen infrastructure—as is the case with EVs. According to the IEA, Hydrogen prices for consumers are highly dependent on how many refueling stations there are, how often they are used and how much Hydrogen is delivered per day. Tackling this is likely to require planning and coordination that brings together national and local governments, industry and investors, it says. However, companies like Toyota, which has been an early entrant in the field has joined hands with the governments and private sector players in Europe in the biggest push ever for the development of Hydrogen infrastructure in the region and create a 'Hydrogen society'. The Japanese car maker is a part of Hydrogen Mobility Europe (H2ME), a flagship project aimed at developing the first truly pan-European network of Hydrogen refueling stations. This is a giant leap forward for the Hydrogen society, giving drivers of hydrogen-powered vehicles access to fueling stations on a much more basic level, according to the H2ME website. The Project's aim is to demonstrate the technical and commercial readiness of Hydrogen vehicles, fueling stations and production techniques, through significantly expanding the European hydrogen-powered vehicles fleet.

Welcome to India's National Hydrogen Mission

An often cited hurdle (in promoting the use of Hydrogen fuel) is the lack of policy support from governments. But that is

What is hydrogen?



Hydrogen is the simplest element. Each atom of hydrogen has only one proton. Hydrogen is also the most abundant element in the universe. Stars such as the sun consist mostly of hydrogen. The sun is essentially a giant ball of hydrogen and helium gases.

Hydrogen occurs naturally on earth only in compound form with other elements in liquids, gases, or solids. Hydrogen combined with oxygen is water (H_2O). Hydrogen combined with carbon forms different compounds—or hydrocarbons—found in natural gas, coal, and petroleum.

Hydrogen is the lightest element. Hydrogen is a gas at normal temperature and pressure, but hydrogen condenses to a liquid at minus 423 degrees Fahrenheit (minus 253 degrees Celsius).

The sun is essentially a giant ball of hydrogen gas undergoing fusion into helium gas. This process causes the sun to produce vast amounts of energy.

Source: NASA (public domain)

not the case in some nations, including India. Recognizing the potential of Hydrogen as a promising clean fuel, a number of governments in countries like the Germany, Scandinavia, France and the UK, etc., have started initiating measures to support the emerging Hydrogen economy. India, for example, recently announced an ambitious 'National Hydrogen Mission' with the aim to usher in the clean energy future. After Prime Minister Narendra Modi spoke of the need to harness promising new renewable energy resources like Hydrogen during his address while inaugurating the 3rd Global Renewable Energy Investment Meeting and Expo (RE-INVEST 2020), via video conferencing, in New Delhi, last November, the Finance Minister Nirmala Sitharaman in her 2021 budget announced that a 'Hydrogen Energy Mission' will be launched in 2021-2022 with the aim to generate Hydrogen from green power sources. Though a detailed plan of action is yet to come, the government has already made its intentions clear: India wants to be at the forefront of what the world calls the clean energy revolution.

As experts suggest, the 'push' to the Hydrogen economy will enable the country reduce dependence on fossil fuels and move towards green energy future, led essentially by hydrogen, but also supported by other renewable sources such as solar and wind. In fact, India has made remarkable progress in the area of renewal energy during the past five-six years, thanks to Modi government's unstinted focus on green energy. The government's thrust on making India self-reliant in renewal energy has seen it embark on the world's largest renewable energy expansion program ever, with the aim to achieve installed capacity of 175 GW by 2022; the country has already created a massive capacity of 90GW or 90,000 MW by the end of November 2020. Thanks to the Modi government's continued policy support, the renewable energy installed capacity in the country has more than tripled (or, 226%) in the last five years, making India the 5th largest, globally, in terms of overall installed renewable energy capacity.

Meanwhile, to achieve its Hydrogen ambition, the country can also turn to start-ups, which are expected to play no smaller role as the government looks to make the country Atmanirbhar Bharat in the field of renewables as well. And, there is absolutely no doubt why it cannot replicate its success of wind and solar in Hydrogen fuel as well. As the success of Biezel Green Energy (BGE) shows, startups too can play a significant role in making the country's Mission Hydrogen a great success story. BGE, based in Varanasi, Uttar Pradesh, which was set up three years ago by two Indian Institute of Science, Bengaluru, scientists—Preetam Singh and Konda Shiva (the duo had completed their post-doctoral work under the 2019 chemistry Nobel prize winner, Prof John Goodenough of University of Texas, Austin), produces Hydrogen and other fuels from biomass, using a technology invented by Singh and Shiva. They call it 'thermally accelerated anaerobic digestion', or TAD. The TAD reactors can process 1,500-2,000 kg of biomass over 36 hours to produce hydrogen, methane, bio-coal and LNG, Singh said speaking to *The Hindu Business Line*. One kg of biomass splits into 35-40 grams of hydrogen, 140-170 grams of methane, 280-300 grams of bio-coal - of a high calorific value of 6,500-8,000 kCal/kg, depending on the biomass used. But, notably, the process can produce Hydrogen at less than $5 a kg - a globally targeted cost. Singh, who also teaches at IIT-BHU, Varanasi, is convinced that the biomass route of Hydrogen production is the way to go. BGE is already selling Hydrogen to NTPC, where it is used as a coolant. According to the BL report, IOC, which is "betting heavily on biomass gasification", is in talks with BGE for joint work on hydrogen. "If you want to marry the Hydrogen economy with the agrarian economy, biomass-based Hydrogen pathways hold a greater promise," Ramakumar, SSV Ramakumar, Director - R&D, Indian Oil Corporation (IOC), told BL, suggesting it would solve several problems. Importantly, it would help address the issue of distribution of Hydrogen - given it is a highly inflammable matter and on top of that storing it would have its own challenges. "You must make the gas where you can quickly use. Hence, again, the biomass pathway," the BL report suggests. In all likelihood, India will be looking at its vast agricultural fields to harness Hydrogen (energy). This, in turn, the study suggests, will resolve three problems: one, it can raise farm incomes (according to Singh of BGE, a farmer will get ?10,000 per acre by selling his agri-residue); two, it can be the solution to stubble burning; and finally, the country can generate green Hydrogen at pocket-easy prices! Sounds too simple? But then isn't it that often we fail to realize that there are simple answers to questions that may appear complicated.

Welcome to the Hydrogen economy! ■

Amit Singh Sisodiya

Reference # 20M-2021-03-05-01

Make in India

The 'PLI' Push for Manufacturing

The Modi government's ambitious Production-Linked Incentive (PLI) scheme aims at making Indian manufacturing companies globally competitive and help the country emerge as a major global manufacturing hub.

The Production-Linked Incentive (PLI) scheme, launched on April 1, 2020 by the Government of India, against the backdrop of the Covid-19 pandemic, and as a part of the National Policy on Electronics, is aimed at making Indian manufacturing companies globally competitive. The scheme envisages offering incentives between 4 and 6% to the electronic companies, provided that they manufacture mobile phones and other electronic and nano-electronic components—transistors, diodes, thyristors, resistors, capacitors and micro-electromechanical systems—in India. The broader objective is to encourage self-reliance, attract large investments and increase exports by providing production-linked financial incentives to the manufacturing sector in the country. The scheme was originally launched with a corpus of ₹50,000 cr and covered mobile phones and allied equipment, pharmaceutical ingredients and medical devices. The encouraging response to the scheme from manufacturers in these sectors prompted the government to extend it to another 10 sectors with an additional allocation of ₹1.45 lakh cr. Of the total ₹1.97 lakh cr, the auto industry that has been languishing in the aftermath of the Covid-19 pandemic was allotted the biggest piece of the pie—₹57,042 cr.

The PLI scheme envisages offering incentives between 4-6% to the electronic companies, provided that they manufacture mobile phones and other electronic and nano-electronic components—transistors, diodes, thyristors, resistors, capacitors, micro-electromechanical systems in India

This ambitious scheme of the government is a step forward towards actualization of the 'Make in India' initiative. According to the latest Economic Survey of India, the PLI scheme would be key to making Indian manufacturers "globally competitive, attract investment in the areas of core competency and cutting-edge technology; ensure efficiencies, create economies of scale, enhance exports, provide conducive manufacturing ecosystem, and make India an integral part of the global supply chain."

How does the PLI scheme work?

The PLI scheme is a direct payment from the budget to goods made in India; the amount allocated for the 13 sectors varies based on the disability faced by each of the identified sectors. The scheme is put in action by providing incentives on incremental sales from products manufactured in domestic units over the course of 5 years. While the provisions of the scheme differ based on the activity of each sector, the general layout of the scheme is the same for all industries. For example, in case of mobile phone manufacturers, eligible companies will receive an incentive of 4-6% on incremental sales over 5 years from the base year of FY 2019-20. This means that if in the base year, a company manufactured goods worth ₹1,000 cr, and in the first year, the company made goods worth ₹1,100 cr (increment of ₹100 cr), then an incentive of ₹6 cr would be paid to the company. In case of mobile phones, the incentive starts at 6% in the first year and falls to 4% of incremental sales by the final year.

The scheme will be implemented in the country by the ministry or department. For mobile phones and specified electronic components, The Ministry of Electronics and Information Technology (MEiTY) has made the scheme available to all companies registered in India, subject to the threshold requirement in incremental investment of ₹100 cr to ₹1,000 cr, as well as incremental sales. Further, from the applications received, it has decided to pick only five global mobile manufacturing companies, five domestic manufacturing companies and ten specified electronic component manufacturing companies.

While the MEiTY has already approved 16 companies, the department of pharmaceuticals is believed to have received 215 applications from as many as 83 pharma companies for the first phase of the PLI scheme. The government has added fillip to the activity by making 53 bulk drugs eligible for the PLI and by amending few of the laid-down criteria, including changing the 'minimum threshold investment' to 'committed investment' by the selected applicants. The department is expected to approve a maximum of 136 applications under the bulk drug scheme and a maximum of 28 applications under the medical devices scheme of PLI. Overall, there is also a provision for transfer of allocated funds between the 13 segments, based on requirement.

> The PLI scheme is a direct payment from the budget to goods made in India; the amount allocated for the 13 sectors varies based on the disability faced by each of the identified sectors.

Raiba Spurgeon
Research Officer
State Bank Institute of Consumer Banking

Why is the PLI scheme important?

For the government, it is difficult to make continuous and sustained investments in capital-intensive manufacturing sectors, especially those that have longer gestation periods. As such, the PLI scheme is an invitation to global, capital-rich companies to set up or expand their base in India. While it is targeted at large investors who are capable of mobilizing investments required for big projects, it is also a mark of encouragement for domestic companies to use the scheme to their advantage and grow significantly in the national market.

Moreover, the relocation and diversification plan of many global companies in the light of the pandemic, has led to an increasing interest in India for manufacturing needs. While our neighboring countries like Vietnam, Cambodia, Myanmar, Bangladesh and Thailand seem to have advantages over India, either in terms of better infrastructure or ease of doing business, none of them have the large market potential that India offers. Apart from this attraction, the government has also cut corporate taxes to one of the lowest in Asia to encourage ease of doing business.

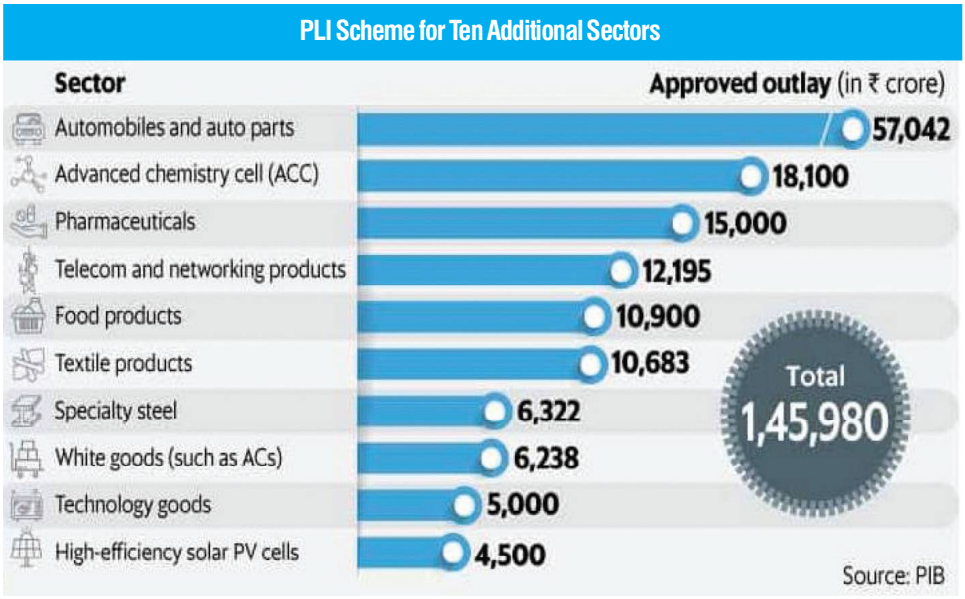
The scheme is expected to increase the manufacturing base in the country manifold. Take, for example, the mobile manufacturing sector. Of the mobile phone manufacturing companies that have been approved under the 'global mobile manufacturing companies' group, three companies are contract manufacturers for Apple iPhones. Samsung has also been approved under the same head. Internationally, Apple and Samsung account for nearly 60% of the global sales revenue of mobile phones.

PLI for electronics manufacturing alone is expected to greatly impact the country's economy over the next five years; it is expected to shift an additional 10% of global mobile phone production to India, add $153 bn worth of manufactured goods and create over one million jobs (Report by Credit Suisse Group AG). The same impact is expected in other industries as well. The backward linkage that the scheme will create with the MSME sector, as well as the labor-intensive nature of the chosen sectors, is expected to encourage huge employment opportunities and lead to a more inclusive growth in the country. Sharekhan by BNP Paribas estimates that the scheme could potentially add $520 bn to India's GDP over the next five years and could narrow the trade deficit by $55 bn.

How will PLI affect imports and exports?

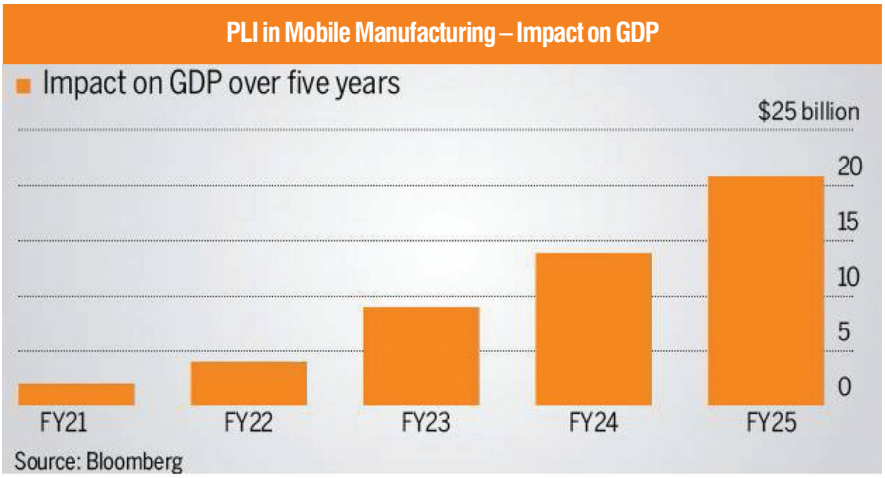
In 2016-17, a Phased Manufacturing Program (PMP) was set up to increase the share of locally procured components in the manufacture of mobile phones. The four-year program was set up in a manner as to completely move

mobile phone component manufacturing to India and create an indigenous mobile manufacturing ecosystem, starting with the manufacture of low value items in 2016-17 and moving to high value components by 2019-20. This scheme was put into play by increasing the basic custom duties of these components. However, data shows that while the PMP scheme helped increase production in the country, more than 85% of inputs were imported. This resulted in increased domestic production sans domestic value addition.



