Brace for new 'crudities and inequities'

How the IBC transformed into a tool to stigmatise business failure

WITHOUT CONTEMPT
SOMASEKHAR SUNDARESAN

The term "structural reform" is at the heart of political debate -- it is the phrase over which lead Opposition speaker in the Rajya Sabha and former Finance Minister P Chidambaram and current Finance Minister Nirmala Sitharaman sparred after the Budget Speech. Meanwhile, the one piece of structural reform that the NDA government truly executed from scratch — the Insolvency and Bankruptcy Code, 2016 (IBC) — is once again crying for attention.

Lauded and feted by bankers, lawyers and judges as a "game changer", the IBC is now facing yet another challenge. This law that was essentially meant to enable smooth and non-stigmatised death of corporates. However, it has been transformed into a tool of actually stigmatising business failure, thanks to the scaling up of non-performing assets on banks' books. Courts have coded into the interpretation of the IBC the Indian social reluctance to embrace business death. Judicial observations about the importance of reincarnation of a moribund business being preferred to an orderly pulling the plug off the ventilator, abound.

The concept of "silences" in the law has a major role to play here. Matters that are so obvious to a society that talking about it would be unnecessary are routinely left to resolution by common sense, justice, equity and good conscience. If something is so evident that one does not need the law to articulate it explicitly is said to have been left out "sub silentio". The silences in the law can lead to judges filling in the gaps and bringing to bear their judicial sense of how to resolve inequities and iron out ambiguities.

Every trade and operational counterparty in the running of a business (say, the supplier of raw material or distributor of finished goods) may extend credit or avail of credit, and thereby also play a financial function. However, the core cause of providing or availing of such credit is not the provision of finance. Such persons are operational creditors in the eyes of the IBC.

The IBC is substantially a law that works on the premise that financial creditors know best as to whether to let an insolvent business continue in a new avatar or if it is best consigned to the grave. In either decision, other stakeholders such as operational creditors would be affected, and the IBC entails a quasi-judicial oversight of the decision of the Committee of Creditors, the statutory decision-making forum in which financial creditors have an overwhelming and overriding power. This is in sharp contrast to the role envisaged for operational creditors.

When any legal position looks inequitable, intervention follows — at times, politically and therefore legislatively, but often, also judicially, with creative interpretations aimed at doing justice while administering the law. For example, the sensitivity of the roti-kapda-makaan concept led to home buyers being acknowledged as not being mere operational creditors — first judicially, and then legislatively, the constituency of home-buyers kept getting addressed. Arguments can always be found — since builders get substantially funded by those buying the products (homes), it was felt it would be logical for home-buyers to be treated as financial creditors. In much the same way, buyers of soap can be financiers of soap-manufacturing company — but dare compare buying soap with buying homes, and you will find the power of the sub silentio facet in interpreting law.

The latest ironing of such perceived inequity is a ruling of the National Company Law Appellate Tribunal (NCLAT) adjusting equities to make the IBC work for the interests of operational creditors. The principle of law applicable to operational creditors is that when resolving a company, they ought not to get lesser than what they would get in a liquidation. The NCLAT has ruled that this would not mean that operational creditors must get nothing higher than the liquidation value. After a strong push from the bench, the Committee of Creditors came up with a marginal reduction in what the financial creditors would take away and an increase in what operational creditors would get. The Tribunal, dissatisfied with the equity of the proposal, rejected it, and came up with a ratio of distribution that would, in its view, be fair and appropriate.

In appeal, financial creditors would obviously push hard for protecting their right to determine an appropriate distribution, as a sovereign right. Even regulators are disrupting the IBC — now Sebi wants to argue that dues owed to it are not covered by resolution plans. Whatever may happen in legal proceedings, legislative intervention may eventually follow, in the name of structural reform. Newer "crudities" and "inequities" will emerge. While uncertainty over viability of resolutions would go up, one can only hope the ecosystem will learn to embrace impermanence and death with grace.

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A rail journey on an uphill track

Railways needs private investments urgently, but few players might be interested because of ownership and operational problems

JYOTI MUKUL

WHAT AILS THE RAILWAYS **Even the much-touted station redevelopment could not take off on account of low investment appetite in the construction sector**

The Narendra Modi government has set the Indian Railways on course for private participation to meet its funding needs, underlining the long understood realisation that the exchequer alone cannot finance infrastructure building and its operations. But unlike other infrastructure sectors, the Railways' public-private participation (PPP) record has been patchy and difficult to implement.

Yet the need for some sort of partnership is becoming urgent. In her July 5 Budget speech, Union Finance Minister Nirmala Sitharaman said the Railways needed ₹50 trillion in five years to 2030. But she admitted to the government's inability to meet the requirement: Current railway capital expenditure has been ₹1.5-1.6 trillion annually.

