CHANGING FINANCIAL ARCHITECTURE

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with support from
Rosa Luxemburg Stiftung

December 2022

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Published by
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This publication is sponsored by the Rosa Luxemburg Stiftung with grants from the Federal Ministry for Economic Cooperation and Development of the Federal Republic of Germany.

New Delhi, December 2022

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1. INTRODUCTION

Financial System & Financial Architecture

Does configuration or reconfiguration of a nation's financial system,[1] which is comprised of financial institutions and markets, imply its growth and welfare? The question has a lot of gravity since it helps reconfiguring and/or re(formatting) reforms if the answer is in the affirmative. Such reforms help policy makers plug into the national economy and furthering its linkages on the global scale. The financial system primarily deals with transactions between surplus- and deficit-units. In an ideal situation, such a transaction takes place efficiently, but the reality is far from ideality. Yet, economic development is closely linked with financial architecture[2], in that the latter maneuvers the drivers of country's economic development. In this era of globalization, the national economies are more or less tightly coupled to form a vast network of increasingly voluminous cross-border financial flows and growing integration of capital markets across borders. This is referred to as Financial Globalization, which in itself is an attributable subset of economic globalization that involves goods & services transcending national boundaries, while simultaneously catalyzing the reduction of policy barriers to such transactions. Financial Globalization, thus is a phenomenon that is susceptible to crests and troughs inexorably due to the strong coupling of national or regional economies. But, there are challenges, a disequilibrium between the global scale of Financial Globalization (as well as Economic Globalization) and national (or regional) scale of control and accountability. Even if there is a robust and healthy development on the national or regional scale, there is an absence of a global authority to enact such robustness or health to international scale. It is to fill this gap or normalize this disequilibrium that Financial Architecture is employed. In other words, Financial Architecture is devised to bring about a procedural order to international financial system.

History of International Financial Architecture

That economic cooperation between nations was an indispensable necessity cannot be questioned, but the terrain shifted towards stability from the middle of the last century. But, the real genesis of Financial Architecture is said to have begun with the Gold Standard from the third quarter of the 19th century until the outbreak of the First World War in Europe in 1915. Gold Standard[3] was a monetary system under which nearly every country fixed the value of their currencies in terms of a specified amount of gold, or linked it with the currency of a country that did so. This facilitated a free convertibility of domestic currencies into gold at the fixed price and there was no restriction on import or export of gold. As each currency was fixed in terms of gold, exchange rates between participating currencies were also fixed. The Central Bank(s) had two overriding monetary policy functions under the Gold Standard, viz.

1. Maintaining convertibility of fiat currency[4] into gold at the fixed price and safeguarding the exchange rate.

2. Adjusting to a balance of payments which was often found in breaches.

The First World War ravaged economies and in order to revive the same, countries engaged in competitive devaluations to get an edge over the others in the prevailing unrestricted trade environment. This collectively depressed the international economy leading to the abandoning of the Gold Standard in 1931.[5] The Peace Treaty signed at Paris at the end of World War-1 had severe lacunae, and singled out Germany for perpetrating the war. This only reinforced hostility. The Great Depression and protectionism it engendered catalyzed the rise of National Socialism or the Nazi Party and right-wing populism leading to imperialist tendencies and the Second World War. Towards the end of the War, a series of concerted efforts were made to bring order to the international monetary system. One such effort was the Bretton Woods Conference, officially known as the United Nations Monetary and Financial Conference held at Bretton Woods, New Hampshire, US where 44 countries met from 1 - 22 July 1944. Three broad agreements were reached here, viz.

1. All national currencies were to be tied to the US Dollar, which, in turn, was pegged to Gold at the rate of USD 35 an ounce,

2. Capital controls[6] introduced during the War were to remain in place, and International Monetary Fund (IMF) and the World Bank (WB) were to be founded.

Even if the value of the Dollar was fixed in terms of gold, the peg could still be adjusted as a correctional measure to set order to a disequilibrium in the balance of payments, but only in accordance with the Articles of Agreement of the IMF. The system worked well as long as the US enjoyed a healthy Current Account Surplus (CAS), but reversed when there was over-financing of exports by the US, in addition to picking up of economic steam in the war-torn countries. This combination led to a Dollar glut strengthening the role of Dollar as a currency on the one hand, and loosening grip of the Federal Reserve on money supply and consequent inflation on the other. This led President Richard Nixon to severe the link between the Dollar and Gold in 1971. This delinking led to a crisis, and in order to stabilize the fissures caused in the international monetary system as a result of the delinking, a Smithsonian Agreement[7] was reached in December 1971 that devalued the US Dollar by 8.5% relative to gold, and raising the price of an ounce of gold from $35 to $38. As a result of this, the G-10 agreed to revalue their currencies against the Dollar. However, this re-institution of a system of stable exchange rates at new par values[8] was only a temporary fix, as the par value system continued to deteriorate. This was primarily caused by speculators pushing up currencies against their higher-valuations, and consequently driving up higher the value of gold. When in 1973, the US devalued the Dollar by 10%, the price of gold per ounce shot up to $42. This divergence caused the system to collapse. By then, most of the European Economic Cooperation (EEC) countries and Japan had already moved their currencies from a fixed to a floating system. It was generally believed that this was carried out to control speculation and capital shifts, but it proved to be the end game for the system of par values, and eventually signaled the end of the Gold Standard with the currencies subject to the vicissitudes of demand and supply, in short guided by market forces.

