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A NEWSLETTER OF THE FINANCE LAB

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Indian Institute of Management Calcutta

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# Editorial

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The first article is on the recent announcement that India would soon have a Social Stock Exchange (SSE) and the author concludes that while launching the SSE, SEBI should also come out with the guidelines of enlisting competent impact assessors to make the SSE dependable and sustainable. The second articles looks into some fault lines of contemporary global financial stability, as revealed in the Global Financial Stability Report of October 2019 published by the International Monetary Fund (IMF). In the third piece, the author discusses the core components of the regulatory guidelines for liquidity risk management framework of NBFCs, along with their broad implications. The fourth article examines the risk faced by banks/financial institutions on account of mismatch between the maturity profile of assets and liabilities, known as liquidity risk. This has become an increasingly important parameter for the assessing a bank/financial institutions. In the last piece, the author discusses that economists have been troubled by the law of unintended consequences for a long time. Yet, it was only with the inauguration of the modern field of mechanism design and implementation theory in the latter half of the 20th century that we finally managed to get a technical glimpse at how this law operates. Even then, our understanding remains limited at best, and many of the best minds in economics in recent years have been working on pushing the frontiers of this field.

You may send your comments and feedback on this issue to [ashok@iimcal.ac.in](mailto:ashok@iimcal.ac.in)

Happy reading!

**Ashok Banerjee**

# Social Stock Exchange- A Good Initiative

## Ashok Banerjee



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The Hon'ble Finance Minister, in her July 2019 Budget speech, announced that India would soon have a social stock exchange (SSE). The proposed exchange would follow SEBI regulation and allow listing of social enterprises and voluntary organisations. In September 2019 SEBI, the capital market regulator, has constituted a working group to study and recommend a framework for the launch of an SSE in India. The concept of a social stock exchange is innovative, but not new. SSEs operate in some form in countries like Canada, UK, Singapore, and Kenya. The formats may vary. For example, the Social Stock Exchange in the UK, which was set up in 2013, functions as a platform connecting social enterprises and potential investors. On the other hand, the SVX, an online impact investing platform, set up by the Ontario government in Canada about ten years ago is aimed for ventures, funds and investors seeking social and/or environmental impact alongside the potential for financial return.

Social enterprise is not defined in the Indian Companies Act, 2013. Section 8 of the Companies Act defines a non-profit company as one established for promoting commerce, art, science, religion, charity or any other useful object, provided the profits, if any, or other income is applied for promoting only the objects of the Company and no dividend is paid to its members. Social enterprises are defined by the UK government as "a business with primarily social objectives whose surpluses are principally reinvested for that purpose in the business or in the community, rather than being driven by the need to maximise profit for shareholders and owners."<sup>1</sup> Nobel Laureate Yunus has preferred to use the expression social business<sup>2</sup> and defined it as a business to address one or more social problems and is run as a non-loss and non-dividend company. The majority of social enterprises in India are incorporated either as a section 8 (earlier section 25) company or a charitable trust. However, law does not preclude formation of for-profit entities with social purpose. In that sense, a social enterprise should be distinguished from non-profit organisations (NPO). All NPOs are social enterprises, but the reverse is not necessarily true.

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<sup>1</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/31677/11-1400-guide-legal-forms-for-social-enterprise.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/31677/11-1400-guide-legal-forms-for-social-enterprise.pdf)

<sup>2</sup> Yunus, Muhammad (2011). *Building Social Business: The New Kind of Capitalism that Serves Humanity's Most Pressing Needs*. PublicAffairs. p. 256.

It seems that the Hon'ble Finance Minister had in her mind NPO form of social enterprises (the non-dividend type) while announcing the need of a SSE. It sounds quite logical as dividend paying companies can always tap the main stock exchange for fund raising. Since the NPOs do not follow any profitability matrix, it is difficult for the promoters to raise finances through traditional channels (e.g., bank finance). Therefore, the main hurdles that such enterprises faces are (a) lack of funding; (b) inability to sustain focus on performance; and (c) a reluctance to take on the risk of failure.<sup>3</sup> Global markets have already backed issuance of bonds for social purposes. For example, the green bonds are debt instruments designed to raise funds for projects and businesses that have a positive environmental or social impact. A report<sup>4</sup> shows that globally green bond issuance reached about US\$48 billion in the first quarter of 2019. It shows that investors have supported bonds that were issued for a social cause, particularly environment-related. Therefore, it is believed that NPOs would get similar response from the investors in the SSE.

Nearly 75% of impact investments in India in 2018 were equity investments in portfolio companies (early stage, series A, and series B) and about two-thirds of the impact investors have earned a return of above 15% in 2018.<sup>5</sup> Thus, impact investments do generate handsome returns in the private market and hence an exchange dedicated for the impact investors should be able to encourage greater participation of impact investors.

### **Structure of the SSE**

The proposed social stock exchange should be able to address the challenges presently faced by NPOs and the impact investors. NPOs face the challenge of access to capital; the investors face the challenge of suitable exit; and the regulator or policy makers lack a credible impact assessment tool. While the SSE would definitely address the first two challenges, the exchange may create a framework for impact assessment.

The social stock exchange could be structured as an online exchange which will connect NPOs with the impact and other investors. In order to discourage retail investors to invest in the instruments issued by the NPOs in the initial stage, the minimum investment size could be set at a higher level (e.g., Rs. 1 million). The exchange could offer three types of services- level 1, level 2, and level 3. The compliance norms would vary with the levels. Level 1 allows an NPO to privately place financial instruments (e.g., equity, bonds) with one or more institutional investors (including impact investors). Level 2 allows an NPO to list the fixed-income instruments issued in Level 1 for trading purposes. It may be noted that there will be no fresh issuance of bonds in level 2. This level allows better liquidity for the instruments and also exit options to the level 1 investors. Level 3 allows an NPO to issue

<sup>3</sup> Ravi, Shamika; Gustafsson-Wright, Emily; Sharma, Prerna; Boggild-Jones, Izzy (2009). The Promise of Impact Investing in India. Brookings India Research Paper No. 072019.

<sup>4</sup> [https://www.climatebonds.net/files/reports/global\\_q1\\_2019\\_highlights\\_0.pdf](https://www.climatebonds.net/files/reports/global_q1_2019_highlights_0.pdf)

<sup>5</sup> Ravi, Shamika ibid

fresh instruments (public issue) to investors- both institutional and high net worth individuals (HNIs). Level 1 offerings would have minimum disclosure requirements and may include quarterly reporting of social impact following a standard reporting matrix. Level 2 requires more disclosure in addition to the ones prescribed in level 1. For example, the rating of the issuer, annual financial statements, audit report once a year on impact assessment. Issuers in level 3 can raise fresh capital from the market at a better price from a large number of investors. Therefore, the compliance norms would be more stringent at this level. In addition to the requirements for level 2, a level 3 issuer has to submit quarterly (unaudited) financial results along with a report on social impact.