As of March 31, 2020, India had imported $65 bn from China, while its exports to the country were only $17 bn—a deficit of $48 bn. One of the objectives of the government's PLI scheme is to address this deficiency. The PLI scheme has come at a time when India is actively promoting the need for 'Atma Nirbhar' or 'self-reliance' and is trying to move away from its dependence on China for many raw and finished products. The existing Phased Manufacturing scheme along with the new PLI scheme, if put into action together, may have a fighting chance to attain domestic production as well as domestic value addition, thus moving the country to a self-sufficient stage.

The PLI is expected to create ripples in the import-export scenario of some key industries. The PLI scheme for telecom equipment is expected to increase production, of which export production alone would be ₹2 lakh cr. While the auto component industry currently exports over 25% of its production, the PLI will be critical in expanding this horizon. Moreover, if the scheme can help domestic manufactures reach economies of scale, it would deter import of high-end technology components in automobile manufacture. The same applies for the chemical cell batteries sector, which is gaining greater importance with the increasing popularity of electric vehicles. Being a leading producer of vegetables, fruits and milk, the PLI scheme would also attract investment and increase the export of processed food in India, which is currently at only 7%. The scheme for specialty steel will create the potential for India to become a world leader in certain grades of steel. All in all, the strategic PLI scheme has great potential in making Indian goods competitive and in expanding exports as part of the global value chain.



The future of PLI

Apart from the existing PMP that is currently available for manufacture of mobile phone components, the government is seeking to expand this program to other items like furniture, plastics, toys and low-value consumer durables, where the country is currently highly dependent on China for imports. While the PMP scheme helps in increasing production by removing disadvantages that manufacturers in select sectors face, the PLI scheme helps them strengthen their production through stronger investment in R&D and technology. Of course, the schemes by itself would not be able to create economies of scale unless the entire ecosystem of manufacturing and production is strengthened through proper linkages. Building this free-flowing network among the key participants will definitely ensure that growth through the PLI scheme will not be only on paper but will pitch 'Atmanirbhar' India as a reliable, affordable and policy-stable manufacturing hub. ■

Reference # 20M-2021-03-06-01

Worldview

Around the Globe

Financial stability risks have been in check so far, but we cannot take this for granted, warns IMF.

While there is for now no alternative to continued monetary policy support, there are legitimate concerns around excessive risk-taking and market exuberance, cautions the International Monetary Fund (IMF) in a latest January 2021 report. The study expresses deep concerns over excessive risk-taking that is on display across the financial markets, continuing to be driven by belief that expansionary monetary policies adopted by most central banks are here to stay, and despite knowing well the pandemic threat has not yet subsided. Prices for stocks, corporate bonds, and other risk assets have risen higher on the news of vaccine rollouts. Financial markets have shrugged off rising Covid-19 cases, betting that continued policy support will offset any bad economic news in the short-term and provide a bridge to the future, according to IMF's Tobias Adrian and Fabio Natalucci, warning that a self-actualization on part of markets could act as trigger for the reversal. "As the apparent disconnect between exuberant financial markets and the still-lagging economic recovery persists, it raises the specter of a possible market correction should investors reassess the economic outlook or the extent and duration of policy backstop," the duo observe while writing on IMF's official blog post.

The IMF expresses deep concerns over excessive risk-taking that is on display currently across the global financial markets, which continue to be driven by the belief that expansionary monetary policies adopted by most central banks are here to stay, despite knowing well that the pandemic threat has not yet subsided

Unwavering faith

Most nations have initiated a series of steps including stimulus to kick-start economic activities after last year's unprecedented measures such as lockdown, factory shutdowns and travel-related curbs were announced in the wake of the virus outbreak. RBI, India's central bank, for example, has cut its key policy rates several times over the last two years that has seen repo rate fall from a high of 6.25%

Easing financial conditions

Low interest rates and other policy support measures ensured the flow of credit to the economy and averted a financial meltdown.

(financial conditions indices, standard deviations from mean)

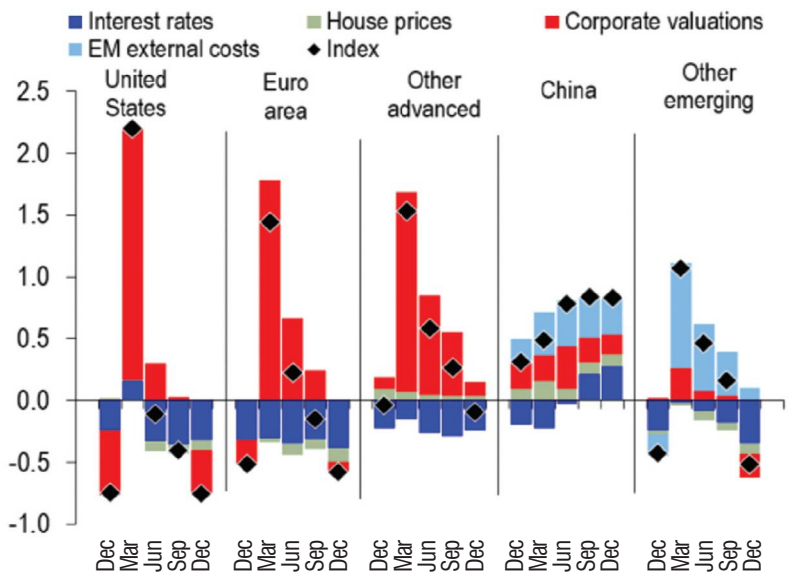


Image: IMF

in February 2019 to 4% now. This has been the case with most other central banks. According to a Reuters report, by early May last year, central banks and governments across major large economies had unveiled an estimated $15 tn of stimulus already to shield their economies from the coronavirus pandemic—record sums that the agency said will swell balance sheets and deficits to peacetime highs. These measures have nevertheless helped ease the pressure on the financial conditions, reversing the sharp tightening experienced during the March 2020 turmoil in most countries, thus supporting economic growth, the IMF report said.

The partial or near-full lifting of lockdown-related curbs has revived investor sentiment in segments like airlines and hospitality, which were hit the hardest in the wake of the lockdown imposed to contain spread of the virus outbreak. However, what is intriguing to see is that the run-up has continued even as there is no let-up in infection cases, as new strains of the virus emerge, suggesting that investors are not mindful of the impending threat that could arise if cases resurge. Further, in advanced economies, credit spreads—the difference between yields on corporate bonds and comparable-maturity Treasury securities—have narrowed sharply both for higher- and lower-rated firms, close to or below levels that prevailed before Covid-19. Interest rates have reached record lows, lowering funding costs for firms, but also incentivizing investors to take on more risk as they search for higher returns on their investments, reckon the author duo.

The revival in investor sentiment is also sending bond markets to new heights as emerging-market countries and corporations rush to raise funds, which saw bond issuances reach record-high levels in 2020. Here too the difference between the yields on the sovereign and corporate debt of emerging-markets and US treasury securities has contracted sharply, the report says. And foreign investment in emerging-market financial assets (equities and bonds) has rebounded, providing more options for financing large debt-rollover needs in 2021. FPIs pumped in over $14 bn in Indian capital market in 2020 alone, NSDL data showed.

The surge of Covid-19 infections and the associated public health restrictions imposed by governments since late 2020 may hurt economic activity in many countries. Yet investors appear optimistic about growth prospects in 2021, confident that policymakers will backstop financial markets along the path to recovery.

Bifurcated reality

The unhindered rally across markets also give rise to concerns that the *true* value of risky assets like stocks and corporate bonds may be out of line with *market* value. A section of analysts point to misalignments between (very high) equity market prices and valuations implied by (still weak) economic fundamentals, especially when considering the sizable economic uncertainties, note the authors.

Though a section of experts feel that current market valuations can be explained after accounting for the "lower-for-longer" interest-rate environment. Such (over) optimism stems from two reasons mainly on account of, one, expectations of very low interest rates for the foreseeable future (despite the most recent rise in long-term rates in the United States), and two, upward revisions in corporate earnings expectations since the vaccine announcements.

They also mention the still relatively high volatility in equity markets as measured by the S&P500 VIX—a barometer of market sentiment—which one could expect to be lower if investors were indeed exuberant. Similar considerations about policy support have been made for credit markets.

Policy support remains crucial

The authors, however, reckon that policymakers must safeguard the progress made so far and build on the rollout of vaccines to return to sustainable growth by preserving monetary policy accommodation, ensuring liquidity support to households and firms, and keeping financial risks at bay. "Reducing or withdrawing support at this stage could jeopardize the global economic recovery," they warn.

Exuberance and complacency – How serious is the risk of a market correction?

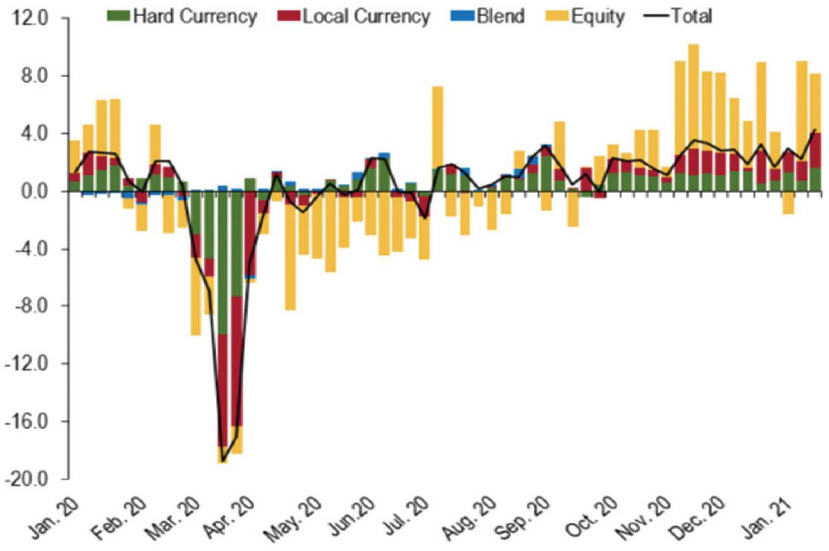
According to the IMF, while there is for now no alternative to continued monetary policy support, there are legitimate concerns around excessive risk-taking and market exuberance. This situation creates a difficult dilemma for policymakers, it says. They need to keep financial conditions easy to provide a bridge to vaccines and to the economic recovery. But they also need to safeguard the financial system against unintended consequences of their policies, while remaining in line with their mandates.

With investors betting on persistent policy backstop, a sense of complacency appears to be permeating markets; coupled with apparent uniform investor views, this raises the risk of a market correction or "repricing." A sharp, sudden asset-price correction—for example, as a result of a persistent increase in interest rates—would cause a tightening of financial conditions. This could interact with existing financial vulnerabilities, creating knock-on effects on confidence and jeopardizing macro-financial stability. The authors also advise that although financial stability risks have been in check so far, action is needed to address vulnerabilities exposed by the pandemic. These include rising corporate debt, fragilities in the nonbank financial institutions sector, increasing sovereign debt, market access concerns for some developing economies, and declining profitability in some banking systems.

Portfolio flows rebound

Greater foreign investor interest in stocks and bonds means better financing options for emerging markets.

(US billions, weekly)

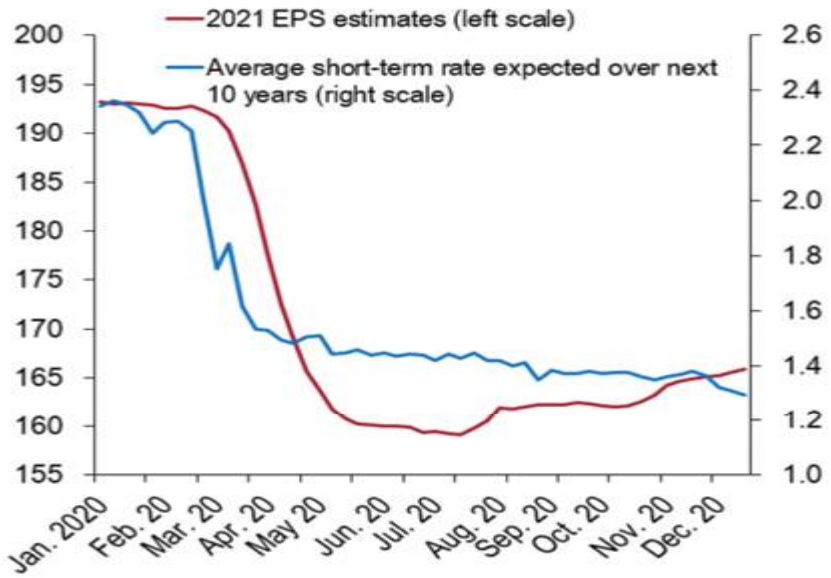


Source: IMF staff calculations.

Toward a brighter future

Expected low interest rates and improving earnings support market optimism.

(US dollars a share, left scale; percent, right scale)



Source: IMF staff calculations.
Note: Earnings per share (EPS) based on Thomson Reuters Datastream IBES for the S&P 500; average expected short-term rates derived from Treasury bonds and Adrian, Crump, and Moench model.

As per the study, policymakers need to use this time to safeguard financial stability by employing macroprudential measures (for example, stricter supervisory and macroprudential oversight, including targeted stress tests at banks and prudential tools for highly levered borrowers) and developing new tools as needed. For example, policymakers are considering whether the macroprudential framework for nonbank financial institutions may need to be strengthened to address weaknesses that became apparent during the March turmoil. The authors suggest that tackling vulnerabilities through these policies is crucial to avoid putting economic growth at risk and to prevent financial instability from disrupting the global economy.

(Edited excerpts of IMF's Report, "Financial Perils in Check for Now, Eyes Turn to Risk of Market Correction") ■

Summarized by Amit Singh Sisodiya

Reference # 20M-2021-03-07-01

India

In the Crosshairs of International Arbitration

Indian government's eloquent rhetoric on liberalizing Foreign Direct Investment (FDI) will cut no ice with foreign investors if its actions—for instance, its reluctance to honor international arbitration awards—speak otherwise.