The decade of the 1970s was marked by syndicated bank lending, when the loans were provided by a syndicate (group of lenders). A significant portion of the loans were channeled towards Latin American countries. In the October of 1973, the world was hit by what has come to be known as the First Oil Shock that was spurred by the Yom Kippur War. The oil crisis skyrocketed inflation or vicious price spiral directly impacting the global economy. Due to the governmental intervention in prices, the oil companies were unable to cover the rise in crude oil prices by increasing product prices, putting pressure on the pricing structure that was focused on income from gasoline alone.[9] The oil crisis seriously impeded the US economy as well as economies of the developing world. As the US was importing more than half its oil from OPEC (Oil and Petroleum Exporting Countries), the crisis struck the inflationary chord resulting in massive transfer of wealth to OPEC in the form of petrodollars. Meanwhile, the developing countries that had banked heavily on oil imports to run their economies were beginning to face a massive BoP (Balance of Payments) concerns. The IMF, which had originally been designed for just such a crisis had limited funds, which in turn were governed by constraining conditions. A desperate rescue plan was rolled out from the recycling of petrodollars. OPEC was flushed with petrodollars and many of the member nations had a limited absorptive capacity, compelling OPEC to park their petrodollars with US and European banks, which then used these petrodollars to loan developing countries. This swelled the debt of the developing world. Towards the end of the decade of the 1970s, the world encountered the Second Oil Shock with the OPEC once again raising oil prices. The re-cyclicity of petrodollars burdened the developing world beyond sustainability. At the same time, the US entered in a three-year period of stagflation that technically consisted in a couple of downturns resulting in the early 1980s recession in the US. The first downturn wasn't severe, whereas the second ran much deeper, thanks to Federal Reserve's contractionary monetary policy[10] that was used as an instrument to reign in inflation. The Second Oil Shock further precipitated demands by the developing world for loans, chiefly for importing oil, import substitution industries and building infrastructure, which were made using variable interest rates. Though the demands were met, inflationary impact pushed up the cost of servicing debts. These additional cost burdens were thereafter reflected in the cost of new borrowings further burdening the debt overhang in the developing world. This cycle led to a depressed global demand, and in the beginning of the 1980s, Mexico was hit by a debt crisis cascading over into Argentina, Brazil, Peru, Nigeria, Romania, to name a few.

Most of these developing countries had to take recourse to IMF's Structural Adjustment Facility (SAF, and renamed Enhanced Structural Adjustment Facility, hence)[11] and world Bank's Structural Adjustment Programmes (SAPs)[12] to negotiate the inadequate financing mechanism and be benefactors of concessional financial support on a long-term basis. To note, SAF (ESAF) and SAP are often used interchangeably, but there is a difference in the two, viz. the stabilization programme of the IMF seeks to achieve fiscal consolidation and current account stabilization, while the World Bank's Structural Adjustment Program (SAP) is a long-term programme aiming at raising the GDP and facilitating the integration of borrowing country with the world economy. The debt burden on the developing world became too huge to be financed by IMF's SAF (ESAF) or WB's (SAP), and thus it was felt that restructuring this debt by calling upon the private sector was needed. Towards this, a Plan known as the Brady Plan[13] was designed in 1989 that involved a permanent reduction in principal and the existing debt servicing obligations. In order to reduce the debt burden, substantial funds were raised from the IMF and the WB and other sources by the debtor countries, which were then deployed with instruments such as debt-equity swaps, buy-backs and exit bonds.[14]

Crises of the 1990s

Gross Capital Flows, which is the difference between capital inflows and capital outflows in a country surged in the 1980s and 1990s, but the nature of such flows had changed considerably. If in the 1980s, these flows were mostly through syndicated bank lending, by the 1990s FDI (Foreign Direct Investment), bonds (short-term debt), and portfolio flows had taken the mantle. What factors underlined such a surge in international capital flows? There were two, primarily, liberalizing the domestic financial & external sector (stock markets emergence), and opening up of new vistas of information technology that contoured investment opportunities around the world. The 1990s were also marred by a series of crises.[15] In September 1992, the UK was forced to withdraw[16] from the exchange rate mechanism of the European Monetary System as it was unable to keep the value of the Pound Sterling above the limit specified by the agreement, an arrangement known as "snake in the tunnel". On Black Wednesday (16th September 1992), after a $22 billion intervention in the foreign exchange market by the Bank of England and a promise to hike interest rates from 10% to 15%, the UK withdrew the Sterling from the ERM. On the same day, Italy pulled out Lira, while the Spanish devalued their Peseta. UK's exit from the ERM was political. The French Franc had also come under pressure, but Germany (now unified) needed France in order for monetary union to materialize, whereas the UK had only joined ERM as a way of getting its inflation under control. Importantly, the ERM crisis also highlighted the trade-off between monetary and exchange rate management policies under a convertible currency. The ERM crisis was followed by Mexico suffering a currency crisis (also referred to by the slang "Tequila Shock") after Mexico suddenly devalued its Peso against the US Dollar sending in ripples across the "Southern Cone" of South America and Brazil. This was one of the first cases where a crisis was precipitated by volatile capital flows across the borders. But, Mexico, being part of the North America Free Trade Agreement (NAFTA) was helped in its declining currency by US bailout package to the tune of $50 billion and administered by the IMF. The enormity of the Mexican crisis was alarming, and before the world could come to grips with it, East Asia sent in shock waves through the world with the collapse of the Thai Baht in July 1997. The contagion spread to South Korea, The Philippines and Malaysia. Not that these countries didn't have strong macroeconomic fundamentals, it was that the crisis cut through with structural imbalances. The real reasons for the crisis lay in uncontrolled capital account liberalization[17] on the back of weak financial systems characterized by poor monitoring and surveillance, inappropriate policy stances like pegged exchange rates and unlimited access to foreign currency loans for the private sector.

Russia, for the first time in 1997 witnessed positive growth since the formation of the Russian Federation in 1991. But, Russia's fixed-exchange rate regime together with its fragile fiscal position seemed unsustainable, and the country was eventually faced with large capital outflows in the face of inadequate reserves. Moreover, spillover effects of financial distress from elsewhere only exacerbated the already fragile situation, leading to Russia defaulting on its domestic and external debt in August 1998. This episode was distressing enough to shake the world, and reignited the debate on restructuring debts using suitable mechanisms. The last of the major crises of the 1990s struck Brazil in 1999, when despite a significant rescue package from the IMF, Brazil devalued its Real. Compared to the East Asian economies which had relatively decent macroeconomic fundamentals, the car of Brazil was exactly the opposite. Real was overvalued, thanks to a dramatic decline in inflation as a result of the Real Plan[18] of 1994 to control hyperinflation, which had reached a staggering 2700% per year in the early 1990s. The Real Plan help institute an accelerated GDP growth. A combination of these factors led to a widening of the Current Account Deficit (CAD), and together with inadequate fiscal consolidation led to apprehensions of a a default, high interest rates and a consequent debt spiral.