In order to ensure that the market players do not abuse the market quality, it is important that only reliable and accredited institutions are allowed to participate in the market. The SSE would formulate an easy-to-implement accreditation process for both the issuer and institutional investors.

Level 1 issuers would be able to meet their financing requirements from select set of impact investors whose objects are aligned with those of the issuers. At level 1, the SSE would disseminate information on NPOs and impact investors and create a mechanism for the interested parties (issuer and investors) to clinch a deal in a transparent manner. Once a deal is consummated, the exchange will widely disseminate the details of the deal in a prescribed format. Registered members should be allowed to view the post-issuance quarterly reports submitted by the issuers.

It may be noted that trades in level 2 are to facilitate exit for level 1 investors and not to allow NPOs to raise funds. Impact investors include endowments funds, insurance companies and domestic financial institutions. Endowment funds may not face near or medium-term liquidity demand; however the other types of investors may need to churn their portfolio in medium term. Level 2 is designed to cater primarily to those investors. Retail investors can be allowed to trade in bonds in level 2 and the institutional investors (including fund of funds) in both types of instruments. The minimum trading size in level 2 should be Rs. 25 lakhs so that small investors do not participate in this level. The SSE would disseminate market activity in level 2 every day after market hours.

Level 3 activities would be very similar to any other market platform. Since the NPOs are allowed to raise money from a large pool of investors at this level, market regulations and risk management should be of highest order. In order to encourage high net worth individuals who would like to contribute to social cause, the minimum lot size could be fixed at Rs. 1 million. Once the market matures and investors' interest ascertained, the lot size can be lowered. The SSE would disseminate market activity in level 3 every day after market hours.

### **Types of Instruments**

Apart from equity, the SSE may allow issuance of impact bonds – social impact bond (SIB) and development impact bond (DIB). Impact bonds are specific type of outcome based bonds with financial returns. The promise

of financial returns is important to make such bonds attractive to impact investors. In case of impact bonds, the financial risk is borne by the investors who provide the upfront capital and hence these investors would look for appropriate return. Social Impact Bonds (SIBs)—also known as “social innovation financing” or “pay for success”—offer governments a risk-free way of pursuing creative social programs that may take years to yield results. Usually, governments decide what problems they want to address and then enter into a contractual agreement with an intermediary (or bond-issuing organization) that is responsible for raising capital from independent investors including banks, foundations, and individuals, and for hiring and managing nonprofit service providers. If the project achieves its stated objectives, the government repays the investors with returns based on the savings the government achieves as a result of the program’s success. In case of Development Impact Bonds (DIBs), the payment is made to the investors by a third party (e.g., a corporate entity). Payment is based on what the project or service has achieved and not on the processes or work that has been done. If any project fails to deliver desirable outcome, the government or the third party would not compensate the investors and hence the investors in that case stand to lose their entire capital. Generally, for both SIB and DIB, a service provider is involved. The service provider is obliged to deliver service to the target population (called beneficiaries) and would thus be compensated once the desirable outcome is achieved. The service provider can be structured as an NPO and can approach SSE for raising upfront capital to fund their need.

In a private market, a fund manager (social impact bond issuer) has a critical role to play. She has to identify and approach high net worth individuals, foundations and even some corporate to subscribe to the SIBs. Next, she needs to know the service providers (NGOs and/or social enterprises) who have access to the beneficiaries and have organizational set up and programmes to deliver results. The fund manager also has to liaise with the government and finalise terms of repayment. The structure of SIBs is such that investors do not consider their investments as charity and assurance from government on repayment of the bonds actually enhance the creditworthiness of issuers. While the SIB at the outset specifies that its goal is to bring about change in society, yet it would need to be competitive with other instruments in the market for people other than philanthropists to be interested.

In a public market (the SSE), much of the information on the service provider and investors would be available on the platform and hence it would become easier for the NPOs to find out appropriate investors. Similarly, investors would also have access to a variety of social enterprises to choose from.

Companies in India, who are required to spend 2% of their three-year average after-tax profits on CSR (Corporate Social Responsibility) can avail this route to ensure that they pay for results. This way impact assessment of social investments can be ensured. The CSR mandates that the funds collected would not be used for infrastructural developments under any category. This implies that for education outcomes, construction of school buildings, purchase of school equipment like chairs, tables cannot be accounted as CSR spends. Similarly, for environment



sustainability, setting up of solar panels is not a CSR activity. Therefore, CSR expenditure should create impact and the corporates spending the hard earned money should be happy doing so if the investment creates impact in the society. SIB may help achieve the impact. The corporate sector can play the government's role in a SIB structure or 'buy out' the contribution of initial donors in DIBs.

In order to ensure that a SSE functions as an efficient platform, the role of the regulator, and the impact assessors cannot be undermined. It is very important that the SEBI, while launching the SSE, also comes out with the guidelines of enlisting competent impact assessors. Assessment of impact is crucial for the success of any impact funds. The financial returns attached to impact bonds directly depend on the impact created by the fund and hence a reliable measurement of the impact would be necessary to make the SSE dependable and sustainable.



# Fault Lines in Global Financial Stability: Reading the Global Financial Stability Report of October 2019

**Partha Ray**



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Each year in April and October, the International Monetary Fund (IMF) comes up with two of its flagship publications, viz., the *World Economic Outlook* (WEO), and the *Global Financial Stability Report* (GFSR), coinciding with the Spring and the Annual Meetings of the IMF. While the WEO is a product of the Research Department of the IMF, the GFSR is coordinated by the Monetary and Capital Markets (MCM) Department. Often in the media attention on the WEO, the coverage of the GFSR gets somewhat lost, perhaps unjustifiably. The recent GFSR, which was published on October 18, 2019, is an outstanding report with rich analytical content as well as well-informed market perception. Spanning over seven chapters and covering issues as diverse as, global corporate vulnerabilities, institutional investors, emerging and frontier market, banks' dollar funding, and sustainable finance, the report does justice both to the depth and the breadth of these issues. Many of these issues are beyond the scope of the current commentary. Instead, the present article looks into some fault lines of contemporary global financial stability, as revealed in the current GFSR.

## Major Fault Lines

At the risk of presenting broad generalizations, a look at the current trends of global financial markets reveal the following six broad trends:

1. In the backdrop of the US-China tariff war, there has been significant weakening of business sentiments.
2. Coupled with technology and geopolitical tensions, such erosion of business sentiments have led to increases in policy uncertainty.

3. This is perhaps best reflected in pronounced decline of long-term yield, which is largely seen as a leading indicator of a possible slowdown.
4. However, the equity market has shown some sort of irrational exuberance despite the low business mood.
5. The key to understanding the contradiction between the bond and equity markets can perhaps be traced in a shift toward “a more dovish monetary policy stance across the globe”. In particular, the futures markets tend to indicate that monetary policy rates are expected to be lower for “longer than anticipated at the beginning of the year”.
6. There has been huge increases in debt stock and a significant portion of outstanding debt stock are at *negative* yields.