The Union Budget 2021-22, presented by Nirmala Sitharaman on February 1, 2021, seeks to increase the Foreign Direct Investment (FDI) cap in the insurance sector from the existing 49% to 74% with a view to encouraging foreign investment and ownership in a major underpenetrated sector. The proposal is one of the several measures that the Government of India has initiated in recent times to attract more foreign companies and augment capital infusion to give a mega boost to the economy that has been left anemic by the Covid-19 pandemic.

However, a spate of high-profile spats involving local and foreign companies and the government itself threaten to undermine what such investor-friendly measures seek to achieve, i.e., charm foreign companies into seriously committing to the Indian market. Three ongoing major feuds deserve a special mention.

Amazon vs. Future

The Jeff Bezos-led US e-tailer Amazon—which had bought 49% stake, for ₹1,431 cr, in one of Mumbai-based Future Group's unlisted firms, Future Coupons, in August 2019, with the right to acquire the shares of the promoters of the flagship of the group, Future Retail, after three years but before ten years—has accused the founder of Future Group, Kishore Biyani, of reneging on the agreement, which bars Future Group from transacting with a number of persons/companies, including Mukesh Ambani's Reliance.

What prompted the accusation was the deal that Future had entered into, in August 2020, with Reliance to sell its retail assets worth ₹24,713 cr. According to Biyani, the sale was necessitated, as Future's performance and fortunes nosedived in the wake of the coronavirus-induced lockdown, and the company's cash crunch and Biyani's personal debts left him with no other choice but to cut a deal with Reliance, without which, he knew, Future would have no future. In its defense, Future Group argued that it is not a party to the contract between Future Coupons and Amazon and hence the contract is not binding on it.

A furious Amazon, besides shooting off mails to local regulators requesting them to deny approval to Future-Reliance deal, took the matter to the Singapore International Arbitration Centre (SIAC) in October 2020, which temporarily restrained Future from going ahead with the asset sale. While Future chose to ignore the SIAC's order, Amazon approached the Delhi High Court in January 2021 seeking the enforcement of the arbitration court's order. A judge at the Delhi High Court complied with Amazon's request and passed an order halting the Future asset sale, which was later overturned by a two-judge panel of the same court. Undeterred, Amazon moved the Supreme Court, which, on February 23, 2021, stopped the National Company Law Tribunal (NCLT) from issuing regulatory approval for Future's asset sale to

Reliance till further orders. Meanwhile, Amazon-Future deal itself has come under the government's Enforcement Directorate (ED) scanner for FEMA violations.

Vodafone vs. India

The Vodafone vs. India case dates back to May 2007, when Hutchinson Telecommunications (based in Cayman Islands) sold its stake in CGP Investments (another Cayman Islands-based entity) to the Netherlands-based Vodafone for an estimated $11.2 bn. Since CGP Investments held a stake in Hutchinson Essar (an Indian company), the Indian government felt that Vodafone's indirect acquisition of shares in Hutchinson Essar was liable for tax deduction at source under the then existing provisions of the Indian Income Tax Act, 1961, and subsequently raised a tax (including interest) demand of ₹11,218 cr ($2.1 bn) for non-deduction of tax at source.

Vodafone filed a writ petition in Bombay High Court challenging the tax demand, arguing that the said transaction was between two Cayman Islands-based companies and India had no territorial jurisdiction in this matter. However, the court upheld the decision of Indian tax authorities. Vodafone appealed to the Supreme Court, which, on January 20, 2012, set aside the Bombay High Court ruling, quashing the Indian government's tax demand. The government filed a review petition in February, which the Supreme Court dismissed in March 2012.

The Indian government, however, sought to circumvent the Supreme Court judgment by getting the Parliament to pass the Finance Act, 2012, which retrospectively amended the Indian tax legislation in such a manner that brought the Vodafone transaction under the tax net. An aggrieved Vodafone initiated arbitration proceedings against India under the India-Netherlands bilateral treaty. On September 25, 2020, the Permanent Court of Arbitration in The Hague, under the abovementioned treaty, ruled in favor of Vodafone, directing the Indian government to reimburse Vodafone the legal costs (about ₹85 cr). As things stand, the Indian government has challenged the arbitration award in the SIAC.

Cairn vs. India

The third case, the Indian government's dispute with Cairn also stems from the contentious retrospective taxation. In 2006-2007, UK-based Cairn Energy had, in an internal rearrangement, transferred the shares of Cairn India Holdings to Cairn India. The Indian income-tax authorities held that since Cairn Energy had made capital gains, it ought to pay capital gains tax of about ₹24,500 cr. Several rounds of litigations followed. Meanwhile, Cairn Energy sold much of its India business, Cairn India, to mining giant Vedanta in 2011. However, Cairn Energy was barred by the Indian tax authorities from selling about 10% of its India business on account of pending taxation issues. The payment of dividend by Cairn India to Cairn Energy was also frozen. Cairn Energy initiated arbitration proceedings against India, under the India-UK bilateral treaty, in the Permanent Court of Arbitration in The Hague, which asked the Indian government to withdraw its tax demand and restitute the value it seized from Cairn. Indications are that the Indian government would contest this ruling as well.

Unease of doing business

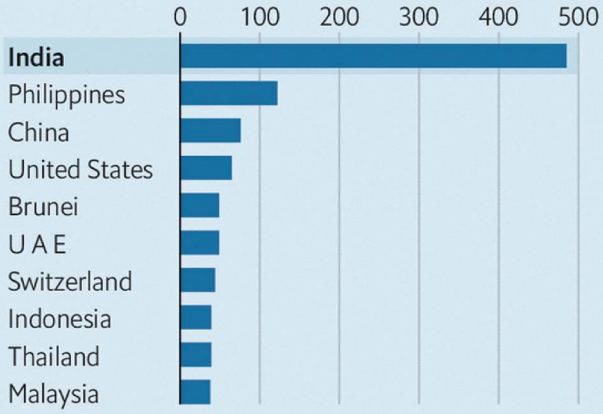
While, according to the World Investment Report 2020 of the UNCTAD, FDI in India increased by 13% in 2020, disputes such as the ones mentioned above are bound to send all the wrong signals to the international investors and make them wonder about the validity of agreements in India. Reluctance to enforce business contracts and honor international arbitration awards would dent India's image as a responsible nation and a good place to invest and do business in, for host nation's compliance with such awards is important to foreign investors in gauging the attractiveness of an investment destination.

The successive loss of arbitration cases against Vodafone and Cairn should have served as a wakeup call to the Indian government. Instead of accepting and honoring the arbitration rulings, which would have bolstered the confidence of foreign investors, the Indian government has chosen to be incalcitrant and unreliable, projecting an ambivalent attitude to the rule of law—hardly the best way to showcase one's country as the best destination for investors.

The fact that India tops the list of countries using the SIAC for settling business disputes (Figure) and that India could manage only 63rd position, among 190 countries, in the Ease of Doing Business ranking for 2020, shows that the country's executive and judicial branches have miles to go when it comes to ease of enforcing contracts and efficiency of resolving a commercial dispute. Unpredictable regulations and frequent policy changes are sure to project a business-unfriendly image—something that India's economy, hard hit by the Covid-19 pandemic and the resultant recession, can ill-afford. ■

Little India

Top ten foreign countries using the Singapore International Arbitration Centre
2019, number of cases



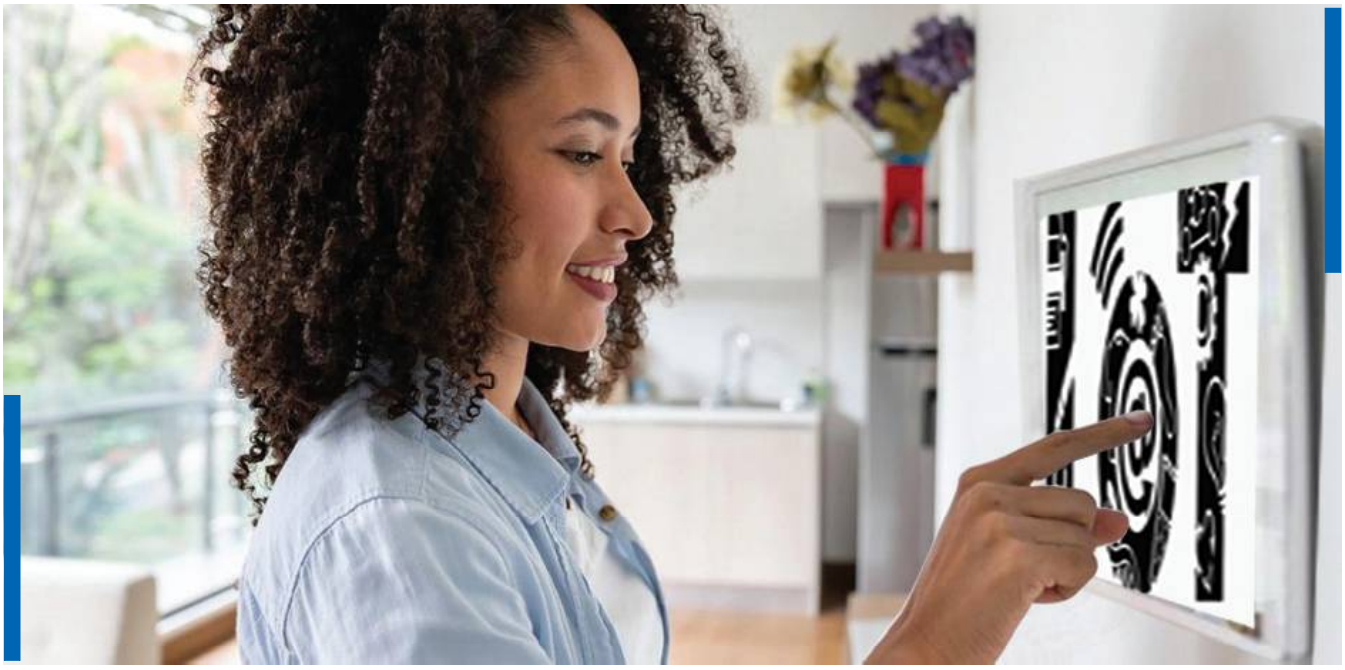
Source: Singapore International Arbitration Centre

Venkatesan Iyengar

Reference # 20M-2021-03-08-01

What's in a Name?

The Problem and Promise of IoT



Big Data isn't about collecting huge repositories. It's about using data to make more intelligent decisions. IoT isn't about connecting everything to the Internet. It's about gaining knowledge about the environment, mainly through sensors, and then using that knowledge to identify and resolve problems faster and more effectively. Both terms showcase that naming something poorly can hurt how that respective technology advances.

Internet of Things (IoT) is a misnomer, much like Big Data as it focused the discussion on the 'what' and not the 'why'. Big Data isn't about collecting huge repositories. It's about using data to make more intelligent decisions. IoT isn't about connecting everything to the Internet. It's about gaining knowledge about the environment, mainly through sensors, and then using that knowledge to identify and resolve problems faster and more effectively. Both terms showcase that naming something poorly can hurt how that respective technology advances. Even AI is a massive misnomer because it implies a non-sensical third vector to intelligence. Realistically, something is intelligent, or it's not inferring that a machine can't ever be intelligent is inherently biased and will likely lead to future efforts based on that unfortunate taxonomy.

Part of the IoT problem is that it focused on connecting things more than it focused on the true goal of getting actionable information. Thus, critical aspects like assuring the security, accuracy, reliability, interoperability, and timeliness of the related data were not adequately prioritized.

The goal of IoT

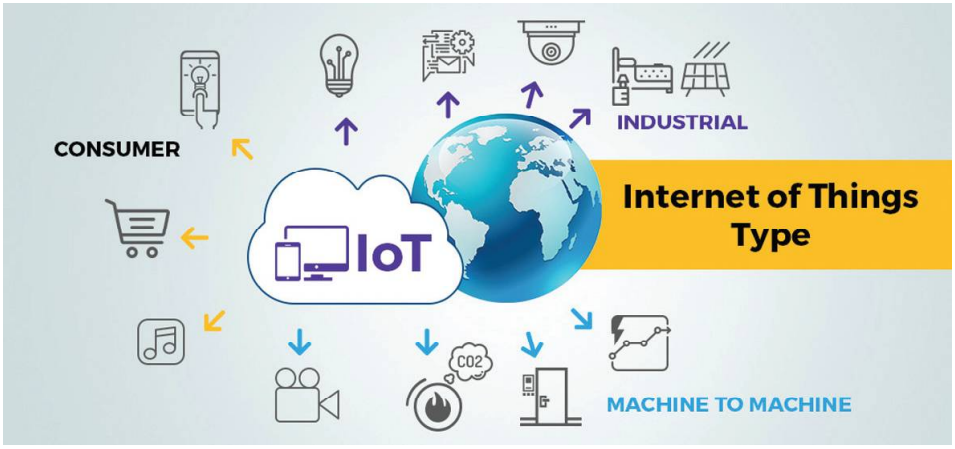
IoT's eventual goal is to instrument the world around us so that, eventually, systems (human or automated) could make better and more timely decisions. By approaching the eventual goal, you can build a model of what IoT projects should be focused on initially. This focus shouldn't be on the number of sensors but the quality of the information they deliver.

IoT's eventual goal is to instrument the world around us so that, eventually, systems (human or automated) could make better and more timely decisions. By approaching the eventual goal, you can build a model of what IoT projects should be focused on initially

This quality over quantity approach would have highlighted early on the need for common standards, higher security levels, redundancy to assure accuracy, and an increased focus to assure the sensors operate under all likely conditions. Sadly this often isn't the case.

The problem with IoT

As noted, that wasn't the initial focus, so interoperability between vendors was suboptimal, even between different solutions from the same vendor, let alone between vendors. This lack of inter-operability created problems with patching, monitoring, data consistency, and control. Additional translation efforts often had to be undertaken to address these problems, which often weren't in the initial budget, causing budget overruns and schedule delays.



They also resulted in the inability to blend solutions across vendors and, way too often, vendors lacked the necessary breadth to encompass a solution at enterprise-scale alone. This kind of outcome doesn't bode well for the success of an effort. Budget and schedule misses reflect poorly on the internal team and the vendor selected, creating a cloud over the effort, which becomes a deterrent for others attempting similar projects.

You end up with a cascading issue as a problem with existing projects makes additional funding for subsequent projects problematic. The final goal of creating a system that provides the necessary information to make complex decisions resulting from multiple IoT projects can become unattainable due to excessive complexity and the interim failure of earlier efforts.

> Part of the IoT problem is that it focused on connecting things more than it focused on the true goal of getting actionable information. Thus, critical aspects like assuring the security, accuracy, reliability, inter-operability, and timeliness of the related data were not adequately prioritized.

Rob Enderle
President and Principal Analyst
The Enderle Group, Bend, Oregon, USA

Making IoT work

With any complex problem, the path to success is based on three foundational elements. These elements are a clearly defined and achievable goal with reasonable and achievable milestones, planning and vendor selection done by a team experienced with similar projects with a history of success, and implementation also executed by an experienced team and not learning on the job.

There are successful IoT deployments and vendors who can demonstrate extensive experience both planning and executing like projects. Favoring them and not allowing inexperienced executives to misset expectations or alter plans without adequate justification is critical to a successful project.