As the century turned, the Argentinian and Turkish crises once again shook the world, with Argentina defaulting on its $3 billion debt owed by it to the IMF, and Turkey faced with a severe banking crisis. With Argentina, this was the largest non-payment of a loan in IMF's history. Argentina's crisis was devastating to say the least, when a partial deposit freeze, a partial default on public debt, and an abandonment of the fixed change rate led to a collapse in output, high levels of unemployment, and socio-political turmoil. The country was forced to appraise its relationship with the IMF as a result of this crisis.[19] The crisis culminated in the collapse of the Convertibility Plan of 1991, by which the Argentine Peso was pegged to the US Dollar in an attempt to curb hyperinflation and stimulate economic growth. By the middle of 2002, 40% of the workforce in Argentina was unemployed or underemployed. The Turkish banking crisis preceded the Argentinian crisis by almost a year. Towards the end of 2000, banks began to close their interbank credit lines to vulnerable Turkish banks after a sharp rise in sentiments about the health of the banking industry. This led to foreign investors withdrawing funds by selling off treasury bills and equities. Then a mid-sized private bank by the name Demirbank began selling its government securities portfolio, causing a further fall in the value of government securities and consequent increase in secondary market interest rates, raising doubts about the sustainability of public debt and the crawling peg exchange rate regime that had been in place since December 1999. The situation further worsened and caused a hefty sell-off of securities in the debt market by banks to meet margin calls,[20] accompanied by massive capital outflow, turning the scenario into a systemic banking crisis. After the abolition of the currency peg, the Turkish Lira moved in a free float with occasional intervention (of a heavier order) by the Central Bank of Turkey. The IMF, in turn, intervened to restore confidence by providing funds to stabilize the exchange rates. After a brief contraction, the Turkish economy bounced back, though with a huge collateral in the form of unemployment.[21]

After briefly looking at these crises, it is clear that majority of the crises of the late 1980s and the decade of the 1990s was characterized by reversal of capital flows that were largely in short-term bonds and portfolio flows. Also, policies pertaining to inadequate exchange rates added fuel to the fire. Domestically speaking, most of these countries were marred by fragility of their banking system, haphazard capital account liberalization and corporate governance, which was largely tailor-made to suit the need as it arose. Dearth of liquidity to address the crises, unrealistic debt servicing & resolution, and lack of appropriate intervention by the multilateral financial institutions exacerbated the concerns. All these factors seriously undermined accountability and transparency. The cracks in International Financial Architecture were made visible that were further magnified by absences of early warning systems.[22] Moreover, these cracks were not mended in the immediate aftermath of the East Asian Crises, but suffered what is known as a 'contagion effect', or more appropriately the 'Asian Contagion'. As a result of these fractious crises, several broad issues were highlighted, viz.

1. The IFIs (International financial Institutions) had not been able to keep pace with the growth in international trade and financial flows. Here the difference was in velocities between international trade, finance and resolution if a crisis were to emanate. The point of governance of thee IFIs was once again underlined.

3. The necessity of large reserves, especially in emerging economies to act as cushion to crises was felt. such reserves would act as self-insuring.

4. One of the many reasons for the spread of this contagion was high leveraged investors, who, when faced with losses in one market and concomitant margin calls, sell good assets in other countries to recoup the losses leading to sharp swings in asset prices. With financial globalization, this has spread to mutual funds and investment banks that aim to enhance liquidity expectation.

5. There is an adverse impact on the social fabric whenever a crisis hits, be it in economic terms, or in the banking sector. These adversarial impacts have such deep roots that even years after the crisis has successfully waned, the impacts are continued to be felt.

6. How much do regulatory mechanisms get themselves to speed with the ever accelerating and dynamic international financial system is yet another question that needs to be asked every time a crisis hits. This deficiency is not just confined to domestic economies, but even to international ones. On a related note, domestic macroeconomic and financial policies need more of an appropriation.

7. Lastly, communication technologies need a better plug-in to be abreast with financial globalization.

The International Community Wakes Up

It is with these pointers that a new financial architecture is to be envisaged, and global community has set the ball rolling to see that deficiencies of the kind that the world encountered till the first half of the first decade of the 21st century are overcome to a large extent.[23] To understand these, it is imperative to mark out points of inflection. These do not lose sight of trade and financial flows as had hitherto been the case, but the conception of the new financial architecture should embed principles of equality and equity while promoting growth and prosperity. These are the hinge points of monetary and financial stability, and unless taken into account consensually by the players of the global financial system, it would inevitably lead to a contagion effect. With the frequently and acceleratedly changing goal posts in the dynamic of global finance, the roles of International Financial Institutions have come under scanner, and oftentimes the roles flirt with moral hazard, be it either with Structural Adjustments demanded of governments at the receiving end of any assistance in order to overcome the crisis, or in the firm of bailout packages to pull the country/ies out of the financial morass. In response to the G7 Summit at Halifax, Nova Scotia, Canada in 1995,[24] the IMF swung into initiating an Emergency Financing Mechanism (EFM), a Special Data Dissemination Standard (SDDS) & a General Data Dissemination System (GDDS), and a New Agreement to Borrow to augment IMF's resources.[25] As robust as these were thought to be then, the East Asian Crisis shocked these mechanisms as inadequate at handling the crisis. Not to be undone by its efforts, the IMF launched new instruments in the form of Supplementary Reserve Facility (SRF)[26] and followed it up with a Contingent Credit Line (CCL)[27] just before the century turned. The downside of such introductions was stricter conditionalities. In an important meeting of the group of systemically important economies (G22) was held in Washington DC in April 1998 coinciding with the Annual Spring Meetings of the IMF and the World Bank to appraise the stability of international finance and efficient as well as effective functioning of the global capital markets. The crux of this meeting revolved around concerns of accountability & transparency, strengthening the domestic financial architecture to cushion against any future financial crises. The year 1999 saw the launch of G20, which is G7 plus systemically important emerging economies. The idea was to reform the international financial architecture, something akin to a superstructure built on the base of G7's Financial Stability Forum (FSF).[28] As millennium turned, IMF's Sovereign Debt Restructuring Mechanism (SDRM)[29] was conceived in 2001 to offset the challenges of restructuring sovereign bonds.

By the turn of the new millennium, stability in terminational financial system was given the major prerogative by the IFIs as well as governments. They even formulated the principles that would govern such a system before the 2008 crisis became the cause for derailment and relaying the principles. Thematics were chosen as pillars of the new architecture ranging from better transparency for better stability, indulging the private sector and corporate governance in crisis handling, equitable sharing the burden between the borrowers and lenders, well-thought and contingent resolution system, and prudential norms in handling the external sector. So, before we look at some of the policy responses to crisis handling that did have traces of the principles that formulated the thematic for a new international financial architecture, it is time to turn towards the Global Financial Crisis or the Financial Crisis of 2007-2009.