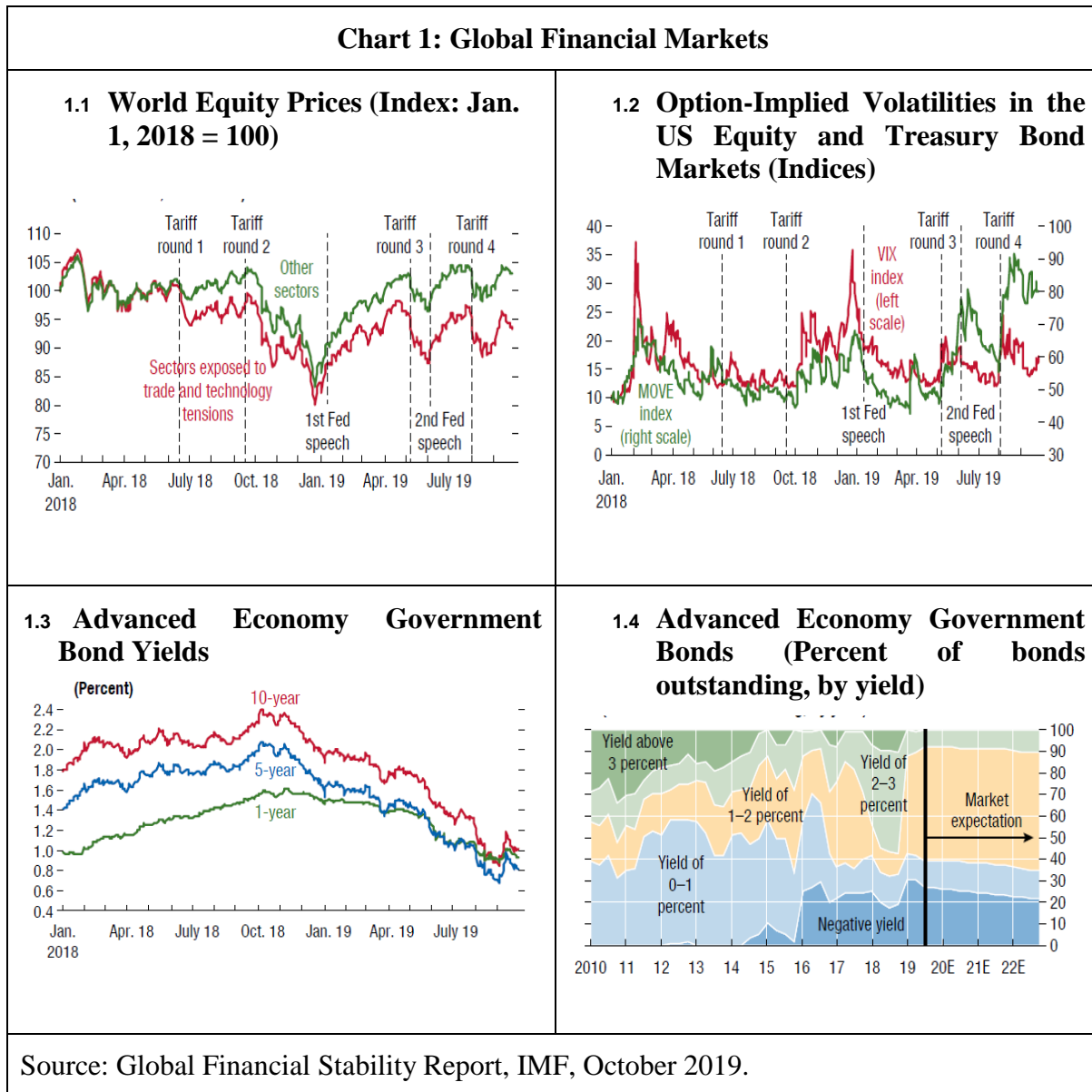
While all these trends seem to have profound implications for global stability, in specific terms this commentary points out to three major traits of the current global financial condition, as highlighted in the GFSR.

### Swings in Financial Markets

Global financial markets exhibited significant swings in recent period, reflecting interplay of two policy sources, viz., imposition of tariff on the part of the US on China, on the one hand, and the US monetary policy actions (both actions as well as intended), on the other (Chart 1). **For example**, there has been significant fall in global equity prices, **after US President Trump’s speech of May 29, 2018 when he categorically mentioned, “China has consistently taken advantage of the American economy with practices that undermine fair and reciprocal trade”** (Chart 1.1).<sup>6</sup> On the other hand, advanced economies governments’ bond yields of various maturities have experienced significant declines since October 2018. Of course, after converging to very low levels, in recent past there has been some increase (Chart 1.3).

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<sup>6</sup> The speech was followed by a **re-imposition of** a 25 percent tariff on all steel imports (except from Argentina, Australia, Brazil, and South Korea) and a 10 percent tariff on all aluminium imports (except from Argentina and Australia).



In consonance with the gyrations in the financial markets, there has been substantial increase in volatility as revealed by movements in option-implied volatilities in the US Equity and Treasury Bond Markets (Chart 1.2). Finally, along with flattening (and in some case inverting) of the yield curves, the amount of bonds with negative yields has increased to about \$15 trillion, “including more than \$7 trillion in government bonds from large advanced economies, or 30 percent of the outstanding stock” (Chart 1.4).

### Mr Powell versus Mr Trump: The Good Cop – Bad Cop Syndrome?

While the report is couched in the usual politically correct and conservative language of the IMF, there is a theme of the destabilizing effect of the tariff war and the stabilizing effect of the US monetary policy, running

underneath the report. All actions / speeches of the US Fed Chairman have typically been followed up an upbeat mood in financial markets. Illustratively, after the US Fed Chairman, Mr Jerome Powell spoke on “Economic Outlook and Monetary Policy Review”, on June 25, 2019 at the Council on Foreign Relations, New York, the world equity prices increased significantly and volatility reduced. Interestingly, instead of announcing any tangible policy decisions, he went to say:

“We did not change the setting for our main policy tool ...but we did make significant changes in our policy statement. Since the beginning of the year, we had been taking a patient stance toward assessing the need for any policy change. We now state that the Committee will closely monitor the implications of incoming information for the economic outlook and will act as appropriate to sustain the expansion, with a strong labor market and inflation near its symmetric 2 percent objective”.<sup>7</sup>