Besides, roadmaps for the related technologies need to be reviewed to assure the project won't become prematurely obsolete. IoT projects tend to be complex by nature, so seed to the planned result will be better achieved if planning is done comprehensively and not rushed. Otherwise, the rushed planning is likely to cause the project to fail during execution.

IoT in Automobile! More Connected Cars Are Going to Be a Reality Soon

Looking ahead

Like any new technology, IoT has set expectations that often exceeded what was reasonably possible, and speed often outranked quality resulting in the failed effort. But by clearly defining the goal of the effort, using experienced teams to plan and execute the resulting project, and setting achievable budgets, timelines, and expectations, these projects can be successful. ■

Reference # 20M-2021-03-09-01

Bottom of the Economic Pyramid

EI as an Effective Anti-Poverty Tool

Image: European Bank for Reconstruction and Development

Economic Inclusion (EI) programs—usually a combination of cash or in-kind transfers, skills training or coaching, access to finance, and links to market support—are fast becoming a critical instrument in many governments' large-scale anti-poverty strategies, says the 'State of Economic Inclusion Report 2020' from the World Bank.

The Covid-19 pandemic has inflicted irreparable damage on the global economy, however, it is the people from the economically downtrodden segment of the society who have been hit the hardest. Knowing it all well, the governments across the globe have initiated a series of measures, which have gone beyond the widely used tool of financial inclusion, to ease the financial burden on them. And these steps are yielding great results, suggests a latest report from the World Bank. According to the 'State of Economic Inclusion Report 2020' from the World Bank, the economic inclusion programs, which help boost income and assets of the world's poorest, are on the rise in 75 countries, reaching approximately 20 million poor and vulnerable households, and benefitting nearly 92 million individuals. The rise in Economic Inclusion (EI) programs, says the study, comes at a crucial time, as more than 700 million people around the world face extreme poverty, a number on the rise for the first time in two decades. The economic inclusion programs—usually a combination of cash or in-kind transfers, skills training or coaching, access to finance, and links to market support—are fast becoming a critical instrument in many governments' large-scale anti-poverty strategies. And they are likely to continue, especially in areas affected by conflict, climate change, and shocks, due to the Covid-19 pandemic. "One of the most stubborn challenges we face in development is positively transforming the lives of the extreme poor and vulnerable—a problem exacerbated by the Covid-19 pandemic," observed Mari Pangestu, World Bank Group Managing Director. The World Bank defines EI programs as a bundle of coordinated, multidimensional interven-

According to the 'State of Economic Inclusion Report 2020' from the World Bank, the economic inclusion programs, which help boost income and assets of the world's poorest, are on the rise in 75 countries, reaching approximately 20 million poor and vulnerable households, and benefitting nearly 92 million individuals

tions that support individuals, households, and communities so they can raise their incomes and build their assets.

The State of Economic Inclusion (SEI) report examines over 200 programs, across 75 countries. A major finding of the report is that governments around the world are increasingly scaling up EI initiatives through social safety nets. In-depth case studies covering Sahel, Bangladesh, Peru and India highlight the evolution of EI programs, and how they are addressing challenges such as urbanization, gaps in human capital accumulation, adaptations to shock, and technological change. Under Prime Minister Narendra Modi's leadership, his government has launched a series of measures that aim at economic welfare of the poor and downtrodden. Schemes like Pradhan Mantri Jan-Dhan Yojana (PMJDY)—National Mission for Financial Inclusion, which completed six years of successful implementation last August, has seen more than 40.35 crore beneficiaries banked under PMJDY since inception, amounting to ₹1.31 lakh cr. PM Garib Kalyan Yojana (PMGKY) is another ambitious program to help the poor and the needy. Under PMGKY, a total of ₹30,705 cr has been credited in accounts of women PMJDY account holders during April-June, 2020. About eight crore PMJDY accountholders receive Direct Benefit Transfer (DBT) from the government under various schemes. Among other people-centric welfare schemes of the Modi government include Pradhan Mantri Ujjwala Yojana (free LPG connected to poor households), Pradhan Mantri Kisan Samman Nidhi Yojana (PM-Kisan Yojana), Jan Suraksha Yojana for creating a universal social security system for all Indians, especially the poor and the under-privileged, Ayushman Bharat Pradhan Mantri Jan Arogya Yojana, and Ayushman Bharat Pradhan Mantri Jan Arogya Yojana.

EI has immense potential

According to the World Bank's SEI report, EI programs for the poorest show strong potential to improve livelihoods as part of integrated policy responses focused on containing the pandemic, ensuring food security and supporting medium term recovery. But there is a need to look at what can be further done to improve their economic conditions. The study cites experiences in Egypt, Ethiopia, Ghana, Zambia and other countries, as successful cases to suggest these measures (EIs) can build on—rather than replace—social assistance programs. "The Covid-19 pandemic has put a spotlight on the importance of linking social protection and EI when it comes to protecting people against shocks. We continue to provide significant funding for social protection and jobs. But there is a strong potential for EI programs to build on pre-existing government social protection systems, and this may prove critical in the long-term recovery from the Covid-19 fallout," said Birgit Pickel, Director for Global Health; Pandemic Prevention; One Health, in the German Ministry for Economic Cooperation and Development, BMZ.

> *The SEI report cites experiences in Egypt, Ethiopia, Ghana, Zambia and other countries as successful cases to suggest these measures (EIs) can build on—rather than replace—social assistance programs.*

The report also emphasizes on how such measures are helping the poor women. As the study highlights, women's economic empowerment is a key driver of interventions, with nearly 90% of programs surveyed having a gender focus. This is critical given findings from the report and other work from PEI or Partnership for Economic Inclusion (a dedicated platform to support the adoption and adaptation of national EI programs working with a variety of stakeholders, including national governments and bilateral, multilateral, NGO, research, and private-sector organizations), which show that women make up the majority of workers in sectors such as education, retail travel, hospitality and domestic services, which have been most affected by the pandemic. Lessons from previous crises highlight the importance of this gender focus to avoid declining opportunities for women, de-prioritization of female health services, and increased gender-based violence, the study strongly advocates. "Economic inclusion packages are well positioned to support women to address the plurality of Covid-19 related impacts. In particular, the pandemic has highlighted the need to strengthen national systems, and to make sure that they are inclusive and equitable by design, so that women and others who have been historically marginalized are not left out," said Olivia Leland, Founder and CEO of Co-Impact, a global collaborative focused on improving the lives of millions of people across the world.

The SEI study also discusses key debates on program impact and costs, as these are critical factors affecting the sustainability of EI programs at scale. For example, the report sheds light on major lessons learnt from initiatives supported under the Sahel Adaptive Social Protection Program (SASPP), which was launched in 2014 to design and implement adaptive social protection programs aimed to help poor and vulnerable households become more resilient to the effects of climate change. One important lesson from that experience was the need to expand reach in a systematic and rapid manner.

"Leveraging digital technology will be critical to leapfrog capacity constraints and to strengthen program management. Many programs are already utilizing government social registries, beneficiary registries, and other government databases to identify potential participants," said Michal Rutkowski, Global Director of the Social Protection and Jobs Global Practice at the World Bank. *Edited excerpts.* ■

Summarized by Amit Singh Sisodiya

Reference # 20M-2021-03-10-01

Wall Street Calling!

Wanna Encash on 'FAANG'!

Thinking of investing in the likes of FAANG—an acronym referring to the stocks of big US tech firms Facebook, Amazon, Apple, Netflix and Google? Well, it is now possible, thanks to RBI's Liberalized Remittance Scheme.

If there is one monumental reform that is yet to be exploited by investors, it is the RBI's decision to permit Indian investors to invest up to $250,000 per annum in global markets (stocks, bonds, ETFs and also real estate) through its Liberalized Remittance Scheme (LRS). The response on the part of retail investors has not been encouraging so far, which could be either due to lack of awareness or fear of risk, or what some call, perception problem; although this may not be the case with High Net Worth Individuals (HNIs), yet they may find the limit of $250,000 too low! Nevertheless, the rise of digital banking and fintechs means investors may no longer have to visit a bank branch to pay a foreign broker (tech-savvy banks such as ICICI Bank allow a completely online process for transfers up to $25,000—10% of the total LRS limit, according to *Mint*), and this should encourage more investors to think of parking a part of their investments in foreign equities.

In spite of the exemplary performance of Indian stock market post budget, the long-term performance of Indian stocks lags behind that of their global peers across all periods. Hence, investing in foreign stocks presents a great case for diversification

However, if you have not yet decided, I would enumerate three reasons why investing in global markets makes sense, which would help you understand the risk-return trade-off well and take a call.

1. **Broader opportunity set**: Though Indian stock market takes pride in having the largest number of listed stocks anywhere in the world, from a practical point of view, the opportunity set is restricted to a maximum of Nifty 500. In fact, realistically, most of the funds are benchmarked to Nifty 50 or Sensex (30 stocks) limiting the universe even further. In addition, these benchmarks are dominated by financial stocks and consumer discretionary sectors. In contrast,

global markets, including the US, are moving in favor of technology, which has experienced multi-decade expansion and is less correlated with cyclicals. Hence, exposure to international stocks can allow Indian investors to benefit from the strong momentum currently seen in technology sector stocks as well as their future growth potential. We are all aware of the huge role Amazon, Netflix, Google, Facebook, and Microsoft play in our everyday lives in India. However, these companies are not listed in India.

2. **Better portfolio impact**: In spite of the exemplary performance of Indian stock market post budget, the long-term performance of Indian stocks lags behind that of their global peers across all periods. In addition to low performance, Indian market exhibited higher risk (volatility), reflected in higher standard deviation. In other words, Indian market provided lower return for higher risk, while global markets provided higher returns for lower risk. Hence, investing in foreign stocks presents a great case for diversification. In addition, the correlation between Indian market and global markets is not very high, making the portfolio impact much better. A word of caution though: higher historical returns can also imply lower prospective returns (due to mean reversion) and vice versa. In other words, given the longer than 10-year bull run in S&P 500, foreign stocks (essentially, US equities) may provide lower returns, while Indian equities could outperform. This view again supports the need to diversify which will help the portfolio to be more stable.
3. **Ease of investing:** Technology has now enabled investing to be less costly and speedier. Several platforms are available for Indian investors to directly invest in foreign markets. Some examples include Stockal, Vested finance, Winvestra, Kuvera, Axis Securities, ICICI Securities, HDFC Securities, Upstox, etc. The process of opening and operating an account is rather seamless, thanks to the technology.

The abovementioned three reasons clearly demonstrate the case for investing some part of your wealth in foreign stocks. However, investors should note the following:

> Exposure to international stocks can allow Indian investors to benefit from the strong momentum currently seen in technology sector stocks as well as their future growth potential. We are all aware of the huge role Amazon, Netflix, Google, Facebook, and Microsoft play in our everyday lives in India. However, these companies are not listed here.

MR Raghu
CFA, FRM, FCMA
Head of Research
Kuwait Financial Centre

- There are two ways to invest in foreign stocks. One can take the mutual fund route or the direct investing route. In India, currently there are more than 40 mutual funds that exclusively invest in foreign stocks, mostly the US. These are mostly structured as fund of funds. Remember, the limit of $250,000 do not apply if investors invest via this route. However, since they are structured as fund of funds, they can be expensive. The other option is to invest directly by opening an account with one of the platforms cited before. This will enable investors to directly buy individual stocks. However, I would not recommend this option for many reasons. Recent happenings in the US where group of investors formed a cartel like approach to take penny, non-performing companies to dizzying heights should act as a warning for investors. Unprecedented rally in GameStop, Dogecoin, Bitcoin, etc. have raised concerns of foul play by vested interests (read: speculators). The saga of GameStop, a gaming company that is loss-making where its share price zoomed from $19 to $400 only to drop to $50 all within a few weeks, can be an important lesson for investors. Those who follow social media influencers' advice and stock tips can get easily lured into this "easy money" syndrome and can lose their shirt! Hence, it is advisable to invest only in index via the ETF route if one is operating in the direct mode.
- Investors should be aware of two distinct but important variables when investing abroad. The first is the currency risk. The Indian rupee has been performing very well against USD in the recent past, posing not much of a currency risk to foreign investors. However, that may not be the case going forward as emerging markets always face huge currency risk and India cannot be an exception. Hence, investing in dollars (that is, investment in equities) can have dual source of risk, one of which can be the currency risk, while the other is the market risk. In addition, the tax aspects can be a bit complicated. For example, short-term capital gain is taxed at slab rate, while long-

Risk-Return Trade-Off
How India Benchmark Compares with Others

	3yr (2018-Feb, 2021)			5yr (2016-Feb, 2021)			10yr (2011-Feb, 2021)			15yr (2006-Feb, 2021)		
	Ann Return	Ann Risk	Sharpe ratio	Ann Return	Ann Risk	Sharpe ratio	Ann Return	Ann Risk	Sharpe ratio	Ann Return	Ann Risk	Sharpe ratio
MSCI EM	7.2%	19.8%	0.26	12.3%	17.5%	0.59	2.2%	17.8%	0.01	4.8%	21.7%	0.13
MSCI India	6.1%	25.2%	0.16	9.6%	22.3%	0.34	2.7%	23.1%	0.03	7.0%	28.3%	0.18
MSCI World	10.0%	18.4%	0.43	10.9%	15.1%	0.59	8.1%	14.0%	0.44	5.5%	15.9%	0.22
S&P 500	13.2%	18.5%	0.60	13.6%	15.2%	0.77	11.9%	13.5%	0.73	7.9%	15.1%	0.39
MSCI Europe	2.1%	19.5%	0.01	4.6%	16.6%	0.16	2.8%	16.7%	0.05	1.8%	19.1%	-0.01
Portfolio												
India/World (80/20)	6.8%	22.9%	0.21	9.9%	20.0%	0.40	3.8%	20.4%	0.09	6.7%	25.0%	0.19
India/World (60/40)	7.6%	21.0%	0.27	10.1%	18.1%	0.45	4.9%	17.9%	0.16	6.4%	22.0%	0.20
India/World (30/70)	8.8%	18.9%	0.36	10.5%	15.9%	0.53	6.5%	15.1%	0.30	6.0%	18.2%	0.22

Note: Based on monthly returns; Risk-free rate considered as 2% for Sharpe ratio calculation; Data upto February 15, 2021 close has been considered. Source: Refinitiv

term capital gains is taxed at 20%. The holding period assumption for long-term is always higher at two years. In other words, a capital gain qualifies as long-term only if it is held for more than two years. On top of this, dividends are also taxed, though this can be offset due to double taxation treaties between India and the US. However, tax part will need consultation from experts.

- Direct investing will need an investor to open an account with a technology platform, and this will need some sort of due diligence as it involves a variety of costs like demat, broking and currency conversion. In addition, the robustness of functionalities offered by the platform is also important. All this will require careful due diligence before opening the account.