Global Financial Crisis 2007-09

The period in question is when there was exceptional stress[30] on the financial and banking sectors of the world economy, that was principally caused by the downturn in the US Housing Market and cascading into a financial meltdown due to a highly linked and complex global financial system. The crisis affected banks around the world as these institutions incurred massive losses and relying on governmental support to help them avoid bankruptcy. Unemployment sky-rocketed, and major economies around the globe faced deep recessionary periods, the likes of which had not been seen since the Great Depression of the 1930s. If Housing Market collapse in the US[31] was a catalyst, what were the other causes that led to it?

In the years that led to the global financial crises, macroeconomic stability in the US and elsewhere was generally favorable, which included low inflation, low unemployment and low interest rates. These three factors (though there were others as well) combined to surge the Housing Market prices. This was fueled by the sentiment that housing prices would continue to rise, and as a consequent of which household began to borrow imprudently to buy houses. Stress started to be built up when mortgage loans began to close in on the cost price of the houses. Enter investors, who thought the time was conducive for making short-term profits by 'flipping' houses and by 'subprime' borrowers with a higher default risk due to low wealth and income. Banking Financial Companies (BFCs) and Non-Banking Financial Companies (NBFCs) saw no reason to refuse loans. Also, these lenders did not pursue adequate due-diligence on borrowers' capability to repay loans thus mirroring the widespread belief that macroeconomic fundamentals were strong and would continue to be that way. These financial companies, both in the banking and non-banking domains began to sell large amounts of loans to investors in the form of a package known as "Mortgage-backed Securities" or MBS, for short. MBS were slices of thousands of individual mortgages of varying quality that passed the quality control at the behest of Ratings Agencies, which rated them satisfactorily. Investors were under the impression that the MBS they purchased were low risk. Banks (and especially investment banks) were the major investors who after having bought these MBS expanded their exposure on a global market, and were convinced of handsome returns. As time went by, MBS began to take on more complex forms, thus seriously compromising transparency and clothed in opacity. But the investors were not deterred, and in a race to acquire more of MBS started to take loans, or in other words were gradually becoming heavily leveraged. But, as the housing prices began to dwindle, the vast exposure of these investors meant huge losses due to high leverages. Yet another cascading effect was borrowing for very short duration, especially

Box 1 - Mortgage-backed Securities (MBS)

Box 2 - Collateral Debt Obligations (CDOs)[32]

Box 3 - Lehman Brothers

Box 4 - The Case of AIG

overnight to purchase assets that could not be sold quickly. Such investors became increasingly reliant on lenders, which were other banks thus coupling the linkages tightly. On the regulatory side, subprime loans and MBS were leniently regulated, or barely at all. The toxicity became dense when fraudulent claims on the safety of MBS were now and then stressed upon. Thus, when the housing market began to collapse, many governments and central banks did not have any clue as to the amount of bad loans that was in the system.

It was around 2006 that housing prices started to peak in the US. At the same time, new real-estate properties were mushrooming. The number of borrowers who failed to honor their paying of the loans began to rise. Stresses in the financial system noticeably emerged in the middle of the 2007 as some lenders and investors began to incur losses because many of the houses they repossessed after the borrowers failed to honor their repayment commitments could only be sold at below the loan balance. As a consequence, investors were deterred from purchasing MBS products and were actively trying to sell them in the market.[33] As a result, the prices of MBS declined, which in turn reduced the valuation of MBS and thus the net worth of the investors. Moreover, investors who had purchased MBS with short-term loans found it much difficult to roll over these loans, which further exacerbated MBS selling and declines in MBS pricing.

As foreign banks were active participants in the US Housing Market during the boom, including purchasing MBS with short-term funds, they mirrored the US banks in their operations elsewhere. This created a complex mesh within the financial system with the implication that a meltdown in the US Housing Market would spill over into other economies. By September 2008, the crisis had peaked with the collapse of Lehman Brothers, and this created a domino effect on other financial institutions that began to crumble, triggering a panic in financial markets around the world. Investors began pulling their money out of banks and investment funds around the world. This led to a situation when everybody started to sell at the same time resulting in dysfunctional financial system. Moreover, new financing dried up forcing businesses to curb investing and households to go frugal as confidence in the system nosedived.

Responses to the Crisis

Policy responses to the Global Financial Crisis became cornerstones of the new financial architecture that has continued down to the present in way or another. There were three main responses, viz.

BOX 1 **MORTGAGE-BACKED SECURITIES (MBS)**

A mortgage is a loan that has a specific piece of property or real-estate as collateral. In the 70s and 80s , mortgages existed solely in the primary markets where banks would extend mortgages to customers who were then required to pay the principal and interest as and when maturity was reached or thereabouts. Primary markets have extended beyond into secondary markets with time. Here, mortgage lenders repackage mortgages for sale in the secondary markets as securitized investments. These repackages are Mortgage-backed Securities, where the principal and interest payments have to pass through banks before these banks hand them over to the MBS investor, or what is known as a pass-through structure. The credit classification for an MBS is three-tiered, viz.

• Prime (A-grade) - these loans are the most desirable from the lender's perspective. These are low-rate delinquent and default due to low loan-to-value ratio, typically much less than 95%.

• Sub-Prime (B-grade) - These are high rate delinquent and default due to high loan-to-value ratio typically in the neighborhood of 95% or even exceeding it.

• Alternative A-loans - lying between Prime and Sub-Prime, these are basically Prime, but inadequate documentation to support credit histories and/or income wealth statuses make them riskier than Prime loans.

Interest rates are either fixed or adjustable, with the latter normally a factor of LIBOR (London Inter-Bank Offered Rate).

To reduce the risk of holding a potentially undiversified portfolio of mortgages, many financial institutions work together to pool residential mortgages. The loans pooled together have similar characteristics, and the pool is the sold to a separate entity, called a Special Purpose Vehicle (SPV), in exchange for cash. An issuer will purchase those mortgage assets in the SPV, and then use the SPV to issue MBS to investors. MBS are backed by mortgage loans as collateral.

The simplest MBS structure, a mortgage pass-through, involves cash (interest, principal, and prepayments) flowing from borrowers to investors with some short processing delay. Usually, the issuer of MBS may enlist the services of a mortgage servicer whose main mandate is to manage the flow of cash from borrowers to investors in exchange for a fee. MBSs may also feature mortgage guarantors who charge a fee, and, in return, guarantee investors the payment of interest and principal against borrower default.