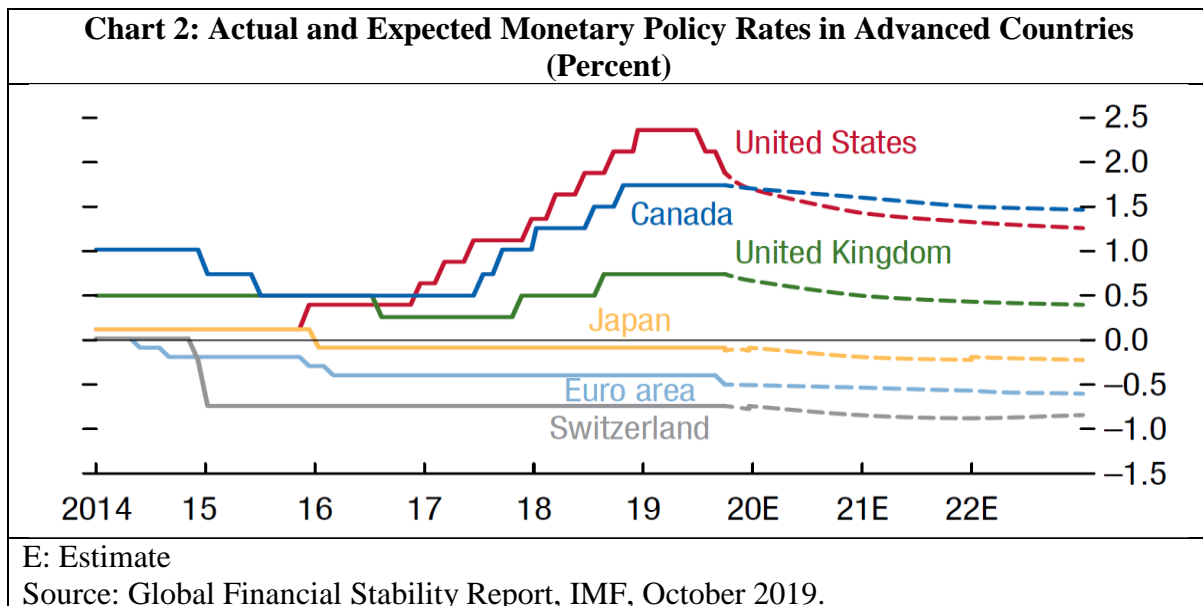
Does this mean the global uncertainties created by the trade and technology war between the US and China be countered solely by the arsenal of monetary policy? The answer at best is still couched in mystery. Interestingly, all the major central banks have adopted an easy money stance in 2019 (Chart 2). Significantly three major central banks, viz., Japan, Euro Area and Switzerland have negative policy rates; these are expected to continue at least for next three years. In some cases, the extent of negative interest rates has got accentuated. Illustratively, on September 12, 2019, the European Central Bank reduced the interest rate on its deposit facility by 10 basis points to (-) 0.50 per cent.<sup>8</sup>

Are the expectations from monetary policy too much? Can the negative effects of a trade war be countered by an overtly accommodative monetary policy? Does monetary policy has Atlas-like quality and has been condemned to hold up the celestial heavens for eternity? All these questions assume importance. In fact, a case in point is the recent spat between President Trump and Fed Chairman Powell. Reportedly, Mr. Trump called the US monetary policy “insane” and added that Mario Draghi, President of the European Central Bank, should take the helm instead (*Financial Times*, June 26, 2019).

<sup>7</sup> Available at <https://www.federalreserve.gov/newsevents/speech/powell20190625a.htm>

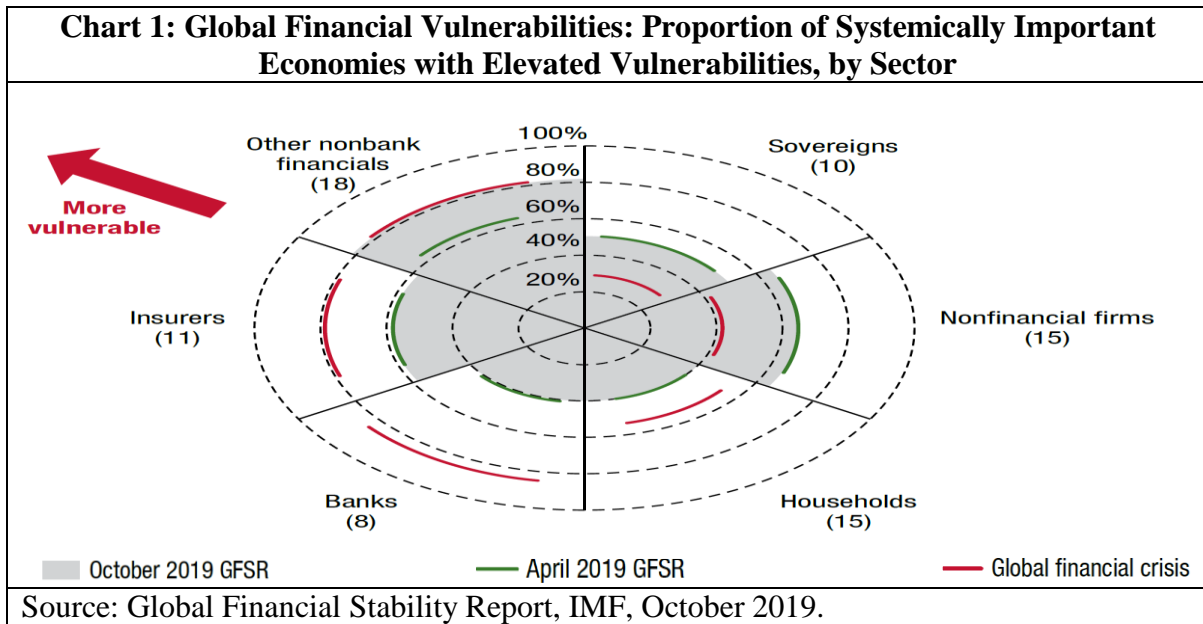
<sup>8</sup> The interest rate on the main refinancing operations and the rate on the marginal lending facility have, however, remained unchanged at their current levels of 0.00 per cent and 0.25 per cent, respectively.





### Build-up of Financial Vulnerabilities

Accommodative monetary policy has its limitation. GFSR made a detailed sectoral and country-specific analysis of financial vulnerabilities and noted, “The prolonged period of accommodative financial conditions has pushed investors to search for yield, creating an environment conducive to a buildup of vulnerabilities.” Chart 1 below reports the financial vulnerabilities for six specific sectors, viz., banks, households, non-financial firms, Sovereigns, other non-bank financials, and insurers. Vulnerabilities of other non-bank financial entities seem to have increased since April 2019. In particular, among *other nonbank financial entities*, “vulnerabilities are high in 80 percent of economies with systemically important financial sectors, by GDP” and at a level that was attained during the global financial crisis. This could be due to an increase in leverage and credit exposures in the US and the Euro Area where institutional investors, in their quest for maximizing yield and targeted return, could have taken on riskier positions.



### Concluding Observations

One of the lessons from the global financial crisis is perhaps that vulnerabilities get built during good times. We do not know whether the current situation when the threats of trade war looms large, and bond yields have gone to very low levels (perhaps indicating global slowdown) can be termed as good times. But, the burdens of rising corporate debt, increasing holdings of riskier and more illiquid assets by institutional investors, and external borrowing by emerging and frontier market economies may not be nullified by accommodative monetary policy alone. All these are omens in the apparent exuberance in select segments of global financial markets. Thus, in some sense the GFSR seems to be cautiously pessimistic and warn us about the bad old days to come.