Portfolio strategy

Having established the case for investing in foreign stocks, the key question is how much (portfolio allocation) that should be? I have tested some combinations and the results are presented here (see: Risk-Return Trade-Off: How India Benchmark Compares with Others).

The performance of MSCI India (I chose this as it is designated in USD and hence becomes comparable with other global indices) is compared with other indices.

We can see that Indian market performance is mostly on a par with MSCI Emerging Markets, but it significantly lags behind MSCI world, S&P 500 and MSCI Europe. In addition, the risk for the Indian market (as measured by standard deviation) is higher, leading to lower Sharpe ratio. Given a correlation of about 0.65 with S&P 500 and MSCI Europe, a portfolio comprising a combination of India with MSCI World can definitely lead to superior results. We have tested three such combinations ranging from a 20% global share to 70% global share and found that in each of the time periods (3, 5, 10 and 15 years historically) the higher share of global stocks improves portfolio performance significantly. While a 70% share of global stocks in an Indian investor portfolio can be mentally unsettling, this study goes to confirm the importance of having foreign stocks in one's portfolio.

Mutual funds *sahi hai*!

To conclude, investing in foreign markets, especially the US, is a welcome thing for investors as it offers good potential for diversifying one's portfolio and hence helps in risk reduction. It opens up more opportunities and enables Indian investors to participate in the rally in global technology stocks that are not listed in India.

However, a word of caution: one must tread with caution before taking exposure to overseas equities. It is strongly advised that a retail investor should invest only via index funds or ETFs to begin with, and should avoid taking direct exposure to equities. Nevertheless, it is also advisable to seek one's financial advisor's views before making investment-related decision. ■

Image: Bloomberg

Reference # 20M-2021-03-11-01

Clean Energy

The Promise of Hydrogen

Image: Freepik

Technical innovations in electrolysers and advances in hydrogen production have pulled out Hydrogen from being a pipedream to put it in the pipeline.

The rapid population growth and ever-increasing energy demand has put severe strain on our available energy resources, prompting fossil fuels to play a major role in electricity generation for the past several decades. However, these fuels, which have been the mainstay of our industrial revolution and economic growth, have also contributed significantly to the rising levels of Carbon dioxide (CO_2) and Greenhouse Gas (GHG) emissions, which in turn have led to increased risks of climate change and global warming to our environment.

It has thus become important that the world should cut energy-related (CO_2) emissions by 60% in the next three decades in order to limit global warming to well below 2°C by 2100, and to further limit it to no more than 1.5°C thereafter, as set out in the 2015 Paris Agreement. Hence the focus has been on decarbonization of energy supply through alternative clean, sustainable and renewable energy so as to ensure future energy sustainability and global security. It is in this regard that green hydrogen has emerged as an enabler of the transition to a renewable-energy system and a clean-energy carrier for a wide range of applications. Technical innovations in electrolysers and advances in hydrogen production have pulled out Hydrogen from being a pipedream to put it in the pipeline.

Of late, the continuous fall in the cost of hydrogen supply from renewables and the growing need for GHG emission mitigation have prompted several countries to initiate action to decarbonize their economies

Of late, the continuous fall in the cost of hydrogen supply from renewables and the growing need for GHG emission mitigation have prompted several countries to initiate action to decarbonize their economies. India, which has under-

taken research and development of hydrogen fuel for the past several years, too is seriously looking to develop hydrogen economy in the country. In this regard, Finance Minister, Nirmala Sitharaman proposed the launch of a comprehensive National Hydrogen Energy Mission, while presenting the Union Budget of 2021-22 in the Lok Sabha on February 1.

According to The Energy and Resources Institute (formerly Tata Energy Research Institute), the potential scale of hydrogen in the country can jump 3-10 folds by 2050. In a report titled, "The Potential Role of Hydrogen in India", TERI projects that by 2050, nearly 80% of India's hydrogen is projected to be 'green'—produced by renewable electricity and electrolysis, underscoring significant potential India has for green hydrogen. Factors such as abundant availability, high energy density, better combustion characteristics and zero-emission make it an ideal fuel vis-à-vis conventional fuels. Therefore, with India moving towards creating large renewable energy capacity, which is inherently intermittent, hydrogen could go a long way in helping develop a large power storage solution and thus deal with the peak demand, while also reducing dependence on coal-fired power generation.

While production and use of hydrogen is likely to take many forms around the world that would depend on the governments' push for climate regulation and energy storage needs, to be deployed at scale, it would need to compete and/or complement natural gas, cleaner fossil fuels, and emerging low carbon alternatives like electric vehicles (Battery Electric Vehicles).

What is hydrogen and why should it be green?

The word 'hydrogen' is derived from Greek words meaning "maker of water." According to Britannica, hydrogen (H) is a colorless, odorless, tasteless, flammable gaseous substance that is the simplest member of the family of chemical elements. The hydrogen atom has a nucleus consisting of a proton bearing one unit of positive electrical charge; an electron, bearing one unit of negative electrical charge, is also associated with this nucleus. The earliest known important chemical property of hydrogen is that it burns with oxygen to form water, H_2O.

Being a highly reactive element in nature, hydrogen should be produced from water, natural gas, biomass or alcohol, wherein it takes energy to convert these primary fuels into pure hydrogen, thereby viewed as a storage medium or energy carrier rather than an energy source in itself. Consequently, the climate impact of using it as a fuel depends on the carbon footprint of the energy that is used to produce it.

> Currently, most of the hydrogen is produced from fossil fuels, referred to as 'gray hydrogen'. But in the short to medium term, it is expected that carbon capture and storage would be used alongside fossil fuels to produce 'blue hydrogen'.

Manish Vaid
Junior Fellow
Observer Research Foundation

Hydrogen can be produced from methane or by electrolysis of water. Electrolysis means that electricity is run through water (H_2O) to separate the hydrogen and oxygen atoms from each other. Electrolysis in itself does not produce any CO_2 and it can be done with a range of energy sources. When combined with renewable energies, the process of electrolysis is zero emission from start to finish. Once produced, electricity and heat can be generated from hydrogen in various ways, such as the fuel cell, hydrogen boiler, as a feedstock for chemicals or in gas turbines. For instance, in cars, hydrogen is combined with oxygen from the air to produce electricity in a fuel cell, with water as the only by-product, thereby with no carbon emissions and making this fuel environment-friendly.

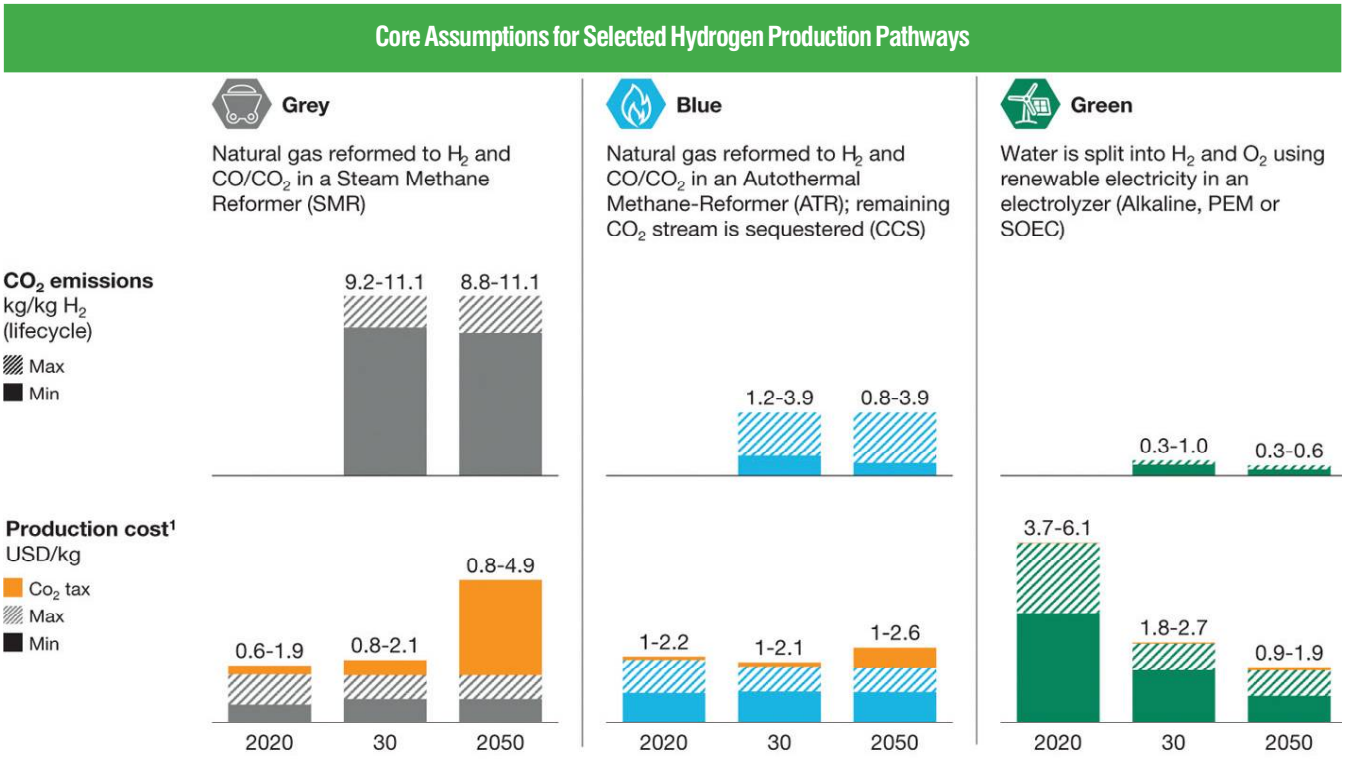
Since hydrogen can be stored as a gas, it can be transported to a place wherever its power is needed, thereby having capacity to store excess renewable energy over longer periods of time, even when there is no wind or sun. However, the process of electrolysis is more expensive and less efficient than steam reforming methane. At present, the price of electrolyzer is above $800/kW, which is expected to come down below $200 by 2040, as per US Department of Energy projections. Additionally, the estimated cost of hydrogen production through electrolysis is 4–9p per kWh, compared to 2-5p per kWh for steam methane reformed natural gas with carbon capture and storage.

Currently, most of the hydrogen is produced from fossil fuels, referred to as 'gray hydrogen'. But in the short to medium term, it is expected that carbon capture and storage would be used alongside fossil fuels to produce 'blue hydrogen'. However, to consider hydrogen 'green', it should be produced by using electricity from renewable sources by splitting hydrogen and oxygen, because only then it would have net environmental benefits.

Green hydrogen would be instrumental in decarbonizing sectors such as long-haul transport, chemicals, iron and steel, thereby contributing towards clean air quality, providing flexibility to the power system through energy storage for longer duration and strengthening energy security.

Feasibility, potential and economics of hydrogen

Green hydrogen is largely viewed as a new environment savior, as by putting hydrogen at the core of energy transition, world's carbon footprint can be reduced and air quality of both urban and rural areas can be improved. It can clean up transport and buildings and



[1] Costs for hydrogen produced in new installations; Assuming CO2 tax of USD 28/ton in 2020, USD 48/ton in 2030, USD 300/ton in 2050, excluding vectorization/transport
Source: LBST; Hydrogen Council – Path to Cost Competitiveness; McKinsey

Image: Hydrogen Council

remains one of the only options to decarbonize high impact sectors to include steel, refineries, and agriculture.

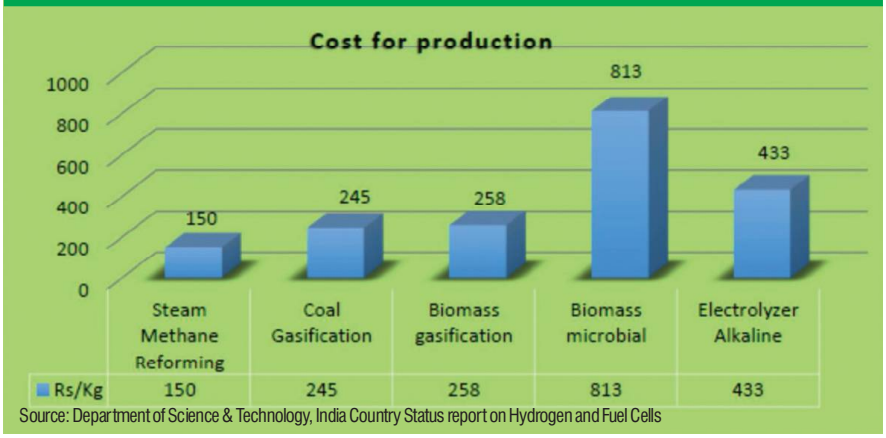
According to a latest report from Hydrogen Council titled, 'Hydrogen Decarbonization Pathways', while both boundary scenarios, namely the blue and green, are theoretically feasible, a combination of green and blue production pathways appears to result in the least-cost global supply over the entire period of scale-up. This is done by making best use of the near-term cost advantage of blue in some regions, while simultaneously achieving a scale-up in electrolysis. This allows to achieve very low-cost green hydrogen in the medium and long term. According to the report, the decarbonized supply scenario will be a factor of a range of different renewable and low-carbon hydrogen production pathways that are optimally suited to local conditions, political and societal preferences and regulations, as well as industrial and cost developments for different technologies. Despite this scenario being ambitious, it is feasible both in the short and long term that would help push hydrogen to grow in the global energy system.

In order to see which of the hydrogen production pathways are relevant in a decarbonized energy system, 'Life-Cycle Assessment' of hydrogen production pathways suggests both renewable (green) and low-carbon (blue) pathways can achieve very low CO_2 emissions with limited amount of resources such as water. For blue hydrogen production, carbon capture rates above 90% are possible, with less than 1.5 kg of CO_2eq emitted per kg of hydrogen produced under favorable conditions, compared to today's gray hydrogen production, which emits around 10 kg of CO_2eq per kg of hydrogen produced (see: Core assumptions for selected hydrogen production pathways).

According to the said study, while blue hydrogen costs less than half to produce as much as green hydrogen production in 2020, the costs in 2050 would exceed those of producing green hydrogen in many regions and in the global average (assuming that all GHG emissions in the hydrogen production process are taxed at rates that are consistent with a 1.5°C climate change target). A "blue hydrogen world" would emit 20 to 25 gigaton (Gt) of CO_2 over the period of 2020 to 2050 compared to approximately 10 Gt in a "green only" world—Gt of which (in both cases) stem from the phase-out of gray hydrogen.

According to Hydrogen Economy Outlook by the BloombergNEF (BNEF), scaling-up hydrogen would require $150 of cumulative subsidies to 2030, pushing down the delivered cost of green hydrogen to $15 per million British Thermal Units (MMBtu) or $2/kg and $7.4/MMBtu or $1/kg in 2050, thereby making green hydrogen competitive with current natural gas prices in markets in Brazil, China, India and Germany. A carbon price of $50/t$CO_2$ would be enough to switch from coal to clean hydrogen in steel making, $60/t$CO_2$ to use hydrogen for heat in cement production, $78/t$CO_2$ for making chemicals like ammonia, and $145/t$CO_2$ to power ships with clean fuel, if hydrogen costs reach $1/kg by 2050.