BOX 2 **COLLATERAL DEBT OBLIGATIONS (CDOS)**

CDOs catalyzed the financial crisis and gained a lot of common currency then and continues to baffle even now. CDOs are the next generation of securitization, where instead of everybody owning a fractional interest in the whole pool, the pool is split up into tranches (slices). The senior-most tranche gets the first right to cash flows, while junior tranches are subject to taking more risks through a junior right to cash flows, and hence have a higher expected yield. By itself, there is nothing adversarial about securitization because it takes on illiquid assets and turns them into a tradable entity on the capital markets, allowing liquidity, price discovery, and a wider range of investors to get exposure to it. Similarly, there is nothing wrong with CDOs as well, excepting that it gets a tad too complex, which again is no reason to call it controversial.

So, how did the CDOs earn the bad repute during the crisis? It was made too complex as a matter of fact by pooling in mezzanine tranches of sub-prime MBS. What transpired was underwriters finding the edge to optimize the CDOs. For example, if one could take a $100 million of BBB tranches sub-prime bonds and package them into a CDO, then, when the CDO issued its own tranches, 2/3rds would be rated AAA, another 10% AA, and so on down the line. Thats where things got ugly, as AAA rated tranches weren't really AAA. The demand for AAA-rated products was much higher than for BBB, and so being able to turn BBB bonds into AAA brought tremendous liquidity to the market exploding the volumes in the process.

In order to short a sub-prime CDO, one uses an insurance-like mechanism called the Credit Default Swap (CDS). Companies regularly use CDS to hedge exposures, as CDS are liquid and easily tradable to take a long or a short position. Their usage seeped into sub-primes too. There were the hedge funds wanting to short sub-prime and large, regulated institutions wanting to buy it, the risks posed by the relatively small sub-prime market multiplied. Then the housing bubble popped. In a well-functioning market, the risks are diffuse. But in this case, a handful of banks had bought massive amounts of AAA tranches that turned toxic because of a dense concentration at these banks.

See -O'Callahan, T., &Kasoff, S. H. (2022, May 10). *Inside the CDO Market That Catalyzed the Financial Crisis*. other, Yale School of Management (Yale University). Retrieved December 30, 2022, from https://insights.som.yale.edu/insights/inside-the-cdo-market-that-catalyzed the-financial-crisis.

BOX 3 **LEHMAN BROTHERS**

Lehman Brothers' stock was selling at $86 a share in February 2007, giving the company a market capitalization of $60 billion. For the year, the company reported a new record high in net income of $4 billion. In January 2008, Lehman Brothers was the fourth largest investment bank in the US. In March, immediately after Bear Stearns (the second largest holder of MBS after Lehman Brothers) almost collapsed, Lehman stock fell by almost 50%. In June 2008, the company reported a quarterly loss of $2.8 billion, its first quarterly loss since being spun off from American Express in 1994. By the end of 2008, Lehman Brothers Holdings Inc. had vanished from the investment banking landscape, the largest corporate bankruptcy filing ($ 619 billion in debt) in US history.

Lehman Brothers was deeply invested in MBS. The housing boom led to an overabundance of MBS and CDOs (Collateral Debt Obligations, which are complex financial products backed by a pool of loans and other assets and sold to institutional investors, or in other words these are derivatives whose values are derived from an underlying assets). Lehman had dived into loan origination in 2003, and the company acquired a number of lenders, several of whom focused on providing the sub-prime loans that the US Government had been pushing since the turn of the century. Lehman's competitor, Bear Stearns went down in flames first. A Federal Reserve-backed deal enabled JP Morgan Chase to buy out the company in 2008. The company was already in a weakened state after depending on repos for daily funding. It sought to boost market confidence through equity fundraising. However, the move did not yield much, and Lehman anticipated a third quarter loss of $4 billion. On top of this, it also reported a toxic asset write-down loss of $5.6 billion.

Lehman's stock plummeted 77% in the first seven days of September 2008. Richard Fuld, CEO attempted to save face in front of investors by spinning off the company's real estate assets. This was followed by the swelling of credit default swaps on Lehman's debts, and backtracking by major hedge fund investors. The final straw dropped by September 15 when, after attempted buyout rescue deals by both Bank of America and Barclays fell through. Lehman Brothers was forced to file for bankruptcy, an act that sent the company's stock plummeting a final 93%. When it was all over, Lehman Brothers – with its $619 billion in debts – was the largest corporate bankruptcy filing in U.S. history. Following the bankruptcy filing, Barclays and Nomura Holdings eventually acquired the bulk of Lehman's investment banking and trading operations. Barclays additionally picked up Lehman's New York headquarters building.

BOX 4 **THE CASE OF AIG**

Ben Bernanke, the Nobel Laureate in Economics for 2022 for his in-depth analysis of the Great Depression of the 1930s and showing how bank runs were a decisive factor in the crisis becoming so deep and prolonged was the Federal Reserve Chairman when the global Financial Crisis hit. He had said that the $182 billion bailout of American International Group (AIG) had made him more angrier than anything else in the recession, because the insurance giant took risks with unregulated products like a hedge fund while using cash from people's insurance policies. Bernanke further said that the Government had no option but to bail out AIG as its collapse would have rippled into an economic catastrophe. Fortunately, the long-term cost of the bailout was much less than the initial payout. Taxpayers made a $22.7 billion profit when the treasury sold the last shares of AIG.

So, how did AIG find itself in such a mess? And why is it important to know this? AIG was so tightly coupled in financial globalization that its bankruptcy would have triggered a bankruptcy of scores of other financial institutions. AIG had become a major seller of CDS (see Box 2 above) in an attempt to boost its profit margins. These swaps insured assets that supported corporate debt and mortgages. The largest insurer in the world, if it had gone bust would have impacted global economy. AIG's swaps on sub-prime mortgages pushed the otherwise profitable company to the brink of bankruptcy. As the mortgages tied to the swaps defaulted, AIG was forced to raise millions in capital. As the news broke, stockholders sold their shares, making it even more difficult for AIG to cover the swaps. Even though AIG had more than enough assets to cover the swaps, it couldn't sell them before the swaps came due. It left it without the cash to pay the swap insurance. On 16th September 2008, a day after the collapse of Lehman Brothers, the Fed provided an $85 billion two-year loan to AIG to prevent bankruptcy. In return, the Fed took ownership of 79.9% of AIG's equity. That gave it the right to replace management, which it did. The Treasury Department purchased $40 billion in AIG preferred shares using funds from the Troubled Asset Relief Program (TARP). The funds allowed AIG to retire its CDS rationally, stave off bankruptcy, and protect the Government's original investment.