# Liquidity Risk Management Framework for NBFCs – Fixing the Broken House!

## Arnab Bhattacharya



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On 4<sup>th</sup> November, 2019, the Reserve Bank of India (RBI) revised the liquidity risk management framework for the Non-Banking Financial Companies (NBFCs) and Core Investment Companies (CICs). The guidelines earmarked the roles and responsibilities of NBFCs in managing their liquidity risks and implementing the Asset Liability Management (ALM) framework under normal as well as distressed liquidity market conditions. In the following paragraphs, the core components of the regulatory guidelines for liquidity risk management framework of NBFCs is discussed, along with their broad implications:

### **Governance of Liquidity Risk Management**

The RBI regulatory guidelines placed significant emphasis on the governance of liquidity risk management by putting the responsibility for management of liquidity risk on (a) the Board of Directors, (b) Risk Management Committee, (c) Asset Liability Management Committee (ALCO) and (d) Asset Liability Management (ALM) Support Group. To further elaborate, first and foremost, the RBI guidelines placed the overall responsibility of managing the liquidity risk of NBFCs with their Boards, and in accordance, proposed that the Boards should decide the strategy, policy and procedures of the NBFCs as per the liquidity risk tolerance limits set by them.

Thereafter, the responsibility for evaluation of overall risks faced by the NBFCs including the liquidity risk was assigned with the Risk Management Committee, which would be comprised of the Chief Executive Officer (CEO), Managing Director (MD) and Heads of various risk divisions. In addition, the Asset-Liability Management Committee (ALCO) would be entrusted with the responsibility for adherence to risk tolerance limits as set by the Board as well as the implementation of the liquidity risk management strategy of the NBFC. As per the RBI directives, ALCO need to be comprised of top management of the NBFC, and would be responsible for making decisions on desired maturity profile and mix of incremental assets and liabilities, sale of assets as source of funding and overall structure and strategy of liquidity positions and liquidity risk management at each of the NBFC branch levels. Finally, the Asset Liability Management (ALM) Support Group would be consisting of operating staff to analyse, monitor and report the liquidity risk profile to the ALCO.

## Product Pricing and Off-Balance Sheet Exposures Consistent With Liquidity Risk Tolerance

The RBI guideline emphasized the need for a NBFC to clearly articulate its liquidity risk tolerance which is consistent with its business strategy and product focus, such that it could identify, measure, monitor and control its liquidity risk in accordance with such risk tolerance and ensure sufficient liquidity during its daily operations, both under normal and stressed market conditions. In this regard, RBI urged the NBFCs to incorporate the liquidity costs and benefits in its internal product pricing mechanism and evaluate the trade-offs during the new product approval process for all of its product and services related business segments.

The guidelines further emphasized the need for careful evaluation of liquidity risks arising out of off-balance sheet exposures, contingent liabilities and Intra-group Transactions and Exposures (ITEs). In this regard, it was suggested that the NBFCs should develop a robust framework to estimate the cash flows arising from assets, liabilities and off-balance sheet items over appropriate time horizons, including the impact of risk exposures on account of Special Purpose Vehicles (SPVs), financial derivatives, guarantees and commitments on liquidity risk of NBFCs. In the same manner, the guidelines also suggested NBFCs to recognize likelihood of enhanced liquidity risks arising due to Intra-group Transactions and Exposures based on complexity, risk profile and scope of operations of companies affiliated to the business group. The greater scrutiny and heightened regulatory focus on Intra-group Transactions and Exposures (ITEs) of NBFCs could have emerged in the immediate aftermath of series of credit defaults by Infrastructure Leasing & Financial Services (IL&FS) Group of companies.

## Introduction of Liquidity Coverage Ratio (LCR) for Liquidity Risk Management

In line with the Basel compliant norms for the banking sector, the RBI guideline mandated all Non-Deposit taking NBFCs with asset size of INR 100 billion and above, and all Deposit taking NBFCs to maintain a liquidity buffer in terms of Liquidity Coverage Ratio (LCR) to ensure that NBFCs have sufficient High Quality Liquid Assets (HQLA) to withstand any acute liquidity distress scenario lasting for 30 days. The LCR requirement would be binding on NBFCs from December 2020 onward, as the following progressive LCR requirements:

<b>Regulatory Timeline</b>	<b>December 2020</b>	<b>December 2021</b>	<b>December 2022</b>	<b>December 2023</b>	<b>December 2024</b>
Minimum LCR	50%	60%	70%	85%	100%

The Liquidity Coverage Ratio (LCR) is defined as the stock of High Quality Liquid Assets (HQLA) divided by the Total Net Cash Outflows over next 30 calendar days. HQLA refers to liquid assets, which can be easily converted into cash at close to its intrinsic value, or used as collateral to raise funding during a period of financial distress. Thus, the basic purpose of mandating the LCR requirement on the NBFCs is to ensure that NBFCs have adequate level of liquidity safeguards in the form of HQLA in order to meet its liquidity needs for a period of 30 calendar days, even under major market disruption scenarios.

As per the guidelines, HQLAs are required to be low credit and market risk instruments having low valuation uncertainty and pricing complexity, low correlation with valuation of risky assets and publicly listed on any recognized

stock exchanges. Further, HQLAs are financial instruments with active and large secondary markets which have dedicated market makers, low level of market concentration and are likely to get benefited from flight to quality capital movements under situations of broad systemic crisis.

Assets such as cash, government securities and marketable securities which are assigned zero risk weight by banks under standardized approach for credit risk may be considered in the computation of HQLAs for a NBFC at their fair value without any haircut. However, for certain other securities such as Corporate Bonds, Commercial Papers and Common Equity shares, haircuts between 15% to 50% may be applicable, depending upon the risk weight by banks under standardised approach for credit risk, credit rating of the financial instrument and nature of liquidity in the traded market of the financial security during a relevant period of significant liquidity stress.

### **Diversified Funding Strategy and Contingency Funding Plan**

Diversified funding strategy and Contingency Funding Plan (CFP) have been among the key focus areas of this RBI regulatory guideline for NBFC liquidity risk management. As per the RBI directives, the NBFCs are required to develop a funding strategy that is diversified across both source as well as tenor of funding, so that it can avoid over-dependency on a single source of funding. This is particularly important, as the NBFCs had been heavily dependent on Money Market Securities such as Commercial Papers (CP) or Certificate of Deposits (CD) for their funding requirements, thereby exposing themselves to significant liquidity risk factors emerging from Asset Liability mismatch particularly during distressed money market conditions.