TAKE TWO

"Completing even all sanctioned projects would take decades. It is, therefore, proposed to use public-private partnership to unleash faster development and completion of tracks, rolling stock manufacturing and delivery of passenger freight services," Sitharaman said in the speech.

Though the Railways is yet to declare any five-year action plan, it is clear the government is not in a position to hand-hold it for any major expansion or upgrade. The issue, however, is how far the Railways can function within the PPP format. Recent history highlights some of the challenges.

In the 90s, for instance, the Indian Railways created partnerships with private companies for sidings, warehousing and wagons, and then extended the tie-ups for port railway lines. But operating the service under the law remained with the Indian Railways.

This was the reason the Pipavav Railway Corporation Limited (PRCL) was set up as a special purpose vehicle (SPV) in May 2000 as a 50 per cent joint venture between the Indian Railways and the Gujarat Pipavav Port Limited (GPPL). The SPV was given the task of converting a meter gauge line between Surendranagar and Rajula City to broad gauge and extending it to the Pipavav port. The company also manages all operations and commercial functions relating to freight traffic on the 271-km line. A special dispensation from the Cabinet Committee on Economic Affairs allowed PRCL to undertake construction, operations and maintenance of the broad gauge railway system. It is entitled to the rights, obligations and duties of a railway administration.

These PPP initiatives were insignificant when seen in the larger context of the Indian Railways. Attempts at getting big-ticket private investment in locomotive manufacturing took eight long years, when the Indian Railways under Suresh Prabhu awarded two marque contracts for manufacturing locomotives in 2015 to GE Transportation and Alstom. Part of the reason for the delay was lack of investor interest. The contracts went through several rounds of bidding because there were either no bids or a single bid. The two locomotive projects, however, are more in the nature of contract manufacturing and not equity investment in partnership with the government.

So why does the Railways struggle with PPPs? According to Vishwas Udgirkar, partner, Deloitte India, the institution's complicated and complex structure is the principal cause. "The proposed revenue models and the way the Railways responds and wants to remain in control make it difficult," he says.

Even the much-touted station redevelopment could not take off on account of low investment appetite in the construction sector. After altering the terms for station redevelopment at least twice, the Railways had to finally sign on with government companies for the job. There are some 22 stations that are being taken up through Indian Railways Station Development Corporation. NBCC and Ircon would take over two stations. Most of the other stations are undergoing upgrades rather than redevelopment.

If station redevelopment projects, which have the incentive of real estate development attached to them, are finding it hard to get private investors, getting them to run rail service would be even tougher because of legal and operational challenges. The Railway Act does not allow private companies to operate, though there are reports of the government inviting private investment in running premier trains, such as the Tejas, Shatabdis and Rajdhanis and tourist trains.

M Ramachandran, a former secretary in the Union urban development ministry, says since the ownership of tracks remains with the Railways running only a passenger service even as the same tracks are used for freight makes the task difficult for investors. "The Railways will need to resolve these issues. A lot would depend on the terms of contract."

Rather than actually running trains, private operators could be acting as aggregators, taking bookings and owning the rolling stock, on the lines of private container trains. Even so, any form of private investment will need a viable fare model requiring tariff revisions and bankable contracts. This, however, raises the need to first put in place a regulator. The fact that private operators could not run the much-smaller metro services in Delhi and Gurugram makes successfully-run private rail services a distant dream.

CHINESE WHISPERS

Focus on Priyanka

Consensus has eluded the Congress party in selecting the successor to outgoing president Rahul Gandhi. The latest speculation now revolves around party general secretary Priyanka Gandhi Vadra. She is also the in-charge for Uttar Pradesh, and several Congress leaders from the state have pushed for her to become the party chief. A few in the party believe that she might take over as the Congress faces difficult Assembly polls in Maharashtra, Haryana and Jharkhand. According to party sources, with the Nehru-Gandhi dynasty and the old guard in the Congress unable to agree on a name, party general secretary Mukul Wasnik continues to be the frontrunner as the interim chief. Meanwhile, Priyanka on Wednesday tweeted a photograph of herself from over two decades back. "Morning puja on the day of my wedding (22 years ago)," she said. While others handle Rahul's Twitter account, and post only after he approves a tweet, Priyanka is known to tweet herself in Hindi and English.

'India's promise'

Former president Pranab Mukherjee *(pictured)* will deliver a lecture in New Delhi on 'Furthering India's Promise' on Thursday. The event will mark the first anniversary of the Samruddha Bharat Foundation, which describes itself as an independent socio-political organisation but is ideologically inclined to the Congress party's worldview. The event will launch the foundation's monthly lecture series, which aims to engage India's leading policymakers, academics, and activists "in a dialogue on ways to safeguard and further the constitutional idea of India". The foundation will also announce the publication of 14 volumes of more than 120 policy-oriented essays, which Penguin Random House will publish, to propose innovation and disruptive ideas.