Cost of Hydrogen from Different Production Processes



Source: Department of Science & Technology, India Country Status report on Hydrogen and Fuel Cells

Sector-wise growth potential

While hydrogen is not a panacea for the challenge of energy transition, several technological developments, such as increased demand in end-use sectors like industry, innovation in electrolyzers and renewables, growing policy interest for deep decarbonization of energy systems, greater need for energy storage to address intermittency in renewables and consistently falling cost of solar and wind, have helped hydrogen to play a much bigger role in global energy system. In India, for instance, demand for hydrogen could increase five-fold by 2050, which would play a potential role in India's energy system. The demand for hydrogen would increase to 28 Million Ton (MT) by 2050 from around 6 MT at present. However, to reach a net-zero target by 2060 could require around 40 MT of green hydrogen, a 7-fold increase over today. (See: The Role of Hydrogen across Key Sectors)

Transport sector: As per a TERI analysis, Hydrogen Fuel Cell Electric Vehicles (FCEVs) must compete with the ever-improving BEV technologies to have an impact on transport decarbonization. From the medium term, BEVs will dominate most of the smaller, shorter-range passenger vehicles, including two-, three-, and four- wheelers, as well as city buses and last-mile freight. However, FCEVs could remain competitive in longer-distance, heavier-weight vehicle segments, such as heavy-duty trucking, but to an extent there are advances in technologies in both FCEVs and BEVs.

Industry: In hydrogen's projected increase by five-fold by 2050, it is the industry which would remain its largest consumer during this period. While the gray hydrogen production would increase further in ammonia production and refineries, green hydrogen from dedicated renewables paired with storage would compete with natural gas as well as ammonia by 2030, followed by steel production based on green hydrogen. Furthermore, with a concerted policy push, it may be possible to foster a domestic methanol industry based on green hydrogen, albeit it would have to compete with lower cost coal-to-methanol. Similarly, green hydrogen could compete with fossil-based hydrogen in India's large refinery sector by 2030.

Electricity storage

With decarbonization of electricity grid, there would be a need to manage variability of renewables. However, as the grid reaches higher and higher shares of variable renewables, there will be fewer coal-fired plants that are able to manage the longer periods of demand and supply variation, such as low wind output during the winter months. As a result, hydrogen could play a role as a long-term storage vector, absorbing excess electricity during certain periods of the year, to be used again at times of sustained low renewable output.

Challenges

Currently, technologies used to produce gray hydrogen are responsible for 830 MT of CO_2 emissions worldwide, equivalent to 2% of all carbon emissions. This hydrogen is mostly used in oil refining and to produce fertilizers. For hydrogen to contribute to clean energy transitions, it also needs to be adopted in sectors, such as transport, buildings and power generation. However, green hydrogen has its own set of challenges as mentioned below:

- Producing both blue and green hydrogen from low carbon energy is a costly affair.
- Efforts for creating infrastructure for hydrogen-based economy have been slow so far. For hydrogen to become as omnipresent as natural gas today, a huge, concerted effort of infrastructure upgrades and construction would be needed.
- The current hydrogen production is entirely supplied from fossil fuels like natural gas and coal, which is responsible for annual CO_2 emission equivalent to Indonesia and UK combined.
- There is no regulatory mechanism in place that could incentivize clean hydrogen industry.
- Storing and moving hydrogen is challenging. For instance, 3-4 times more storage infrastructure would need to be built at a cost of $637 bn by 2050 to provide the same level of energy security as natural gas.
- For fuel cell developers, the biggest challenge is to get production volumes up enough to create economies of scale to bring down the cost of green hydrogen.

In the case of India, these barriers like high production cost and complementary infrastructure requirements remain the same, however, as noted by Caroline Still, cross energy analyst at Energy Aspects, "the same could prove to be more challenging to overcome given the scale on investment required versus strained public finances."

How are countries gearing up to green hydrogen?

Countries across the globe have started to look at green hydrogen prospects more seriously and have been already investing in this fuel either as a tool to meet their decarbonization goals or generate export revenues. Post the

Role of Hydrogen Across Key Sectors

Sector	Use Case	2020s	2030s	2040s
Transport	Light-duty passenger and freight transport	BEVs competitive with both FCEVs and ICEs	BEVs competitive with both FCEVs and ICEs	BEVs competitive with both FCEVs and ICE
	Short-distance, regular-route heavy-duty transport	BEVs becoming competitive with ICEs. FCEVs not competitive	BEVs competitive with both FCEVs and ICEs.	BEVs competitive with both FCEVs and ICEs.
	Very long-distance heavy-duty freight transport	ICEs competitive	FCEVs and BEVs becoming competitive with ICE	FCEVs likely to be competitive with ICE. BEVs partly competitive
Industry	Ammonia production	Fossil fuels competitive. H_2 becoming competitive.	H_2 competitive (ammonia and refineries) and partly competitive (steel)	H_2 from renewables competitive
	Steel production			
	Refineries hydrogen demand			
	Methanol production	Fossil fuels competitive	Fossil fuels competitive. H_2 partially competitive	Fossil fuels competitive. H_2 partially competitive
	Industrial heat	Fossil fuels competitive Direct electrification partly competitive	Fossil fuels competitive Electrification increasingly competitive	Fossil fuels likely to be competitive. H_2 and direct electrification may be partly competitive.
Electricity storage	Short-term (daily) storage	Li-ion batteries competitive	Li-ion batteries competitive	Li-ion batteries competitive
	Short-term (weekly/monthly/ seasonal) storage	Long-term balancing from fossil and hydro Long-term storage needs minimal	H_2 becoming competitive but minimal need as wind and solar still below 60-80%	H_2 competitive. Long-term storage required in a high wind and solar system

Legend: Brown = fossil fuels dominate. Yellow = direct electrification without using H_2 as an energy vector, e.g. battery electric vehicles or li-ion; batteries in electricity storage. Blue = hydrogen. Green = mixed paradigm with several technologies including hydrogen.

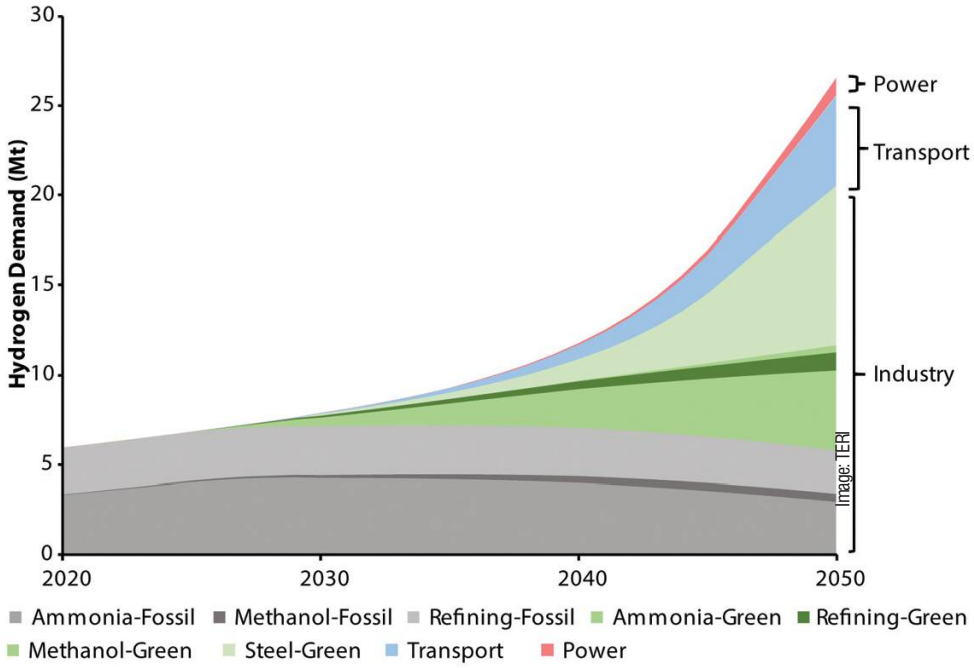
Note: This table only covers the use cases assessed in this report and is not exhaustive.

Source: TERI Analysis

Covid-19 pandemic, hydrogen has gained momentum and is given priority in the green recovery or sustainable energy plan in Australia, Canada, China, Germany, Japan, South Korea, Spain and the US. The European Union has recently come out with Hydrogen Strategy for a Climate-Neutral Europe.

Similarly, countries in the Middle East with high solar insolation, coal-rich countries like Australia, gas-rich countries like Russia as well as highly industrialized energy-importing countries in Asia and Europe are all showing keen interest in hydrogen. In fact, countries like Japan, Germany and UK have moved ahead to frame a comprehensive hydrogen strategy and are at several stages of research and development process and have shown commit-

Hydrogen Demand Projection in Low-Carbon Scenario, 2020-2050



ment to become a hydrogen economy in the times to come. Some of the ongoing developments in these countries are as follows:

Japan: Japan plans to run fuel cell buses and cars for the Tokyo Olympics to promote the use of hydrogen and showcase the technology with thousands of hydrogen fuel cell vehicles, a network of filling stations and a hydrogen-powered athletes' village. Japan's car makers are selling hydrogen fuel cell vehicles and Toyota is building a plant to manufacture fuel cell stacks. Japanese homes are already being equipped with fuel cell technology to provide electricity and plants are being built to make hydrogen using renewable energy.

Germany: Germany has just announced a national hydrogen strategy, paving the way for the country to play a leading global role in developing a hydrogen economy, and green hydrogen, as the aim of its economic recovery from the Covid-19 crisis. The federal cabinet has also appointed members to a newly formed National Hydrogen Council, which will implement and further develop the strategy. According to Peter Altmaier, minister for economic affairs and energy, Germany, "We are paving the way for Germany to become the world leader in the field of hydrogen technologies". It has further committed to invest €9 bn (about $10.2 bn) in hydrogen technology over the next two decades.

India: India too is gearing up to take a leap to produce hydrogen from green power sources with the proposed launch of 'Hydrogen Energy Mission', announced by Finance Minister Nirmala Sitharaman, while presenting the Union Budget 2021-22. This budget has set aside $10 bn for Solar Energy Corporation of India (SECI), which was seeking bids for green hydrogen plants last year.

In October last year, the Ministry of Science and Technology launched a compilation of ongoing research activities in the country related to hydrogen being carried out by several scientists, industry, utilities, and other stakeholders from R&D laboratories and academia in a report titled, "India Country Status Report on Hydrogen and Fuel Cells". This report has suggested several pathways for decarbonization varying in time frames that will play a key role in transforming climate-neutral systems over the next few decades. According to Tirth Biswas, program lead at Council on Energy, Environment and Water, the total investment potential of green hydrogen in India is around $44 bn by 2030. Further, Indian Oil Corporation Limited (IOCL) is working on technology to develop Hydrogen-spiked CNG (H-CNG), which would involve partly reforming methane and CNG. Earlier, Union Minister Piyush Goyal announced that Indian Railways is working on the development of a hydrogen-powered suburban train and has floated an expression of interest for industry participation.

The road ahead

To conclude, while the overall outlook for a hydrogen economy remains uncertain, countries across the world have put hydrogen at the forefront of post Covid-19 recovery with an intent to meet the Paris Climate Goals. However, to make a visible difference in the approach toward a hydrogen economy, there is a clear need for coherent and cohesive efforts by countries to create sufficient infrastructure and new demand through several regulatory measures to include carbon pricing and emission policies in place. One of the biggest challenges for hydrogen to become a fuel of the future is that it needs to compete with the alternative cleaner fuels and prevailing technologies.

A commitment to net-zero emissions, albeit of varying degrees of time scale, with policy coordination across the governments and alongside concrete frameworks for private investments and public private participation should take off in right earnest. It is expected that wider participation of various stakeholders in the public sector undertakings, private auto majors, academic institutions and think-tanks across the world would help the countries at the forefront of research in this area realize their hydrogen economy goal. ■

Disclaimer: *Views are personal.*

Reference # 20M-2021-03-12-01

'Open Finance'

Towards Democratization of Financial Services

Open finance goes way beyond open banking to incorporate several products other than just current accounts, and include savings account, insurance, pensions, investment products and even mortgages.

The financial world has been advancing towards the digital era for quite a while now. Open banking has in fact proved to be an accelerator for this digital transformation. It enabled the banks to create an integrated ecosystem that enabled creating innovative solutions at a faster pace for the consumers. With the stress on the economy owing to the novel coronavirus-induced pandemic, all the sectors have a role in handling the current situation and putting the economy on the recovery path. When the entire financial system is already disrupted by the digital revolution, a lot of competition is witnessed from both outside and inside the financial industry (i.e., apart from banking and insurance), which provides them with opportunities and simultaneously throws a lot of challenges. It is going to take a higher resolve from these players to embark on the open finance journey, an innovative open path to all sectors directly or indirectly linked to the financial and insurance world.

Hong Kong via its Hong Kong Monetary Authority's open banking framework and Europe and UK with their near completion of implementation of Payment Services Directive 2 or PSD2 have set the momentum for the transition and adoption of the open finance

Open finance goes way beyond open banking to incorporate several products other than just current accounts, and include savings account, insurance, pensions, investment products and even mortgages. There has been a growing affirmation as a group, across the world, for adopting open finance. Hong Kong via its Hong Kong Monetary Authority's open banking framework and Europe and UK with the near completion of implementation of Payment Services Directive (PSD2) have set the momentum for the transition and adoption of open finance. Another boost to achieving open data economy was provided with the publication of the EU's European data strategy which aims at preparing the EU as a leader in the data-driven society where free flow of data is allowed across a single market for the benefit of all classes of workforce, be it businessmen, researchers, or public administrators.

Open banking to open finance: How can it help?

The financial sector has witnessed a lot of disruptive services over the past decade, including the digitization and the FinTechs and the agile setups. They are not only making headway at lightning speed, but have also set a perfect platform for open finance. We can soon expect the democratization of the financial services, wherein third parties can have access to the current account transactions and offer better customized solutions tailor-made to the needs of the customer. Covid-19 has in fact provided an unmatched opportunity to the banks and the regulators to respond to the current scenario and be a support for the new normal. Open finance can be the driver for the change, and it can become the facilitator to bring all the entities of the financial ecosystem up-to-speed to face new challenges.

Banks can benefit from this movement in the following ways:

- Formation of a collaborative ecosystem: FinTech capabilities can be leveraged using the open banking/finance to speed up the digital transformation
- Enhanced online presence: Customers can be migrated to online and mobile banking technologies. AI can be promoted as powered finance managers and for digital onboarding of businesses
- Support to struggling SME businesses: As the banks adopt open finance, it would be relatively easy to access the credit history of the customers across all parts of the supply chain that would make taking credit decisions easy. Better discounting and factoring services and AI-powered cash and liquidity management solutions can be offered.
- Open finance can enable movement beyond mobile wallets, it can enable integrated banking and non- banking ecosystems with the third-party.
- It can lead to building upon customer willingness for data sharing by explaining the benefits of improved data-driven applications and analytics.