In terms of Contingency Funding Plan (CFP), the NBFCs would be required to formulate contingency plans containing details of potential sources and estimated amounts of contingency funding, along with expected lead time required to raise additional funds under distressed liquidity conditions. Given the inherent uncertainty and significant volatility of the market conditions, NBFCs would require a robust stress testing framework to simulate short-term as well as longer-term NBFC-specific and systemic liquidity stress scenarios where in a wide range of assumptions about the strength of NBFC operating business, financial conditions and macro-economic factors could be taken into consideration. In future, it is plausible that NBFCs would require to engage in significant employee skill building and competency enhancement exercises for this purpose, either through in-house or externally supported training and management development programs conducted by academic experts and industry professionals in the banking domain.

### **Public Disclosure Requirements Related to Liquidity Position and Liquidity Risk Management**

RBI mandated the NBFCs to publicly disclose the Liquidity Coverage Ratio (LCR) related details including the level of High Quality Liquid Assets (HQLA), and break-up of expected cash inflows and outflows over next 30 days on a quarterly basis to enable the market participants to make an informed decision about the quality of liquidity position of the NBFC, and the soundness of its liquidity risk management framework. The enhanced public disclosure requirements are likely to assist the Credit Rating Agencies (CRAs) in evaluating the credit instruments issued by the NBFCs, and enable the portfolio managers of the Asset Management Companies (AMCs) in making better investment decisions, thereby putting additional capital market induced disciplinary pressures and monitoring oversight on the NBFC Board as well as their Top Management.



## **Granular Maturity Profiling enabled by Robust Management Information System**

The RBI guidelines have put down responsibilities on the NBFCs to develop a reliant Management Information System (MIS) which can provide timely and forward-looking information on the liquidity position of the NBFC and the Group to the Board and the ALCO, both under normal and stressed market scenarios, by capturing all possible sources of liquidity risks and gathering granular and time-sensitive information, particularly during stress events.

An important element of the granular, time-sensitive information is the granular maturity bucket, which can be used for maturity profiling to estimate cumulative surplus or deficit of funds at various maturity dates for measuring the future cash flows of NBFCs in different buckets. For example, the guidelines mandate the NBFCs to segregate the 1 to 30 day time bucket into granular buckets of 1 – 7 days, 8 – 14 days and 15 – 30 days. This is expected to enable the NBFCs to estimate their short-term liquidity requirements on the basis of their business projections and other commitments for planning purposes as well as monitor their short-term liquidity risk on a dynamic basis over next 1 day to 6 months. The guidelines also require the NBFCs to restrict the net cumulative negative mismatches in the maturity buckets of 1 – 7 days, 8 – 14 days and 15 – 30 days to a maximum of 10%, 10% and 20% of the cumulative cash outflows in the respective time buckets.

## **Liquidity Risk Monitoring Tools**

The RBI guidelines have emphasized on three critical liquidity risk monitoring tools for the NBFCs: (a) The first measure would identify the level of concentration in the funding channel of the NBFC so that withdrawal of any dominant funding source does not pose as a major liquidity risk problem for the entity. (b) The second measure would identify the amount of available unencumbered assets which could be used as collateral to raise additional secured funding in secondary markets in the event of an unforeseen liquidity disruption event. (c) Finally, a high-frequency measure of market data would be adopted to monitor news and capture information related to financial leverage, shape of yield curve and even breach or penalty in respect of regulatory requirements to serve as early warning indicator for potential liquidity concerns for the NBFCs.

## **Summary of Causes and Consequences**

The NBFC sector has recently witnessed a major liquidity turmoil, with potentially significant adverse cascading effects even for the real economic sector. Since the banks were already burdened with high level of Non-Performing Assets (NPAs), the credit growth required to boost the level of economic activity in the real sector was critically dependent on the shadow banking channels for financing the consumption demands of the retail consumers as well as the investment needs of the corporate entities, particularly in the real estate, infrastructure and consumer durables sector. Unfortunately, a series of credit defaults by the NBFCs beginning with Infrastructure Leasing & Financial Services (IL&FS) Group, and subsequently Dewan Housing Finance Limited (DHFL) and Altico Capital, triggered a major credit market disruption,

which increasingly threatened to pose as a systemic risk factor both for the private consumption and corporate investments which are heavily dependent on NBFC financing channels. In turn, the slowdown in real economy along with asset quality deterioration in NBFC balance sheets would impact the core banking sector which had exposures to both the NBFCs as well as the consumer and corporate borrowing markets.

The RBI guidelines on the liquidity risk management framework of the NBFCs would serve to address some of the key shortcomings in the financial as well as operational strategies of the shadow banking sector. There are three major areas that can be highlighted in this respect: (a) The introduction of Liquidity Coverage Ratio (LCR) for liquidity risk management of NBFCs, in conjunction with public disclosure requirements related to liquidity positions and necessary diversified funding strategies and Contingency Funding Planning (CFP) to be adopted by the NBFCs are likely to significantly improve the status-quo, and force the NBFCs to manage their liquidity risks much better during future distressed liquidity market conditions. (b) While the regulatory onus of liquidity risk management has been rightly placed on the Board and Top Management of NBFCs, with the added support of Risk Management Committees, Asset Liability Management Committee (ALCO) and Asset Liability Management (ALM) Support Groups, the implementation of a prudent risk management culture and enforcement of the management responsibility in the event of corporate malpractices would continue to remain a challenge, particularly in the absence of an effective and time-bound Insolvency and Bankruptcy resolution process for the NBFCs. (c) The technical aspects of internal product pricing and estimation of off-balance sheet exposure consistent with liquidity risk tolerance of NBFCs, granular maturity profiling of estimated cash inflows and outflows enabled by management information systems adopted by the NBFCs, and the liquidity risk monitoring tools designed to pro-actively capture upcoming signs of firm-specific or market-wide distress factors would require significant investments in improving the knowledge and understanding of NBFCs around potential causes and consequences of the financial market and liquidity risk related factors. Academic experts and industry professionals may provide valuable guidance in upgrading the intellectual capital of NBFCs to manage this major transformation through various skill building exercises and in-house training and management development programs. For the time being, the Reserve Bank of India (RBI) deserves to be commended for proposing this time-bound and comprehensive regulatory framework that may go a long way in fixing the prevailing regulatory blind spots in the shadow banking sector, and eventually revive the recently observed sluggish growth in the domestic financial sector.

#### **Sources of Reference Materials:**

- (a) Reserve Bank of India (RBI) Press Release dated 4<sup>th</sup> November, 2019.
- (b) Bloomberg, NSE / BSE Websites.

**ALUMNI CORNER**

# Insolvency and Bankruptcy Code, not a panacea for Non-Performing Assets

**Balachandran R**

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Among the many headwinds facing banks and financial institutions (FI's) on account of burgeoning non-performing assets, corporate malfeasance, slowdown in the economy, delays in NPA resolution through the Insolvency and Bankruptcy Code, etc., the latest to catch the attention of the financial markets and the media is the risk faced by banks/FI's on account of mismatch between the maturity profile of assets and liabilities, known as liquidity risk. This has become an increasingly important parameter for the assessing a bank/FI.