Pranab replaces Ansari

A few days after the Lok Sabha election results were announced on May 23, Prime Minister Narendra Modi visited former president Pranab Mukherjee at the latter's residence to seek his blessings. Neither former Congress president Rahul Gandhi nor his sister and party General Secretary Priyanka Gandhi Vadra has visited Mukherjee, one of the oldest and most distinguished of Congressmen, since the elections. Sources said the family was yet to overcome the souring of relations after Indira Gandhi's assassination, when Mukherjee indicated that he wished to be her successor. Now, it appears, the Congress is keen on reclaiming Mukherjee as an elder member of the party. So while former vice-president M Hamid Ansari was designated keynote speaker for Thursday's lecture, he had to make way for Mukherjee. The party felt Mukherjee's address at the Rashtriya Swayamsevak Sangh headquarters in Nagpur in 2018 must not come in the way of this.

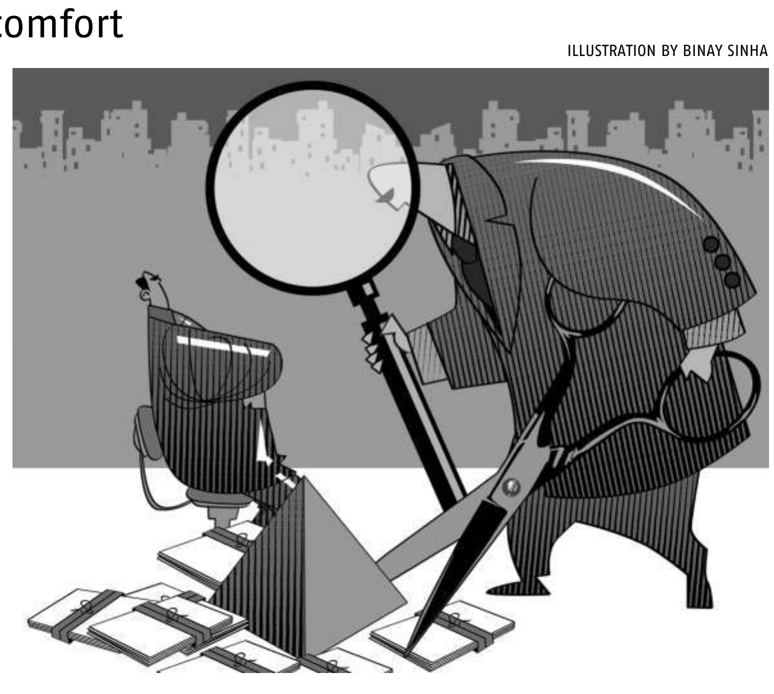
INSIGHT

Cake or taxes?

The size of the cake cannot increase if the makers of the cake are squeezed into discomfort

DHIRAJ NAYYAR

ILLUSTRATION BY BINAY SINHA



A day after the Union Budget, while speaking in Varanasi to an audience of BJP workers, Prime Minister Narendra Modi was emphatic when he said "the size of the cake matters". In a country whose political economy has traditionally been more concerned about slicing and distributing the cake it was wonderful to hear a Prime Minister publicly accord priority to growth.

The comment was made in the context of skepticism expressed by some about the government's ambition of a $5 trillion economy by 2024. It is a comment which also needs to be made in the context of India's tax policies. Just a day earlier, Finance Minister Nirmala Sitharaman had announced an increase in tax rates on the "super rich". Also, she had not extended the benefit of a lower corporate tax rate of 25 per cent to large companies, that is, those with turnover greater than ₹400 crore. It is likely that the government was largely guided by arithmetic in its tax decisions. It needed to meet its fiscal target of 3.3 per cent of GDP. And it had already committed spending, both investment and redistribution. Revenue had to be shored up. More taxes on the rich makes for a good political argument and excellent political optics because they can obviously afford to pay more.

Unfortunately, the arithmetic of Budget revenue targets is an anathema to the Prime Minister's philosophy of expanding the size of the cake. The super-rich — entrepreneurs, CEOs, CFOs — are generators of wealth. They already contribute their fair share of taxes while millions of others evade or avoid. By imposing further taxes on this group, the government is only penalising wealth creation and honest paying of taxes. The super-rich are also the most foot loose — they can shift their residence and even business to an overseas jurisdiction with lower tax rates. India cannot afford a flight of its best entrepreneurs, managers and capital. It is happening.