See -Amadeo, K. (n.d.). . (T. J. Brock, Ed.)AIG Bailout, Cost, Timeline, Bonuses, Causes, Effects. Retrieved December 30, 2022, from https://www.thebalancemoney.com/aig-bailout-cost-timeline-bonuses-causes-effects-3305693#citation-1.

1. Lowering of Interest Rates by the Central banks - The Central banks lowered the interest rates to quite low levels (often zero, and in some cases even negative).[34] The Central banks lent large amounts of money to banks and other financial institutions such that they would not be hard pressed to borrow money from the financial markets. The Central banks also purchased a substantial amount of financial securities to support dysfunctional markets and to stimulate economic activity once the policy rates were near zero in a mechanism known as Quantitative Easing (QE).[35]

2. Upping the governmental spending - This was done to support the demand and employment initiatives throughout the economy. This also guaranteed deposits and bank bonds to fortify confidence levels in financial institutions. Importantly, the governments took shares by means of ownership stakes to prevent bankruptcies that could have exacerbated panic in the financial markets. No doubt unemployment rose sharply, people lost their homes and their wealth in the meltdown, this move helped arrest the recession from slipping into depression.

3. Regulatory Oversight - This was a crucial component whereby regulators strengthened their oversight of banks and financial institutions, for example by adhering to the SIFI Framework in the US (Systemically Important Financial Institution, aka Too Big To Fail institutions). Globally, the banks were obligated to assess the risk of loans they were providing and using more resilient funding sources. As an instance, banks were mandated to operate with lower leverages and couldn't employ many short-term loans to fund the loans to their customers.

Other important reforms carried out in the wake of the crisis were to make the OTC (Over The Counter) derivatives markets safer by including trade reporting, central clearing, trading on exchanges or electronic trading platforms, capital and margin requirements for non-centrally cleared transactions; reducing reliance on credit ratings agencies as any laxity in credit assessments can be a cause of "cliff effects"[36] that can amplify pro-cyclicality and cause systemic disruption; addressing data gaps, an initiative taken by the Financial Stability Board (FSB) with a stronger framework for assessing potential systemic risks of the interconnectedness of the largest financial institutions; and acknowledging a Legal Entity Identifier (LEI) on a global uniformity thus providing a valuable building block to contribute to and facilitate many financial stability objectives, including improved risk management in forms, better assessment of micro and macro-prudential risks, facilitation of orderly resolution, and enabling higher quality and accuracy of financial data overall.[37]

When the financial crisis peaked in September-October 2008, it caused an erosion of almost $10 trillion in market capitalization. The US Government turned down the request of Lehman Brothers to bail it out, as the investment bank was finding it difficult to roll over its borrowings in the the markets. Even the Wall Street wasn't considerate to bail it out and allowed it to go bust. The ultimate demise of this SIFI sent shockwaves around the world, to which the Federal Reserve said subsequently that the crisis was the worst financial meltdown in human history. Before closing this section and taking a concerted look at India's case scenario in the next chapter, it is important to provide by way of summary how some of the advanced economies negotiate the crisis.

United States - As was mentioned above, one of the policy reforms was lowering of interest rates, and that's how the Federal Reserve began tackling the economic devastation. the interest rates were slashed from 5.25% in 2007 to 0% in 2008. In February 2008, the then President George Bush signed an Economic Stimulus into Law.[38] He also approved the Troubled Asset Relief Program (TARP)[39] 8 months later in October 2008. TARP provided $700 billion in funds to purchase the assets of struggling industries.

Germany - Germany's GDP declined rapidly in the fourth quarter of 2008, and the growth rate turned negative in 2009. However, by the third quarter, Germany stabilized. Germans steered clear of the debt-fueled consumption boom that many believe contributed to the financial crisis. During the recession, Chancellor Angela Merkel resisted the palliative of government spending that the United States and some European partners felt was crucial to restoring growth. The government approved a plan to inject 500 billion Euros into credit market. The government also injected 10 billion euros taking a 25 per cent stake in country's second largest lender, Commerzbank.

United Kingdom - The UK economy took five years to recover, with GDP shrinking by more than 6% between 2008 and 2009. Earnings have still not officially recovered since the recession, with the public sector pay freeze in 2011 and pay cap in 2013 impacting workers wages. following six consecutive quarters of negative growth, the UK economy was the last amongst the G7 to finally move out of recession in the last quarter of 2009. At the height of the recession, the GDP fell by 2.6% in a single quarter (Q1 of 2009), which was the same percentage by which the economy expanded during the whole of 2007. This was the deepest recession in the UK since the beginning of the publishing of quarterly data in 1955. The slowdown affected all sectors of the economy, but manufacturing and construction were particularly hard hit. However, the recovery remained far from secure. Unemployment rate had stabilized, though employment continued to fall. The impacts of possible tax rises and cuts to public expenditure were not known immediately, and inflation was sailing above the Bank of England's target of 2%. The Bank of England had to raise the interest rates as a consequence and that they did.

France - The French economy suffered its biggest postwar recession in 2009, when the volume of activity slipped by 2.6% on an average, which surpassed the drop as a result of the first oil shock. The major symptom of French economy was contraction of its exports that fell by a whopping 12.4%, in line with a fall in world trade. The loss of demand from enterprises was exacerbated when investment fell back sharply, particularly in capital goods and construction. Household investment declined, while household consumer spending increased marginally against all odds. The French Government launched a stimulus plan, especially in the banking sector. French President Nicolas Sarkozy pledged 360 billion euros to banks and also hosted an emergency global financial crisis summit in Paris. Also the government announced it would inject 10.5 billion euros into the France's six largest banks.

Italy - When the financial crisis erupted in the fourth quarter of 2007, Italy's GDP plummeted by 7%, then picked up by 3%, dropped again by 5%, rebounded by a measly 0.1%. In seven years beginning 2007, the Italian GDP contracted by 9%. The crisis touched the larger banks, which lost funds as a result of the Lehman Brothers crash, or found their assets devalued by the stock-market collapse. However, Italian banks were not very heavily involved in highly speculative sectors. The main problem for Italian banks, apart from the reduction in liquidity, came from links with Central and Eastern European countries.[40] The reduction in economic activity cut the amount of tax collected, and anti- crisis policies increased expenditure. This resulted in dramatic increases in the budget deficit and public debt.[41] Italy provided 40 billion euros in T-bills to banks to refinance inferior assets. Foreign trade institute offered 100 million euros to make businessmen more competitive. Country hosted a meeting of G8 countries to discuss economic recovery.