**Why assess the performance of banks?**

Lenders to a bank need to assess its credit worthiness i.e. ability to repay its obligations. The retail fixed deposit investor, constituting the primary lender to a commercial bank, may not have the wherewithal to assess the bank's credit risk. However, institutional lenders, which invest in a bank's Certificate of Deposit/Additional Tier 1 bonds/Tier 2 subordinate bonds, lend it money in the interbank call money market, confirm the bank's Letter of Credit etc., need to gauge the ability of a bank to meet its obligations, arising from any of these transactions.

**An otherwise "strong" bank/NBFC can still fail**

The CAMELS framework specifies capital adequacy, asset quality, management, earnings, liquidity and sensitivity to market risk, as the parameters for assessing a bank. In addition, credit deposit ratio, cost income ratio, net interest margin etc are some of the other ratios for measuring the performance of a bank.

A bank or a non-banking finance company may be profitable, strongly capitalized/solvent, with low NPA's but can still default/fail if it does not have adequate liquidity to meet its maturing obligations. In a recent case, a finance company with pedigreed investors including private equity firms and led by a management with impeccable credentials, defaulted, despite 43 percent capital adequacy and scoring well on most other parameters. A reason cited obliquely is that the default happened on account of a private sector bank "selfishly" seizing the company's liquidity kept in the bank's account in good faith, to settle the bank's own lending, thereby precipitating a crisis. Though this allegation has neither been confirmed nor refuted, it remains a fact that after

the much reviled ILFS's downfall, other financial services players too have reached a critical situation, on account of being unable to manage liquidity risk.

### **Why incur liquidity risk?**

A significant reason is the shape of the yield curve. The classic yield curve is upwardly sloping, with lower rates at the short end and higher rates at the long end of the curve. This provides an incentive to banks/NBFC's to borrow for short tenor, at a lower cost, and lend for long tenor, at a higher yield. In fact, maturity transformation i.e. transforming short term deposits into long term loans is the *raison d'être* of banks. A consequence of this, is the mismatch between the maturity profile of assets and liabilities, resulting in liquidity risk.

So how do we measure liquidity risk?

### **Liquidity risk measurement**

The Reserve Bank of India expects banks to draw up and report a statement classifying maturing assets and liabilities into various time buckets, and calculating the mismatch (or gap) between outflows and inflows in each bucket. Banks need to ensure that the cumulative negative mismatch in the first four buckets i.e. 0-1 day, 2-7 days, 8-14 days, 15-28 days, does not exceed 5%, 10%, 15% and 20% respectively of cumulative outflows in each bucket. Obviously the first bucket presents clear and immediate danger, hence mismatch cannot be more than 5%. In the event that it exceeds this figure banks should spell out their plans to bring the mismatch within the specified limits. Banks can meet their overnight liquidity requirement on account of such mismatch by borrowing in the interbank call money market, avail liquidity from the Reserve Bank of India through repo, borrow through the Triparty Repo System (TREPS) operated by the Clearing Corporation of India, etc. If these options are exhausted/not available, RBI provides an emergency window to banks in the form of Marginal Standing Facility (MSF), for borrowing up to a specified extent, by dipping into SLR securities.

### **Managing liquidity risk**

Banking as it now exists follows the fractional reserve banking model. A bank needs to hold a fraction of its deposits with the central bank, in the form of "required reserves" to meet contingencies. It is 4% of Net Demand and Time Liabilities in India (also known as CRR, Cash Reserve Ratio) and 10% in the US.

Interestingly, there was a proposal to start a "Narrow Bank" in the US, which would invest all its deposits exclusively with the Federal Reserve in the United States, which pays interest on excess reserves unlike the RBI in India. This appears to defeat basic commercial banking objectives, and the bank's request for a license to operate has not made progress.

In India, banks also need to keep 18.75% (to be reduced to 18% progressively) of their Net Demand and Time Liabilities in the form of liquid investments, i.e. cash, gold and government securities, constituting the Statutory Liquidity Ratio (SLR). This reserve is for a rainy day, in the event of a run on the bank.

The Basel Committee on Banking Supervision, has come up with a Liquidity Coverage Ratio (LCR), adopted by the RBI in India as well. Banks should have sufficient high-quality liquid assets to meet net cash flows in a 30-day stressed scenario. LCR should be at least 100%. Retail deposits are encouraged, and are largely expected to remain with the bank, while financial wholesale/bulk deposits are expected to fly out in entirety, in a stressed scenario.

### **Interest rate risk**

Asset liability mismatch also results in interest rate risk. The Basel committee has published elaborate standards on “IRRBB” i.e. Interest Rate Risk in the Banking Book, and the need for setting aside capital for this risk as part of Pillar 2 capital requirements. Banks are expected to measure and disclose impact on their net worth/market value of equity, under six different interest rate shock scenarios, and impact on net interest income under two interest rate shock scenarios. The Reserve Bank of India requires banks to measure impact of interest rate changes on their earnings through the Traditional Gap Approach and impact on net worth through Duration Gap Approach, and have appropriate internal limits, approved by the Board.

In an ideal world, a bank with 100% mix of floating rate loans and deposits with frequent resets, is unlikely to face interest rate risk. Factors like the shape of the yield curve, nature of retail deposits (largely fixed) and loans (predominantly floating) preclude such an idealistic scenario.

### **NBFC's and liquidity risk**

Non-banking finance companies in the eye of the storm now for liquidity issues, are also subject to the regulator's ALM standards. RBI recently extended Liquidity Coverage Ratio requirement to them. However, the central bank which acts as the lender of last resort to banks, does not extend the same facility to NBFC's.

Securitisation has been a preferred route adopted by NBFC's for meeting liquidity requirements. The bankruptcy remote structure of the Special Purpose Vehicle/Trust created for holding securitised assets suffered a major setback due to a recent judicial ruling. The Court has now set aside its previous judgement and restored the sanctity of the securitised assets, though some questions still remain.

The non-banking financial institutions have learnt some lessons the hard way, on liquidity risk, in the aftermath of the crisis stemming from the ILFS collapse. One of India's leading private sector banks too, faced a run on it,



from retail depositors, following its exposure to Lehman brothers and its spectacular bankruptcy. RBI stood with the bank, on account of its systemic importance and possibility of a contagion effect on other banks. While this played out a decade back and there have been no subsequent cases of a commercial bank facing a run, banks will do well to pay heed to the current predicament faced by NBFC's and have a robust ALM strategy in place, to mitigate liquidity risk. Merely complying with central bank/Basel norms in letter will not suffice, as demonstrated during the 2018-19 NBFC crisis.