Large companies not only create wealth but also good jobs. In India, micro, small and medium enterprises are often trumpeted as the biggest job creators, which may be true, but these are usually low paid, low quality, informal sector jobs. In fact, the biggest chunk of the MSME sector in India is micro, not small or medium. India's challenge is to create good jobs, with high wages, benefits and security which will only be provided by large companies and perhaps medium-sized companies, certainly not micro enterprises.

Also, scale matters if companies have to compete in global markets or in domestic markets against foreign competition. India is absent from global and regional value chains because it doesn't have enough firms that have the necessary scale to be efficient players in such value chains. For the sake of a competitive industrial sector, tax policy should incentivise firms to get bigger, not to remain micro and small. The current regime, by giving concessions to firms with a turnover of less than ₹400 crore, incentives them to not grow beyond that.

Of course, even in the event that firms do become large, they are still not likely to be globally competitive because they have to pay a higher top tax rate than in competitor countries, particularly in East Asia. The emergence of a competitive large industrial sector is the only route to fast growing economy which creates productive jobs for an aspirational population.

Now that the Modi government has stated an ambitious goal of a $5 trillion economy — and we know the Prime Minister is determined to achieve targets — its tax policies must focus primarily on increasing the size of the cake. Obviously, this means that both income and corporate taxes should be lower. For individuals, the rich will still pay a higher rate, but ideally the top rate should be no higher than the top corporate tax rate which is 30 per cent now, but which should be brought down to 25 per cent in the next Budget for all firms. Surcharges must be abolished.

The new philosophy should also make clear to the tax administration that it must not try to meet its targets by trying to (unfairly) squeeze those who already pay taxes. The harassment of taxpayers (both individual and corporate) is a deterrent to investment as much as the high rates are. Instead, the tax administration should be instructed at expanding the tax base and brining into the net those who have stayed away. One way to do this is to end exemptions of all kinds.

In the medium term, maximum buoyancy to tax collection will be provided by a robust growth rate which in turn requires massive investment by the rich (individuals and firms). The size of the cake cannot increase if the makers of the cake are squeezed into discomfort in the short term.

The author is chief economist, Vedanta

LETTERS

Regulate & supervise

This refers to "Not home alone" by Anup Roy (July 17). The article has raised relevant questions on the duality of control over financial institutions including banks and non-banking financial corporations (NBFCs) at the ground level and answered them referring to the evolution of the regulatory and supervisory system in the financial sector over the years.

There is no use lamenting the omissions and commissions of the past. The FSLRC (Financial Sector Legislative Reforms Commission) took a tangential route trying to reinvent the central bank and truncate its functional limbs. The FSLRC failed to listen to professionals among its own members. The piecemeal approach to policy formulation affecting the financial sector during the second half of the current decade is attributable to the diversion by the FSLRC from its real mandate.

Having said that, there is no denying that the government of India and the Reserve Bank of India (RBI) have been deftly building the institutional system in the financial sector to meet the changing needs. The setting up of IDBI, NABARD, NHB, SIDBI and Exim Bank at the apex level and also the SBI, the public sector banks, regional rural banks and small banks should be seen in this perspective. The missing link is an HR initiative to ensure professionalism in the functioning of all these institutions. The RBI board's decision "to create a specialised supervisory and regulatory cadre" should be perceived as a message to infuse professionalism at all levels in the financial sector.

M G Warrier Mumbai

The real culprit

Another déjà vu in Mumbai — as usual some buildings will collapse during monsoon. Most of them are illegal or tenants refuse to vacate. Now, in such a scenario, why should compensation be paid to the victims? These buildings are secular vote banks sponsored by the local mafia and politicians. In order to assuage their feelings and ensure they continue to vote as before, they have to be compensated by the hard earned money of tax payers. Thus, people who vote for their living are compensated by those who need these votes for their living, who in turn rob Peter to pay Paul. And those who remain silent on such issues, they who say they are free and fair, and a so-called pillar of democracy, are the biggest culprits.

T R Ramaswami Mumbai

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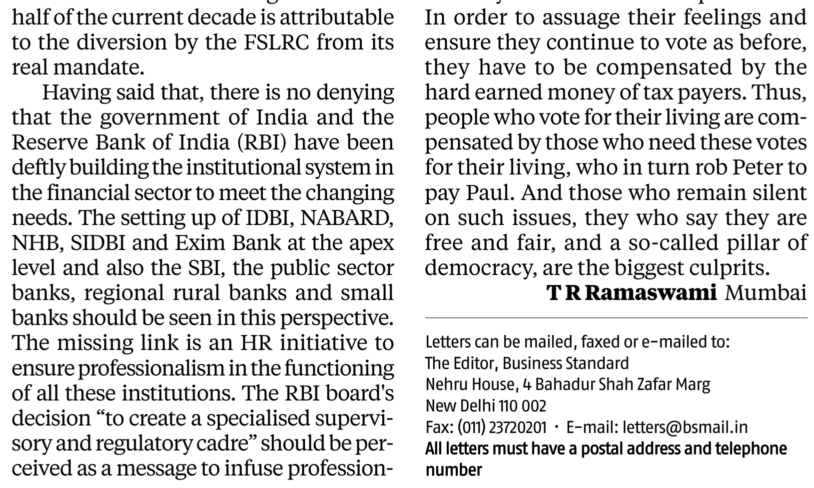
HAMBONE