Japan - Japan was relatively immune rom the impacts of the sub-prime crisis of 2008 as its banks did not have much MBS and CDOs on their portfolios. However, the economy suffers a severe recession with a drop in the real GDP on a magnitude much higher than that of the US. The reasons are threefold,[42] viz.

a. The financial crisis in the US raised the uncertainty surrounding the future economic prospects and led the households to postpone purchases of non-necessities. Since these so-called non-necessities comprised a major chunk of Japanese exports to the US, it led to a decline of Japanese exports.

b. The Japanese Yen appreciated as regards the US Dollar contributing to discouragement of exports from Japan, and

c. The market stalemate as a result of the Lehman Shock limited the availability of trade finance.

But Japan's unemployment wasn't adversely impacted, possibly due to the lifetime employment system existing in Japan, where Japanese firms are reluctant to make workers redundant. When the Lehman Brothers collapsed, Japanese Government supports the firms by relaxing the conditions to be met in order to qualify for the employment subsidy program. Japan also brought down the interest rates to nominal level to increase the liquidity in the market and the government announced a slew of packages worth $16.7 billion and also injected $1.2 billion into regional banks.

China - Contrary to what has been commonly believed that China wasn't adversely impacted by the Global Financial Crisis, it, as a matter of fact was hit hard with exports dwindling, the effects w=of which were only partially offset by China's huge stimulus package. China's stimulus package[43] was the largest in the world, and this was also one of the reasons why China became the first major economy to emerge from the crisis. The stimulus package that was initiated in late 2008 continued through 2009 and 2010. The economy, before the launch of the package had a shop dip, but rebounded by 8.7% in 2009 and touched double figures of 10.4% the following year.

Firstly, China's economic growth is over-dependent on the growth of net exports. In 2008, its export-to-GDP ratio reached 32%, and its exports-and-imports-to-GDP ratio was 59%. The contribution of net exports (goods and services) to GDP growth was over 20% in 2007. Moreover, as a labour-intensive sector, exports absorbed a mass of non-skilled workers from rural areas. Secondly, at the end of 2008, China's foreign exchange reserve had reached US$1.95 trillion. Although the PBoC does not disclose the proportion of currency and assets of its foreign exchange reserves, it is possible to make a rough estimate based on external data,for instance, according to the IMF's COFER[44] statistics. Thirdly, an indirect. but critical effect of the Global Financial Crisis on the Chinese economy was that, to mitigate the impact on the domestic economy and to stimulate short-term economic growth, the Government was flirting with the idea of canceling some of its structural adjustment policies.[45]

India - Just as China was commonly believed to be unaffected, India too was believed to be unaffected by the Global Financial Crisis. The truth is far from such a belief. The crisis hit India by a sudden stop of capital flows and a collapse of both external and domestic demand. India, which was growing at almost 9% in 2007-2008 slowed to 6.7% in 2008-2009. The growth in GDP moved down to 5.8 per cent (year-on-year) during the second half of 2008-09 from 7.8 per cent in the first half. This can be attributed partly to the decline in private consumption growth to just 2.5 per cent in the second half from and an already low growth of 3.3 per cent in the first half and an average consumption growth of 8.5 per cent in the whole of 2007-08. Also, the growth in fixed investment declined to 5.7 per cent in the second half of 2008-09 from 10.9 per cent in the first half and an average of 12.9 per cent in 2007-08. The government consumption growth, on the other hand, rose steeply at 35.9 percent from just 0.9 per cent in the first half and 7.4 per cent in 2007-08. The sharp rise in government consumption growth cushioned the sharp drop in aggregate demand and prevented a much sharper fall in GDP growth in the second half of 2008-09.[46] In the words of D. Subbarao,[47] the then RBI Governor, whose five-year tenure coincided with the global financial meltdown, the contagion of the crisis spread to India through all the channels - the financial channel, the real channel, and importantly, as happens in all financial crises, the confidence channel.

The then Finance Minister, P. Chidambaram and Deputy Chairman of the Planning Commission, Montek Singh Ahluwalia adopted a three-pronged strategy to ensure enough liquidity in the market, and avoid any bank runs. their strategy also ensured that no banks would collapse during the time as a result of Asset-Liability Mismatch. When Lehman Brothers collapsed, the Indian Government tried to insulate its Indian subsidiaries, and in partnering with the Reserve Bank of India effected the halving of the Repo rate and announcing a INR 40, 000 crore stimulus package.

These crises point towards the inevitability of a change or a reconfiguration of the International Financial Architecture, as had happened post the Great Depression and Second World War. Conscientious efforts have been made towards just such a reconfiguration. But, the real question that remains to be resolved in any such attempts is - how to negotiate the 'Trilemma' successfully, in order for the global financial system to act as a shock absorber in times of crises in the future. The so-called 'Trilemma' of international finance maintains that a country cannot simultaneously peg an exchange rate, maintain an independent monetary policy, and permit free cross-border financial flows. At best, only two of the three are feasible. Despite all the efforts that countries all over the world make, they cannot come to resolve this issue. It is to the 'Trilemma' that we make the intermediate. ●

Endnotes

1. A financial system in its infancy is bank dominated, and with increasing sophistication it tends to affine towards financial markets trading off the reliance on banks.
2. Financial Architecture is a set of collective governing arrangements that puts in place safe-guards for the monetary and financial system.
3. Under the Gold Standard, a country's money supply was linked to gold. The necessity of being able to convert fiat currency into gold on demand strictly limited the amount of fiat money in circulation to a multiple of the Central Bank's gold reserves. Most countries had legal minimum ratios of gold to notes/currency issued. International balance of payments difference were settled in gold. Countries with a payments surplus would receive gold, while countries in deficit would experience an outflow of gold. *The Classical Gold Standard*. WORLD GOLD COUNCIL . (n.d.). Retrieved December 20, 2022, from https://www.gold.org/history-gold/the-classical-gold-standard
4. A fiat currency is a national currency that is not pegged to the price of a commodity such as gold or silver. The value of fiat money is largely based on the public's faith in the currency's issuer, which is normally the Central Bank of a country. Fiat money is the opposite of commodity money, and the difference relates to their intrinsic value. Historically, commodity money has an intrinsic value that is derived from the materials it is made of, such as gold and silver coins. Fiat money by contrast, has no intrinsic value - it is essentially a promise from a Government or the Central Bank that the currency is capable of being exchanged for its value in goods.