*Author's note: this article aims to provide a perspective on liquidity risk and interest rate risk faced by banks and FI's and current developments on this subject. It does not purport to be a comprehensive/accurate guide to the regulations governing Asset Liability Management. Readers may refer to the website of the Reserve Bank of India and that of the Basel Committee for applicable guidelines/standards.*

*VOICE OF AMERICA*

# Designing Mechanisms for Policy

**Ayan Bhattacharya**



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As part of its efforts to revive the economy, the Government of India recently announced a major cut in corporate taxes – from 30% to 22% for older companies, and from 25% to 15% for new manufacturers. A motivating factor for the lower bracket for new manufacturers was presumably the desire to court supply chains forced to relocate under the heat of the US-China trade war; most of the east Asian countries have tax rates below 20%. The broad cuts were welcomed widely; however, an unintended consequence in the short term seems to be a pause in big capital expenditure projects from older companies. It might after all be more lucrative for such older companies to incorporate new units to take advantage of the 22% versus 15% arbitrage opportunity, if the rules could provide wiggle room for it, and firms are not ready to take the leap until they are sure. The unequivocal winners seem to be the tax lawyers who have been employed in their hordes to pore over the fine-prints of the announcements.

Economists have been troubled by the law of unintended consequences for a long time. In fact, such concerns figure prominently in the writings of the forefathers of modern economics like John Locke and Adam Smith in the 17th and 18th centuries. Yet, it was only with the inauguration of the modern field of mechanism design and implementation theory in the latter half of the 20th century that we finally managed to get a technical glimpse at how this law operates. Even then, our understanding remains limited at best, and many of the best minds in economics in recent years have been working on pushing the frontiers of this field.

## **1. The 2007 Nobel**

The citation for the 2007 Nobel memorial prize in economics, awarded to Leonid Hurwicz, Eric Maskin and Roger Myerson, read:

[...] Many transactions do not take place in open markets but within firms, in bargaining between individuals or interest groups and under a host of other institutional arrangements. How well do different such institutions, or allocation mechanisms, perform? What is the optimal mechanism to reach a certain goal, such as social welfare or private profit? Is government regulation called for, and if so, how is it best designed? [Press Release, Royal Swedish Academy, 15 October 2007]

This Nobel was an award celebrating the founders of modern mechanism design theory – also called the theory of design of economic institutions. Hurwicz was 90 when he got the award, the oldest laureate in economics, and such recognition and adulation was a far cry from his early days, when as a young Polish mathematician in the 1940s, he had to wander from institution to institution trying to find a safe haven from Nazi man-handlers. Part of the reason for the wandering was also because he had started to work on a mathematical theory of incentives, based on game theory, that few people at the time could fully appreciate. In the intervening decades, economists gradually came around to acknowledging the power of Hurwicz's vision. A number of missing links were later clarified by Roger Myerson, as he developed his theory of optimal mechanisms, and Eric Maskin, as he pioneered the area of implementation theory, and today, the concepts these researchers invented – like incentive compatibility or individual rationality – are part of the lexicon of any serious economist.

## 2. Mechanism Design

It is easy to see the basic idea behind mechanisms through an example. In the Hebrew Bible, King Solomon is presented with a dilemma when two women approach him, each claiming to be the mother of an infant. Who is the real mother, courtiers wonder, as the wise king ruminates on what to do. A similar story is popular in the Birbal fables, where the two women beseech emperor Akbar, who in turn enlists Birbal's help. In modern terms, Solomon or Akbar were assigned mechanism design problems: they must create rules of a game such that the mother gets her baby while the impostor gets punished. At a certain level, all economic interaction can be interpreted as gameplay between economic agents. Mechanism design is then the study of rule-making such that the objectives of the designer are met. In the case of Solomon or Akbar, the objective is to give the baby to the mother and punish the deceiver. In case of the government of India, the objective is to revive investments in the economy.

Mechanism design is hard because the rule designer does not have all the information that the agents playing the game have and wants to avoid unintended consequences. Solomon does not know who the real mother is, and if he were to simply ask the two women, both would claim to be mother (one is lying). Thus, the rules that a designer puts into place need to subtly embed a way of eliciting the truth from agents. Roughly, this corresponds to what economists call incentive compatibility. The government's tax slabs do not appear to be incentive compatible because older firms have an incentive to lie their age (in other words, incorporate new firms for capex) to take

advantage of the difference in tax rates. Solomon and Akbar, on the other hand, came up with incentive compatible solutions. They declared that the baby would be cut into two – one half for each mother. At this, one of the women cried out in horror, giving up her claim and begging that the child not be hurt. The kings immediately declared this woman as the true mother, and the impostor was put into jail. The intention to cut up the child into two was the subtle ruse that the kings used to elicit the truth from the women.

### 3. Implementing Mechanisms

Over the years, economists have developed several tools to solve various kinds of mechanism design questions. Many of these techniques work in specially constructed, abstract mathematical spaces (all the three laureates were doctorates in mathematics). So, the way one goes about solving these mechanism design questions is by first translating the actual problem into the appropriate abstract setting that holds most promise, and then applying already available tools in that abstract space to simplify and solve the problem. One of the most famous translation tools goes by the name “Revelation Principle,” discovered by Roger Myerson, which gives a workaround to the complications that arise from agents lying in the game.

Once one has a solution in the abstract space, it needs to be converted back to its original, actual setting. This is the problem of implementation, a hard problem in its own right. The foundations of implementation theory were laid by Eric Maskin in the late 1970s as he followed up on Hurwicz’s early ideas. The key insight goes by the name of “Maskin monotonicity,” and defines a property that social rules need to have if they are to be implementable. King Solomon and Akbar found clean, implementable solutions to their problem: the two women reacted differently, and the impostor was punished. The government’s revised tax policy, however, requires a lot of extra actors for implementation: legal consultants and enforcers who will need to verify age of firms, and punish those that exploit loopholes. The more the number of actors that need to be involved, the higher the likelihood of slippage in implementation.

### 4. Mechanism Design for Policy

Mechanism design questions crop up in all areas of economic life on a regular basis. How do we allocate limited resources like mobile bandwidth? How do we design support prices for agricultural produce? How do we create rules for foreign firms operating in a country? How do we design tax policies to support welfare? The list goes on. In many advanced economies like the US or European Union, at first brush, research active economists are called upon to work on the thorny mechanism design questions implicit in these problems. For example, one of the most complicated auction mechanisms in recent times – where the US government bought back unused bandwidth from television operators and sold it off to internet operators within the same auction – was designed

by Paul Milgrom, a highly respected auction theorist, and his team at Stanford University. Often, such original research solutions go on to establish new paradigms of thinking in economic theory.

As India advances in economic strength, it is likely that the country will face many new and unprecedented questions in economic design. The traditional approach in India has been to rely on a cadre of generalists – the Indian Administrative or allied services – to come up with solutions. Yet, as the economy gets more developed and specialized, such problems will go beyond the ken of the all-purpose generalists. For economic policies to be successful, they will need the imprimatur of brilliant, thinking economists. Such a cadre needs to be developed in India's policy benches sooner rather than later.

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