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Future demographic shocks

The declining sex ratio points to behavioural regression

The growing prosperity of India's population has had a mixed impact on its demographics. The latest data from the Sample Registration System shows that Indians are planning smaller families — but also prefer fewer daughters. The upshot is that India's total fertility rate (TFR) — or the number of children expected to be born to a woman during her reproductive period — has fallen from 2.3 in 2016 to 2.2 in 2017, with both rural and urban India registering a steady fall. This is marginally more than the World Health Organization's recommended replacement-level fertility of 2.1 children per woman; in urban India, in fact, the TFR is well below this average, indicating improving education levels and access to health among urban Indian women. The obvious and encouraging implication of this is slowing population growth. As a result, projections for India's population overtaking China have been postponed by five years to 2027.

This good news, however, is leavened by the alarming deterioration of the sex ratio at birth, where Indians' traditional preference for the male child appears to have reinstated itself to startling effect. After steadily improving for two trienniums (three-year periods) between 2009-11 and 2011-13, the sex ratio has plummeted from its peak of 909 females per 1,000 males to 896 in the triennium ending 2017. Behind the broad all-round deterioration is the potent point that the sex ratio in cities is worse than in rural areas: 890 and 898, respectively, in the 2015-17 triennium. As before, it is the relatively prosperous states that have recorded the worst fall: Telangana, Delhi, and Kerala join backward Bihar in the top rankings. Both the urban and state-wise data confirm the established trend that sex selection is being practised with greater frequency among affluent Indians who have the wherewithal to use technology (illegal, legal, or semi-legal) to ensure the delivery of a male child.

This ingrained gender prejudice has implications for the India demographic dividend as well. With the TFR slowing and longevity increasing owing to access to better health care, India's population will also begin ageing a little over a decade from now. According to the Economic Survey, the share of India's young, i.e. 19 years and below, is projected to drop from 41 per cent in 2011 to 25 per cent by 2041. In the same timeframe, the share of the elderly population (60 years and above) will nearly double from 8.6 per cent to 16 per cent. Not only does this have implications for the dependency ratio, but with fewer women producing fewer children the trend could worsen rapidly.

All of this suggests the need to augment such creative missions as Beti Bachao, Beti Padhao, designed to alter behavioural models by incentivising the birth of the girl child. Beti Bachao, Beti Padhao was launched in 2015 in Panipat, Haryana, the region with the country's worst sex ratio. But the scheme is targeted at poorer people, for whom a girl is traditionally seen as a cost and burden. It is unclear why richer, more educated Indians should harbour what the Economic Survey calls a "meta preference for boys". These biases have deep social and economic roots and there is an urgent need for messaging targeted at more sophisticated audiences so that India is able to regain some measure of demographic balance.

Trade trouble

Lower exports reflect structural weaknesses

In yet another blow to the prospects of the Indian economy in the medium term, the data released this week revealed that export growth has hit a 41-month low. According to the Union Ministry of Commerce and Industry, exports contracted by 9.7 per cent, year-on-year, in June, after a small increase in May.

There is no immediate concern about the external account, as imports contracted by a larger amount in absolute terms, and the trade deficit thus decreased. But that is not relevant. The issue is that exports are now a drag on growth, as distinct from being a significant engine of economic expansion. This has been the case for some years now, with the occasional green shoots perceived by optimists in the sector failing to mature. A closer study of the data does not provide much foundation for optimism. It is true, as officials have reportedly pointed out, that one major contributor to the fall was a decrease in the export of refined petrochemicals, and that this might be temporary. Two major refineries — Reliance's in Jamnagar, and the state-owned one in Mangaluru — were partially shut for maintenance for some time in the relevant period.

However, this alone cannot explain the slowdown — non-oil exports still contracted by around 6 per cent. For example, the gems and jewellery sector continues to be plagued with inconsistent export growth, and the export of engineering goods — one of the bright sparks in the previous financial year — contracted by 2.65 per cent in June.

Part of the slide can be attributed to global headwinds for trade, and it is true that there are concerns surrounding the US-China trade war. But many peer economies correctly see this as an opportunity. Vietnam, for example, has posted 6.7 per cent export growth in the first five months of 2019. Bangladesh clocked double-digit growth in apparel exports last financial year, while Indian apparel exporters have struggled. In 2014-15, exports of textile and apparel from India were valued at $40.1 billion; in 2018-19, exports from this sector were $40.4 billion. This is a sign of a failure to inject competitiveness into a crucial, labour-intensive sector.