> With 'Open finance', it would be relatively easier for a bank to access the credit history of customers across the supply chain, which would facilitate faster decision-making. It can also, for example, enable an integrated banking and non-banking ecosystems with the third-party.

Kavita Arya
Manager (Research)
State Bank Institute of Consumer Banking, Hyderabad

Open finance in Europe

The European Commission has set a goal to build a single market for data in Europe through its data strategy. Another priority that it has set for itself is fostering a data-driven financial sector, and simultaneously committing to a new open finance framework by mid-2022. According to a draft report of the digital finance strategy (as quoted by EURACTIV), the European Commission is hoping that the financial firms and other players in the financial industry can share more customer data to enable creation of a "broader open finance space" that can help in creation of innovative and customized products for the customers. The draft outlines the Commission's priority to make "the benefits of digital finance available to European consumers and businesses" by 2024. A great progress was witnessed with the revision of the PSD2 towards adoption of open banking, wherein the banks were forced to share part of their clients' data with the new FinTechs. The aim is to leverage on this progress and create a holistic solution that can be beneficial to the economy and can make the movement towards open finance smooth. FinTech & Insurtech Observatory of Politecnico di Milano in their report, "Open Finance in Europe", have analyzed 256 financial services offered by 55 non-financial world players, including automotive, retail, utilities, and tech companies. These industries have been adding competitive pressures to the financial world and parallelly have also been offering new collaborative opportunities for a more consolidated solution.

The report revealed players from 12 different sectors who have created a niche for themselves by creating partnerships with players from financial industry. Apple Pay and WhatsApp payments are such examples where they opted for venturing into transaction services despite payments not being their core function. Amazon is now lending to facilitate customers to purchase high value products and it has tied up with several banks and financial institutions for the same. Fuel retailers like ENI are offering payment cards and travel insurance is being booked by Booking and Costa Cruises. Cross-pollination of several services to create one stop solution for the customers or a curated answer for their needs is the vision behind open finance.

As per the report, insurance services form 41% of the total services offered via open finance landscape, inclusive of life cover, home insurance, credit insurance and extended guarantees. Close next with 31% of the total services are the loans and financing services including consumer loans, mortgages and lease, followed by payments and transfer services (18%) such as credit cards or mobile payments. Deposit services, current accounts and savings form 9% of the total services opted and investment services like funds and trading platforms are the least preferred services (1%). If we look at sector-wise share of services, insurance services are the most offered services in the retail and utilities sector (66% of the sector) and their range includes covers related to the products sold like Amazon Protect or provisions for gas and electricity, to

Twelve Main Sectors with Players That Offer Financial Services

Source: Digital Innovation Observatories- Politechnco Di Milano

broader covers like home, life and animals.

Insurance (36% of the total) and financing services (37% of the total) dominate when it comes to the automotive sector. This is directly associated with the vehicles purchased by the customers from their outlets, and sometimes it works the other way around as well, when the cases are offered to the general public through a real bank. This is one sector where 100% of the players are onboard and efficiently offering both financing and insurance services. A consolidated advancement reflects the preparedness and the acceptance of the open finance model.

Financing again accounts for the most commonly offered service (58%) in Tech sector, usually provided for purchasing technology products. This is open even to students who account for a large portion of the seekers for this service. Some tech companies have gone beyond plain financing and have started offering invoice financing services as well to some businesses.

For some in Europe, the open banking space is already crowded and venturing into open finance would be the obvious progress. Some of the examples of established businesses are cited below:

For Avanza, the Swedish stockbroker firm, onboarding of customers always remained difficult as the customers had to have a lot of details handy before they could finish signing up and this proved to be a deterrent for them. Avanza too had to manually key in the investment account number. With the use of open banking platform now, users could log into their old accounts, where Avanza displays the available accounts and to proceed, the users have to select the account they want to choose for the services. With most retailers offering reward points or loyalty cards, it becomes a hassle to remember each one of them while shopping. Since most of the shopping data is linked to the bank account, Drop (powered by Plaid) leveraged this to provide a consolidated reward point transaction data to the users for their purchases.

Agicap in France and Finux in Germany are providers of cash flow analysis and optimization tools for the SMEs. These tools analyze the bank account statements of SMEs and thus become vital in providing insights and aiding them in making important business decisions.

The landscape in India

When Bill Gates said, "We need banking, not Banks", it did not strike a chord with most, as we were in the era of pure finance and debits and credits. But now we have moved on to the contextual banking and embedded finance, which mandates financial institutions to offer API access to data and functionality to facilitate third parties to create new improved services. While the banks and financial institutions in India are still grappling with the fear of losing control over data, their customers and the income, Europe has already stepped into open finance. It is high time they realize that it would be a symbiotic relationship and all parties would mutually benefit from this relationship.

The financial sector in India is currently working on a system called Account Aggregator (AA) Framework, which will ensure that the users do not have to share their banking credentials and instead create account via mobile or web app of these aggregators. This would enable them to monitor all their existing financial accounts like the deposits, loans, investments, insurance, or stock trading accounts on a single platform. The data would come from a verifiable source, probably with a digital signature. This would ensure authencity and thus reduce cost and burden of verifying the data. This format would also enable the customers to select the data that they want to share. The 'official' open banking workflow would ascertain secure end-user experi-

ence, where both the bank and the API are in the loop, but the power of sharing still lies with the customer.

Though India was a late entrant in the world of open banking, in a recent report, PwC indicated that 71% of SMEs and 64% of the adults would adopt open banking by 2022. YES Bank and RBL Bank were the pioneers, when in 2013, they exposed their API to other developers in order to create innovative financial services. Post that, ICICI, Kotak Bank, DCB Bank and several other FIs and banks too adopted the approach. Offering lending and payment products, eKYC, PAN verification, integration with the ERP systems of corporate clients, offering currency rates and retrieving credit scores are some of the services that are being enabled through APIs in India. But the real breakthrough came with the unveiling of Unified Payment Interface (UPI) by the Government of India. The opening up of its mobile application (iMobile) to customers of other banks using NPCI's UPI, by India's 3rd largest private sector bank, ICICI on December 7, 2020, is a bold move towards open banking. Through iMobile, ICICI is offering its services to customers from other banks as well, by acting like a payments app which enables users to link multiple bank accounts, payment of utility bills, mobile phone recharge, checking CIBIL scores, booking of travel tickets, purchase of gift and travel cards, investments in term and recurring deposits, mutual funds, and insurance, etc. This move by ICICI bank is sure to provide them a vital edge owing to the timing of its launch as RBI has temporarily banned HDFC bank to further onboard new credit card customers and halt its digital offerings till seamless connectivity is restored. Following the trend, SBI and Axis Bank have since announced their intention to open their apps to the non-bank customers.

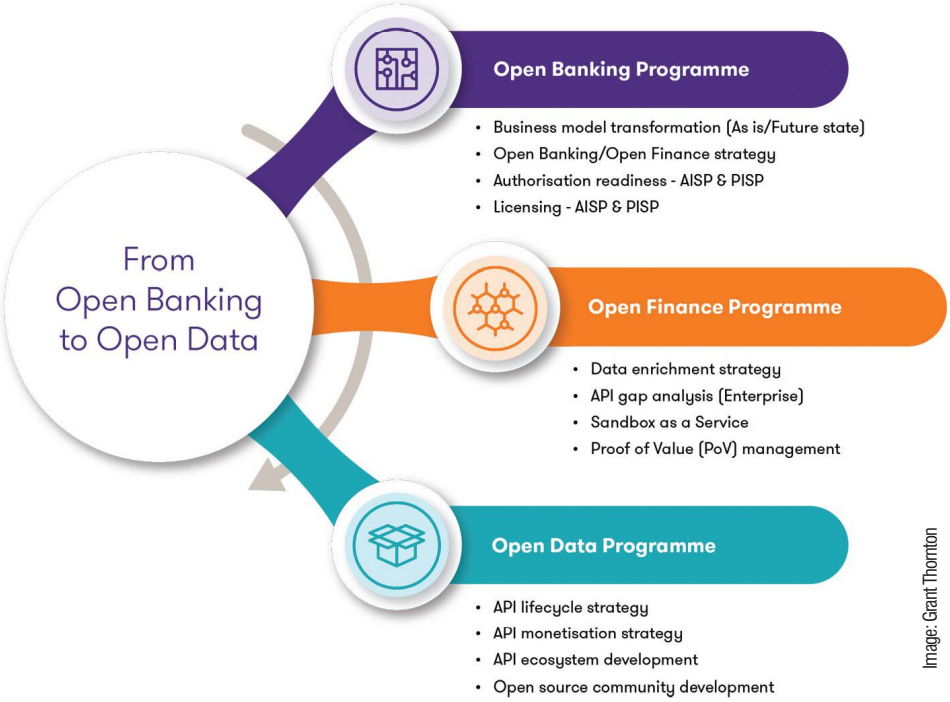


Image: Grant Thornton

What is Open Finance?

In simple terms, Open Finance is the next step in the Open Banking journey. Financial data such as mortgages, savings, pensions, insurance and consumer credit – basically your entire financial footprint – could be opened up to trusted third party APIs if you agree. Open Banking already allows regulated websites and apps to access transaction data from bank accounts and payment services so that you can 'move, manage and make more of your money' (openbanking.org.uk).

Why Open Finance?

The FCA outlines their vision of Open Finance for consumers and businesses as follows:

- To gain access to a wider range of financial products/services
- To have greater control over their data
- To engage with their finances and empower better financial decisions

The end goal is improved financial health driven by market innovation and competition.

Once rolled out, Open Finance will for example, allow for the development of financial dashboards, bringing together customer data such as investments, savings and cash flow all in one place. By sharing financial data with trusted third parties, customers could be offered tailored products and services that represent a better deal.

Source: fastpayltd.co.uk

Outlook

Taking into account the prevailing conditions and the lessons that the pandemic has made us learn, it can be concluded that open finance would not only help in innovative solutions for the customers but would also aid the economy by making the competitors talk with each other and synergize their individual strengths. Access to financial data in a secure and smart way would lead to innovation and healthy competition in a new financial ecosystem that is bound to help both the consumers and the businesses alike.

A robust regulatory environment that can ensure sharing of data, protection of data subjects, with full control on the data would support the economy in completely embracing the data-driven finance. Along with free flow of innovation, stringent Data Acts and Digital Services Acts are also required to put the anxieties of masses at rest about their data being misused. "Regulators as innovators" could more aptly describe the role here.

Only forward thinking regulatory bodies would be able to foster a progressive environment that can ensure more digital transformations and innovative solutions—starting with open banking, followed by digital onboarding, putting security and data protection standards in place and ultimately moving to open finance. ■

Reference # 20M-2021-03-13-01

General Motors' Vision 2035

Going Green, Going All-Electric

The Great EV Push
Barra's Big Gamble!

GM sets 2035 as the deadline to usher in an all-electric future!

Imagine a future where there are only electric trains to board, there are no gas-guzzling diesel buses or cars and instead only electric buses ply, where private modes of transport mean only the electric cars and electric two-wheelers (add electric bicycles if you want), and where even aircrafts are powered by batteries—lithium ion, solid state or maybe even more advanced electricity storage device type. Sounds too futuristic? However, there is one company which is not only betting big on this supposedly cleanest energy form, but rather also doggedly chasing what it calls an all-electric future. Any guesses? It's none but the US auto juggernaut, General Motors (GM), one of the early pioneers of fossil fuel-based automobiles.

America's biggest car company mulls shifting 'lock, stock, and barrel' to an all-electric future in less than 15 years from now! Is it risking too much?

Milestone 2035

In what could be the most ambitious green energy bid ever by a major global automobile firm, GM is planning its biggest transformation ever: an all-electric future by 2035. In a statement, which came a day after President Joe Biden signed a series of executive orders on January 27, which he said would 'supercharge' his administration's plan for dealing with climate change, signaling his country's return to the Paris agreement after a brief disassociation (the treaty, which aims at limiting global warming, was signed by a majority of nations in 2016, however, the US opted out of it during the Trump regime owing to differences with other member nations), Mary Barra, Chairman and CEO of the Detroit, Iowa-headquartered auto maker, declared, "General Motors is joining governments and companies around the globe working to establish a safer, greener and better world."

Earlier, in yet another emphatic statement, outlining her firm's commitment to reduce its carbon footprint, she had remarked, "Climate change is real, and we want to be part of the solution by putting everyone in an electric vehicle." The company's 'aspirations' are a part of a much bigger goal to be carbon neutral by 2040 across its global products and operations.

Welcome 'electric' (vehicles)

As per the firm's Electric Vehicle (EV) blueprint, the maker of Cadillac, Buick, and Chevrolet cars plans to exclusively offer EVs by 2035, which would mean end of the road for the models based on diesel and gasoline-powered engines. You heard it right! Indeed, in a move that is destined to rewrite the rules of the game and change the global auto landscape for ever, the American auto giant has announced, beginning 2035, it would completely stop producing any of those gas-guzzling cars, trucks or SUVs which once dominated and continue to dominate American roads and made it the world's largest car company before it slipped to the number fifth spot, which it holds currently, as it could neither match design dominance of a Toyota or Honda, nor could it better Volkswagen's integration skills—the German auto giant is a result of a number of mergers and acquisitions (from Skoda to Audi to Lamborghini to Scania and Porsche) and is known for its dexterity to manage a plethora of subsidiaries without being looked as a part of the goliath itself—and instead would focus only on the battery-powered or EVs! Well, if that happens, the Detroit dynamo will stand a real chance to race ahead of rivals and take lead in an industry that it once ruled?

Nevertheless, the opportunities are immense as an entire world eyes a green future. The company believes transitioning to an all-EV portfolio could also help it become carbon neutral by 2040. As a part of that plan all its domestic facilities will be fully powered by renewal energy as early as by the end of this decade, while global facilities too will be switching completely to green energy sources by 2035—a good five years ahead of a previously announced deadline. The markets have cheered the news, lifting stock price of the firm by as much as 7.4% during intraday trading to $53 a share, before settling to close at $51 per share at the end of the day's trading.

A section of industry experts lauded the move saying it would augur well for the company as it finally sets a deadline that will help in shaping its all-EV strategy well, besides it (the announcement) also ends years of speculation. "For several years, GM has touted a guiding "triple zero vision", including a future with zero emissions through EVs, but it never announced a time frame," commented Michael Wayland in a post on CNBC.com "For General Motors, our most significant carbon impact comes from tailpipe emissions of the vehicles that we sell—in our case, it's 75%," Barra said in a LinkedIn post. She added. "That is why it is so important that we accelerate toward a future in which every vehicle we sell is a zero-emissions vehicle." In the same post she also talks of how technology can be harnessed to achieve her firm's other two goals of Zero Crashes (referring to autonomous cars) and Zero Congestion (which can be achieved through connectivity—think of IoT—that lets vehicles talk to each other, and connecting them to the traffic lights and roads around them so that vehicles know how to avoid backups and collisions, choose the most efficient routes and reduce congestion. But GM has added that for it to achieve its 2035 EV goal which it calls as an "aspiration," regulations, infrastructure and other factors need to come together. This may sound like a lofty goal. No surprise some experts are sceptical if the Chevy maker would ever be able to put the jigsaw puzzle together. For instance, according to David Friedman, Vice President of Advocacy at Consumer Reports, an American non-profit consumer research group, criticized the automaker's lack of commitment to the goal. "Strong aspirations are important and inspirational, but firm production plans and strong policies are what move the market and the climate," he said in a statement.