The government needs to acknowledge that its various trade-focused schemes have not worked, including sector-specific packages and higher tariffs on imports. All these have done is to render Indian tradable sectors less competitive. The shortage of credit and a poorly implemented goods and services tax have further retarded growth in exports. Therefore, the first step must be to ensure that tax procedures are simplified drastically. Instead of doing this, the government has declared that "manual checks" will be reintroduced before tax credit is provided to exporters, which might mean that the gap between filing a return and getting a refund would triple. For low-margin exporters, this will be a further constraint on expansion. But tax issues are only part of the story. The longer-term story is one of eroding competitiveness, aided by an overvalued rupee. Challenges on the export front reflect the structural weaknesses of the Indian economy and should be addressed through structural reform. Clearly, this should be one more pressing concern for the new government to address.

ILLUSTRATION: BINAY SINHA

Sovereign bonds: The big picture

India must work on a road map towards capital account openness, in which sovereign bond is back-loaded, not front-loaded

A lot has been said about the case for and against the Budget proposal to issue sovereign foreign currency denominated bonds. It is difficult to add much to the debate by way of arguments. Yet, there is a big picture consisting of bits and pieces that may help in finding a wise way forward.

In global financial markets, sovereign debt is very different from non-sovereign debt. Crucially, the sovereign is not a limited liability entity. It exists in perpetuity and its assets are somewhat indeterminate. Its liabilities to non-residents in global financial markets are, in most cases, governed by laws other than those in its own jurisdiction. (While issuing bonds, the jurisdiction is defined.) Voluntary agreements with debtors are not legally binding on all. As a debtor, the sovereign is vulnerable to hostile creditor legal action.

WHAT NEXT

Y V REDDY

In short, there is no legally binding debt restructuring mechanism in respect of sovereign debt. Efforts by the International Monetary Fund (IMF) to evolve one have not succeeded.

Sovereign debt is good as long as good times last. When they cease, a sovereign workout in the existing non-system can be extremely painful for the debtor country and its citizens. It makes no difference whether the country happens to be middle-income or not, as examples of Greece, Turkey or Argentina show.

Incidentally, international law does not recognise the doctrine of odious debt, also known as illegitimate debt— that is, national debt incurred by a despotic regime. Both, international law and the IMF, hold governments strictly liable for all debt incurred by their predecessors.

Global finance needs some "safe assets" in its portfolio. Financial conglomerates are willing to subscribe to a sovereign bond of a country even if it borrows for day-to-day expenses (revenue deficit) and has to borrow externally to pay for its imports (current account deficit). History is replete with precedents. The reason is simple: Those subscribing to sovereign bonds are privileged creditors relative to others.

Experience shows that a sovereign debt crisis does not happen in isolation. It is accompanied by others, such as, banking, political and external sector crisis. Policy-makers' freedom to manage a crisis is severely constrained if the sovereign has debt obligations to non-residents, especially in foreign currencies. History also shows that recourse to sovereign foreign currency debt is seldom constrained by prudence; especially if political economy tilts in favour of profligacy.

Sovereign debt typically starts with small doses and then becomes a dangerous addiction and often results in repeated approaches to the IMF for succour. The record of developing countries being disciplined by sovereign debt markets is poor and India's record in being disciplined by financial markets in general is in the public domain. The size of the economy of India and geopolitical setting in which India is placed makes it difficult to assume that we will get adequate support in case risks on sovereign debt materialise.

From a macro-economic point of view, there are some basic features of our economy that we should not ignore while considering the issue. First, we have been financing our investments predominantly (well over 90 per cent) through domestic savings. Our basic approach to the external sector has been to access foreign savings to supplement and not to substitute domestic savings. It is inconceivable that sovereign bonds can make up for the shortfalls.

Second, there is a limit to our dependence on foreign savings. The aggregate level of a sustainable current account deficit of 2 per cent represents the acceptable level of aggregate foreign savings. If this limit is accepted, sovereign borrowings by way of bonds can only be a substitute to some other form of foreign savings — say external commercial borrowings. Similarly, if the fiscal deficit is pre-determined, there is a substitution of funding from domestic sources with foreign savings to the extent of issue of sovereign bonds.

Third, there is a hierarchy of desirable sources of foreign savings that has served us well. The most preferred is the green field foreign direct investments. A second source is foreign direct investment in the existing enterprises. Another is portfolio flows in equities. The fourth is external commercial borrowings by non-financial corporate sector for financing their investments. The fifth is external commercial borrowings by the financial sector. Sixth, there is surrogate sovereign borrowings—that is, borrowings by public sector financial and non-financial enterprises which involve an implicit sovereign guarantee. They also help establish implicit sovereign rating for India.

Since until now sovereign bonds do not find a place in this scheme, how will they fit into this hierarchy? In brief, the decision on sovereign bonds in many ways, amounts to a basic change in policy towards a more open capital account.

The way forward

We should aim for a day when foreigners can freely buy our sovereign paper and simultaneously our citizens can freely buy other country's sovereign bonds. But that needs a road map which captures the evolving state of global financial system and our domestic strengths as well as vulnerabilities in fiscal, finance, and external sectors. It may be wise to start work on a road map towards capital account openness, in which sovereign bond is back-loaded and not front-loaded.

The writer is former governor, Reserve Bank of India

Europe's 5G wake-up call

How times change. Not so long ago, the next big thing in telecommunications was 4G mobile networks, which promised massive data transfers and cheap voice calls. Now comes 5G, which will potentially spur all sorts of new digital innovations, thanks to its greater speed (200 times faster than 4G), faster data transfers from wireless broadband networks, and, most important, the ability to connect cyber-physical objects in the context of the Internet of things. Moreover, 5G is expected to enable the much more rapid reaction times required for driverless cars, advanced factory automation, smart cities, e-health, and many other applications.

But there is another key difference. Whereas the battle over 4G was essentially commercial, focusing on job creation and profits, the ongoing 5G debate is about geopolitics, technological leadership, and national security. Here, Europe must develop a much stronger common approach to the new 5G technology to make itself less vulnerable to security risks.

DANIEL GROS

Most of the current 5G controversy centres on whether US and European mobile operators should buy equipment from the Chinese telecoms giant Huawei. The US government previously banned the firm from its telecoms market because of espionage concerns (although it has yet to produce evidence of this publicly), and strongly urged its European allies to do the same.

Both the US and European positions toward Huawei seem to be at odds with their commercial interests. By banning the Chinese company, US President Donald Trump is favouring existing European (and South Korean) equipment suppliers, even as he complains about America's trade deficit with Europe. (More recently, Trump has indicated a possible softening of his stance toward Huawei.)

Although European governments have differing views, most do not want to exclude Huawei. Each national government regards lower equipment prices for its national telecoms operator as more important than supporting European champions in 5G technology (such as Nokia and Ericsson).

In any case, US and European security concerns should extend well beyond Huawei and the Chinese government. The new 5G networks present a unique security challenge, because their main functions depend on software, not hardware. This makes 5G much faster than legacy wireless networks, but also leaves it vulnerable to potentially malicious attacks.

Today's information-technology systems are highly complex: Current smartphone chips have more than eight billion transistors, and operating systems have more than 50 million lines of code. Moreover, many of these systems contain components supplied by hardware and software vendors from around the world. In practice, this creates multiple possible entry points for malicious attacks and data leaks, using "backdoors" that can be exploited to gain control of a device. And if backdoors cannot be detected and monitored, then entire 5G networks are potentially vulnerable, too.

The key national-security risk, then, is that a vendor for all or part of a 5G network (or its national government) could vacuum up all the traffic passing through, or even disrupt the operation of the entire network with a digital kill switch. Extensive security reviews of Huawei equipment have failed to uncover any such backdoors. That is not surprising: Huawei (or any other company) would be out of business if it were caught doing this even once. But it is also logically impossible to prove the absence of malicious code.

Although Europe has its own suppliers of 5G equipment and could simply shut Chinese vendors like Huawei out of the market, such a move is unnecessary. In many European countries, Huawei provides just one part of the mobile network. Moreover, having multiple vendors provides some protection against a kill-switch risk to the entire system.

Diversity also constitutes a liability, because each European Union member state performs its own, often quite different, security check on Huawei equipment, with many of them having only limited resources and experience to do so. The security of the future 5G networks could be much better ensured if an EU agency carried out a common check on all equipment suppliers.

More generally, Europe's potential 5G vulnerability stems mainly from the desire of each member state to keep its own mobile network under national control. For example, the allocation of 5G frequencies has been conducted entirely at the national level, according to widely different rules and conditions. This, of course, makes the emergence of "European champions" in the telecoms industry less likely.

In addition, the defence of (national) networks against cyberattacks is also managed at the national level. The EU Agency for Cybersecurity (ENISA), which still has fewer than 200 staff even after a recent budget increase, plays only a weak coordinating role.

Yet telecommunications networks within the EU are highly integrated across national borders. Future cyberattacks may well target more than one member state, and a blackout in one country would severely affect others. Europe thus urgently needs a powerful, integrated cybersecurity agency. Over the longer term, the entire regulatory framework for telecommunications networks, including spectrum auctions, should be centralised at the EU level. This would finally create the "single digital market" that has so far eluded Europe.