Then there are a few who believe the Detroit major's EV plans appear to be way too unrealistic. '…in the grand scheme of things, such a world is far, far away, and has been received as little more than wide-eyed grandstanding,' commented gmauthority.com, an independent GM-only blog post. And don't blame yourself if the Detroit car major's vision sounds all too familiar. That is possible, because, GM's thinking, and even the mantra itself, isn't exactly new, the site says. For example, German auto supplier Continental rolled out a "Vision Zero" strategy 10 years ago, which essentially is about 'Zero Fatalities', 'Zero Injuries' and 'Zero Accidents'. Volvo, the Swedish auto group, too had unveiled a similar blueprint five years ago, in 2016, when it called for zero vehicle-related deaths in its cars by 2020 via "Vision 2020." In fact, it is not just the traditional auto majors,

Ruling the EV Road!
GM Hummer EV

but even industry outsiders like tech giant Google and ride-hailing app Uber (though it recently sold the division to Aurora Innovations, which makes self-driving tech, suggesting it's niche area while technology is still a work-in-progress, meaning it would need massive funding in R&D) have been working on autonomous cars, which aim to achieve essentially the same! For example, Waymo, a project by the Alphabet Inc. (the parent company of the search engine major), which debuted in 2009, has in fact already reached where GM and the likes want to go in future: making ride safe, free from traffic-snarls, essentially a hassle-free experience.

Notwithstanding such hurdles, if Barra & Co can still realize the all-EV goal it would be nothing short of a coup, given that EVs, including battery-electric and fuel cell-powered vehicles, account for only a meagre 5% (in fact, even lower) of the global automotive sales. Though auto industry observers feel falling battery prices (led by a rise in sales volumes) and stricter emission norms would nudge customers and countries to increasingly move towards EVs. And that would augur well for EV flag bearers like GM—it has already begun work on creating a pipeline of EV models that could be hitting the markets in near future. "We feel this is going to be the successful business model of the future," he said during a media briefing Thursday. "We know there are hurdles, we know there are technology challenges, but we're confident that with the resources we have and the expertise we have that we'll overcome those challenges and this will be a business model that we will be able to thrive in the future," said Dane Parker, GM's first Chief Sustainability Officer. To accelerate its EV shift, the company is planning to convert three of its manufacturing facilities in the US to switch to production of only EVs. It is also mulling investments worth $27 bn in development of new electric and autonomous vehicles. It intends to hit global markets with 30 new EVs models by 2025, besides producing only the electric variants of its top selling luxury Cadillac cars and SUVs by 2030. "This is the time for this technology; this is the time for this change," Parker said, citing reduction in pricing and advancements in technologies, among other factors. "The convergence of those things has made this an inflection point that we want to seize." The company recently introduced the world's first all-electric supertruck, GMC HUMMER EV. With 1,000 hp and 11,500 lb.-ft. of torque2, it has the power and technology to conquer both on and off-road with extraordinary confidence, the company claims.

Road to renewables: How GM is going green, going all-electric!

We're committed to putting every driver in an EV on a scale previously unseen and bringing the world to an all-electric future, says an excited Barra, oozing with confidence, which stems from the company's newly developed Ultium Platform that is expected to take it closer to the dream of a world with zero emissions (or at least GM won't be polluting anymore!). To realize that goal, the auto maker is working on three areas:

1. Developing batteries that charge fast and go far: According to GM, batteries are the key to deliver EVs at scale. In 2020, the company revealed a brand new battery, which it calls the Ultium battery platform. It will be the heartbeat of GM's all-electric future, the company says. Ultium-powered EVs are designed for fast charging and the platform is capable of delivering a vehicle with a GM-estimated range of up to 450 miles on a full charge!

2. Creating EVs for every lifestyle and price point: It is the big news! In what could further help GM underline its EV presence, the car maker is aiming to introduce not one or two but more than two dozen brand new EV models, which it says will fit every pocket, in less than five years from now! According

No Way, Norway
GM is coming to Norway, which has the highest EV per capita in the World

In the 60-second tongue-in-cheek advertisement, called "No Way, Norway", which aired on February 7 during the Super Bowl and is part of a GM drive to reel in Norway's position as the world's hottest market for EVs, per capita, Anchorman star Ferrell enlists the help of fellow comics Kenan Thompson and Awkwafina in his battle against the Nordic oil and gas nation. They set off for Norway in GM's Cadillac Lyric crossover and GMC Hummer pick-up EVs.

"Well, I won't stand for it," says Ferrell while punching a globe. "With GM's new Ultium battery, we're going to crush those lugers. Crush them! Let's go America."

Norway is the world's top-selling EV market per capita. In 2020, 54% of the new cars sold in the country were fully electric EVs, according to the Norwegian Electric Vehicle Association. Barra & Co is charged up, quite literally, as GM enters Norway. The Nordic nation nestled in the Northern Europe boasts of more EVs per capita than any other country! According to GM, 54% of new vehicles in Norway, which is one of the early adopters of the clean energy and boasts of an expansive charging infrastructure, sold are electric. GM

Source: GM, upstreamonline.com

to the Detroit major, driven by its commitment to developing an EV for every person and every price point, it is aiming to bring 30 new EV models to the market globally by 2025. The GMC HUMMER EV—the world's first all-electric super truck—the Cadillac LYRIQ SUV and the Chevrolet Bolt EUV demonstrate GM's dedication to engineering a diverse range of EVs that will be desirable and accessible for all.

3. EVgo! Helping make vehicle charging fast, affordable and convenient: In a collaboration with EVgo, America's Largest Public Electric Vehicle Fast Charging Network with more than 800 EV fast charging stations across 34 states, GM is looking to triple the size of the country's largest public fast charging network by adding more than 2,700 new fast chargers by the end of 2025, driven by the belief that 'Convenient charging shouldn't be a luxury. It should be democratized'. It is to be mentioned that lack of charging infrastructure is a major hurdle in most of the countries including India in faster EV adoption, presenting a chicken-egg riddle for auto makers mulling EV foray. The proposed charging stations will be completely powered by renewable energy.

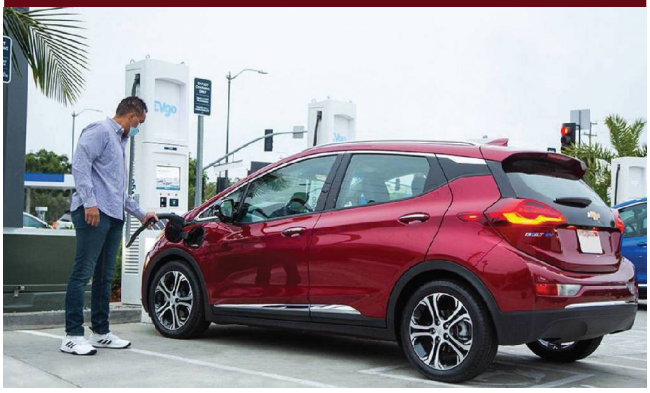
Rivals beware, (GM) EVs are coming!

Though not everyone seems as bullish. For, according to a section of experts, despite the growing appeal of an all-electric future, auto firms and governments have struggled to make much headway in their pursuit of EV goals. And that success stories are few and far between. For example, barring nations like China and tiny Norway, no other country has been able to make much headway in their pursuit of the all-EV goal. However, things may not be as bad. According to a JP Morgan report, the worldwide sales of electric cars reached 2.3 million in 2020, which is an almost four-fold jump in just five years. Surge in EV sales were led by China, which sold nearly 1.2 million EV in 2019; there were 3.35 million EVs on China's roads by the year's end. And things are beginning to look better as more nations join the EV party. For example, in Europe, 2020 saw electric power surge ahead. Norway led the way with zero-emission vehicles accounting for over half of new cars registered in the year to the end of November 2020, the study showed. Interestingly, over a quarter of a million of Norway's 2.8 million registered cars were already electric at the start of 2020. In fact, in Europe, electric cars of all types accounted for 6% of all the cars on its roads in 2020, up from just 1.6% the year before, and made up 27% of all new sales in France, Germany, Italy, Spain and the UK. This in part has been aided by the subsidies introduced in some countries as a way to stimulate demand, especially during the Covid-19 crisis, such as the $8,550 (€7,000) discount on offer to electric car buyers in France, the report highlights. In Norway, as per the study, EV drivers enjoy a 90% discount on road tax. However, the situation does not look as rosy in the US, where only 4% of cars were electric, as of 2020. This may change with the fall in battery prices and the ability of the vehicle manufacturers to address the range-anxiety issue—something that applies to all the markets—besides the favorable policy stance of the Biden Administration which looks all set to correct many of the Trump era (policy) missteps. Given that, it looks the auto giant's move could not have come at a more opportune time. Also, let's hope the American auto firm's move would inspire industry peers to take a serious look at an all-electric future (are Indian Motown rivals listening?) Meanwhile, GM already has a company (or competition, to put it more succinctly): compatriot Tesla, the original EV pioneer, which is firing on all cylinders to hit the market with its Cybertruck pick-up fast; the model will also mark its entry into the commercial vehicle market and will be pitted against GM's Hummer EV. So, get ready, EVs, rather GM EVs are coming. ■

Amit Singh Sisodiya

Reference # 20M-2021-03-14-01

In Pursuit of a World with Zero Emissions



Welcome to Ultium

GM's new Ultium Platform aims to help put everyone in an EV, moving us closer to a world with zero emissions. The key building blocks of the Ultium battery system are large scale, high-energy cells that will be the best large-format cells in the industry. Engineered in partnership with LG Energy Solution, they use both advanced chemistry and a smart cell design that's optimized for a broad portfolio of EVs.

- The key building blocks of the Ultium battery system are large scale, high-energy cells that will be the best large-format cells in the industry. Engineered in partnership with LG Energy Solution, they use both advanced chemistry and a smart cell design that's optimized for a broad portfolio of EVs.
- Banded together, multiple cells form a battery module, and a cluster of battery modules make up a battery pack. The flat shape stacks efficiently, allowing for less wasted space, fewer electrical configurations and a simplified cooling system.
- Ultium is so unique that it can contain either vertically- or horizontally-stacked cells to integrate into vehicle design—vertically for trucks, SUVs and crossovers, or horizontally for cars and performance vehicles.
- It gets even better with Ultium's innovative feature—digital programming. As new chemistry is developed and becomes available, the battery management system could digitally update the modules.
- The drive unit strategy is also modular, enabling the front-, rear- and all-wheel drive variations. The motors were designed in-house at GM, and the modular platform is the first of its kind to support both front- and rear-wheel drive variants.

Source: GM

Australia News Code: A Hard Bargain

The popular conception of Australians is that they are a nation characterized by a laidback lifestyle. However, behind the popular image of swimwear-clad Australians chilling out on the beaches of the country in a cool and collected way wearing a no-worries expression lies their collaborative and egalitarian attitude to life—better reflected in their belief in what is called the "Anzac spirit," which stands for the positive qualities that Australians believe in, namely, courage, ingenuity, endurance, mateship, freedom, justice, and peace.

The Aussie belief in the Anzac spirit—coupled with their idea of fair-go (that everyone should be given an equal opportunity) and their penchant for the "tall poppy syndrome" (the expectation that poppies should grow together, and if one grows too tall, it is to be cut down to size)—is on full display as the Government of Australia has taken up cudgels against multinational technology giants Google and Facebook on the issue of payment for content.

The crux of the issue is this: Australia is all set to pass the News Media Bargaining Code that requires multinational digital platforms like Google and Facebook to negotiate in good faith with Australian publishers and broadcasters for their news content displayed in the search results and news feeds of the digital platforms. If the parties concerned fail to strike a deal, a government-appointed arbitrator will decide the payment that the digital platforms have to make to the local news media for using and profiting from their content.

The code also enforces a range of minimum obligations on digital platforms, including providing news media companies with information about news-related data and advance notice of at least 28 days of algorithm changes affecting news ranking. Code breaches, depending on their degree, would invite infringement notices or penalty that could run into hundreds of millions of dollars.

The Australian government deemed it necessary to put in place the said legislation after an investigation found that Google and Facebook held too much market power in the media industry, thus depriving the Australian media of ad revenue, posing a potential threat to their very survival. The coronavirus-induced lockdown in 2020, which upended the Australian media business, only strengthened the government's case for the code. As the negotiations between the local media companies and the multinational digital platforms remained mired in stasis, the government tasked the Australian Competition and Consumer Commission (ACCC) with developing a mandatory code in April 2020.

According to Australian treasurer, Josh Frydenberg, the code, which he termed "world first," is not about protecting local news media from competition but creating a level playing field and ensuring fair-go: "We want Google and Facebook to continue to provide these services to the Australia community . . . but we want it to be on our terms. We want it to be in accordance with our law and we want it to be fair." The legislation, as of now, applies only to Google search and Facebook's newsfeed. The Australian treasurer, however, has the power to extend it to other platforms.

Google, which appeared at the Senate Committee appointed to review the proposed law, called it 'unworkable' on three counts: the definition of 'news/links' under the code is overly broad and very vague, which would fundamentally break how search engines work; the code takes into consideration only publishers' costs and discounts the benefits (referrals and clicks through to their websites) they derive from Google; and giving advance notification to publishers about Google's algorithm changes and internal processes will disadvantage Google users and other website owners. In short, Google made it clear that it is not against paying the Australian publishers for their content, but it is against the proposed code in its present form, as it finds the code heavily loaded in favor of the local publishers.

Google has a point there. The principle of unrestricted linking between websites is pivotal to the 'Web' and to 'Search'. Paying for links and snippets would undermine the very basic principle of the internet, for—as Tim Berners-Lee, the inventor of the World Wide Web put it—"the ability to link freely, meaning without limitations regarding the content of the linked site and without monetary fees, is fundamental to how the web operates."

Conversely, multinational digital platforms like Facebook and Google earn their ad revenue by disseminating content produced by news outlets. It is time they realized that in business, there is no free lunch and that every favor calls for repayment.

While the proposed Australian code may be unduly harsh to digital platforms, its intent is in the right place: it seeks to remove the gross bargaining imbalances and encourages negotiation between the local media and the dominant digital platforms to work out a fair revenue-sharing arrangement.

Now that the Australian government has made its point, it needs to temper it with a win-win approach. To borrow the words of Peter Strong, CEO of Council of Small Business Organizations of Australia, Google is "not evil, it's just too big." And Google has only recently agreed to pay news publications in France under an agreement which the tech giant obviously views as workable. There is no reason why it cannot be replicated in Australia. ■

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Reference # 20M-2021-03-15-01