European leaders would be wrong to regard a Chinese supplier of 5G network equipment as the biggest threat to the continent's cybersecurity and to its ability to develop telecoms champions. Europe's real vulnerabilities are its still-fragmented telecoms market and its lack of a common cyber-defence system. The looming introduction of 5G should be a wake-up call to policymakers across the continent. One can only hope they heed it.

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Scientists who broke the gender barrier

BOOK REVIEW

DEVANGSHU DATTA

This book consists of short profiles of ten extraordinary scientists who happened to be women. Each in their own individual way broke through glass ceilings and all of them changed the world. The authors decided that they would focus on people who were dead, perhaps because it is easier to place a completed life in context. In other respects, their choice of subjects range across different fields.

Gender discrimination across the STEM disciplines has become a "hot button" issue in the past few years as women working in these areas have become more assertive about narrating their experiences. The discrimination is so deeply ingrained that it is utterly normalised in the way popular culture treats women in STEM. It shows up at school when girls are told that they are intrinsically bad at maths; it shows up in poor gender ratios in higher education. It showed up, circa 2015 with a distinguished male scientist "joking" that he couldn't work in the lab with " distractingly sexy" women who "fall in love and cry when you criticise them".

Each of the women profiled here had to deal with this all pervasive problem in their own life. To take one famous instance, when the widowed Marie Curie won her second Nobel Prize in 1911, (Chemistry for isolating radium) the Nobel Committee actually requested her to decline the honour! The reason: She was in a relationship with a married colleague. She was always referred to in academia and media as "Madame" rather than docteur or professor.

In 1964, Dorothy Hodgkin was hailed as the "Oxford housewife and mother" who had somehow won a Nobel Prize for developing x-ray crystallography techniques that helped define protein molecular structures. Rachel Carson, who pioneered the environmental movement, was ridiculed as a " romantic writer" despite her credentials as a marine biologist. Trudy Elion, another Nobel laureate, was denied a research position literally because she was "too pretty".

The women profiled include anaesthesiologist, Virginia Apgar, who invented the Apgar Score, which is used the world over for the instant assessment of neo-natal health; Rachel Carson, whose bestseller *Silent Spring* sparked environmental consciousness; astronomer, Henrietta Leavitt, who work on cepheid variable stars led to methods for judging the expansion of the universe; physicist, Lise Meitner, who was a nuclear fission pioneer; Elsie Widdowson, who worked out the technique of fortifying food with vitamins; Dorothy Hodgkin, crystallographer (and housewife!); Gertrude Elion who revolutionised drug design methods; Rita Levi-Montalcini who worked out nerve growth; Chien-Shiung Wu who worked on the Manhattan Project and subsequently produced a string of important experimental results in physics; and Marie Curie, who was, among other things, the first woman professor in France.

Although the authors say they tried to treat their subjects as "ordinary woman" who survived family tragedies and disasters and did extraordinary things, these were obviously very unusual people

Given the diversity of fields and backgrounds, it's hardly surprising that these ten women had very different personalities and enormous variations in their life experiences. These lively accounts make that very evident. Some of them were strongly combative people, others quieter and more self effacing. However, despite being different personality types, they all had one thing in common, quite apart from being extraordinarily gifted in their respective disciplines: they all possessed a quality best described as bloody-mindedness.

They refused to take no for an answer. They smashed academic barriers by insisting on learning things that women weren't allowed to learn. They broke glass ceilings in their workplaces, they survived racial persecution and discrimination in several instances.

Meitner had to flee Nazi Germany; Chien faced racial suspicion as an Asian American while working on a top secret American military project. Curie's daughter, Irene, (herself a Nobel laureate) once lamented that her mother was "a brave daughter of France" in popular reckoning when she won international recognition, and she was a " Polish immigrant" at other times, such as when she was refused admittance to the Academie Francaise.

Although the authors say they tried to treat their subjects as "ordinary woman" who survived family tragedies and disasters and did extraordinary things, these were obviously very unusual people. It is frankly, impossible to do justice to the lives of 10 such personalities in an average of 30 pages each. It is even more difficult since it is necessary to get abstruse scientific concepts across, and every essay involves getting into different subjects at that.

This book does a fair job of compressing those lives and careers, without reading like *Wikipedia* entries. It is an excellent introduction to the lives of some of the smartest people you might never have heard of, written in easy prose with reasonably lucid explanations of the science. But each of these women deserves a full-length biography to themselves rather than this set of very brief lives.

TEN WOMEN WHO CHANGED SCIENCE AND THE WORLD
Catherine Whitlock, Rhodri Evans
Hachette; ₹599; 320 pages