5. On a related note, it is imperative to talk about the Great Depression, a period that overlapped with the abandonment of the Gold Standard. A worldwide depression struck countries with market economies at the end of the 1920s. Although Great Depression was relatively mild in some countries, it was severe in others, especially in the US, where in 1933 it reached severity with almost 25% of all workers and 37% of all non-farm workers were completely out of work. Some people starved; many others lost their farms and homes. Homeless vagabonds sneaked aboard the freight trains that crossed the nation. Dispossessed cotton farmers, the "Okies" stuffed their possessions into dilapidated Model Ts and migrated to California in the false hopes that posters about plentiful jobs were true. Although the U.S. economy began to recover in the second quarter of 1933, the recovery largely stalled for most of 1934 and 1935. A more vigorous recovery commenced in late 1935 and continued into 1937, when a new depression occurred. The American economy had yet to fully recover from the Great Depression when the United States was drawn into World War II in December 1941. Because of this agonizingly slow recovery, the entire decade of the 1930s in the United States is often referred to as the Great Depression. Smiley, G. (n.d.). *Great Depression*. Library of Economics and Liberty (Econlib). Retrieved December 21, 2022, from https://www.econlib.org/library/Enc/GreatDepression.html

6. Capital controls represent measures taken by the Government(s) and/or Central Bank(s) and/or regulatory bodies to limit the flow of foreign capital in and out of the domestic economy. These could take the forms of tariffs, legislations, volume restrictions, and market-based forces, and such controls can affect asset classes like bonds, equities, and foreign exchange rates. Capital controls, despite their potential at handling risks are viewed with suspicion as they are subject to evasion and circumvention. Moreover, even in the wake of Global Financial Crisis, the evidence on the effectiveness of macroprudential measures is hardly conclusive. Countries prefer using euphemisms like prudential measures. For more, see Ghosh, A. R., & Qureshi, M. S. (2016, February). *What's In a Name? That Which We Call Capital Controls*. IMF Working Paper. Retrieved December 21, 2022, from https://www.imf.org/external/pubs/ft/wp/2016/wp1625.pdf

7. The Smithsonian Agreement was signed at the Smithsonian Institute in Washington DC on the 18th of December 1971. The negotiations happened between the IMF and the Group of 10 (US, UK, Japan, West Germany, Italy, France, Canada, Belgium, The Netherlands, and Sweden)

8. When two currencies are 'at par', they are exchanged at equal value. This is generally because, a Government has issued a new currency that is valued at the same rate as the old currency; a currency union is using a fixed exchange rate.

9. The effects of this phenomenon would be felt in times to come as well. idemitsu. (n.d.). *The First Oil Crisis and Advancing Overseas*. idemitsu. Retrieved December 23, 2022, from https://www.idemitsu.com/en/company/history/9.html

10. A contractionary monetary policy is intended to reduce the monetary expansion to fight inflation. A rising inflation, considered to be a primary indicator of an overheated economy can lead to excessive speculation and unsustainable capital investment. The tools employed to bring this about are - raising the short-term interest rate thus reducing money supply, raising the reserve requirements to decrease the money supply, and expanding open market operations by selling securities to again reduce the amount of money circulating in the economy.

11. The concessional Structural Adjustment Facility (SAF) established in 1986 and the Enhanced Structural Adjustment Facility (ESAF) which replaced the SAF became the primary vehicles of the IMF policy programs in the developing world. These initiatives met with mixed reactions with some lauding the Fund for tackling issues which were perceived to be the stepping stones for sustained growth and employment while the critics upbraided the Fund for diminishing the sovereign states ownership of economic reform. Evaluations of the EASF indi-

cated that country ownership along with civil society engagement was crucial to the success of poverty reduction. This resulted in the conversion of the EASF into the Poverty Reduction and Growth Facility Program (PRGF) in 1999 to support the member countries poverty reduction strategies. For 'Is the SAF really working?' see, International Monetary Fund (IMF). (1999). (rep.). *The IMF's Enhanced Structural Adjustment Facility (ESAF): Is It Working?* Retrieved December 23, 2022, from https://www.imf.org/external/pubs/ft/esaf/exr/.

12. Structural Adjustment Programmes (SAPs) consist of loans (Structural Adjustment Loans, SALs) provided by the IMF/WB to countries that experience economic crises. See Mohan, G. (2009). Structural adjustment. *International Encyclopedia of Human Geography*, 1–9. https://doi.org/10.1016/b978-008044910-4.00123-1

13. When the Bush Administration assumed office in 1989, the new Secretary of the Treasury, Nicholas Brady, announced that the only way to address the sovereign debt crisis was to encourage the banks to engage in 'voluntary' debt-reduction schemes. Countries were to implement market liberalization in exchange for a reduction of the commercial bank debt, and in many cases, new money from commercial banks and multilateral agencies. Vásquez, I. (1996). THE BRADY PLAN AND MARKET-BASED SOLUTIONS TO DEBT CRISES. *Cato Journal*, *16*(2), 233–243.

14. A debt-equity swap is a refinancing deal in which a debt holder gets an equity position in exchange for the cancellation of the debt. Buy-backs is/was a rather controversial feature of the Brady Plan by using the scarcer resources from the debtor countries to buy back its debt. This is controversial because capital has more value in debtor countries than abroad, and thus transferring additional current resources from the country to its creditors would directly and negatively impact welfare spending by the debtor countries, and secondly, the myth that the debtor buying back debt from the open market would help it benefit from a discount price was conclusively debunked by Kenneth Rogoff by proving that under symmetric informational assumptions, these buy-backs hurt the country since the purchase price incorporates and transfers to the seller all the benefits caused by a reduced debt. Exit bonds are a modified or rescheduled bonds, usually issued by a low-rated sovereign borrower to a long-term creditor. For buy-backs, see Bulow, J., & Rogoff, K. (1988). The Buyback Boondoggle . *Brookings Papers on Economic Activity* , (2), 675–704.

15. We shall look into the Indian crises in a separate Chapter.

16. The UK's painful experiences from the end of the Bretton Woods system in 1971 until the adoption of inflation targeting in 1992 resulted in a consensus that price stability is the main objective of monetary policy and that central bank independence is the bets way to achieve price stability. Two implications arise from this, viz. the Bank of England's main task is to reduce inflation (by increasing the interest rates, even if the Government deems otherwise, and the Government will be tempted to interfere with the Bank's policy making to protect its vote bank, in that the vote bank is not facing high borrowing and mortgage costs. Turner, J. (2022, November 8). *The birth of inflation targeting: why did the ERM crisis happen?* Economics Observatory . Retrieved December 23, 2022, from https://www.economicsobservatory.com/the-birth-of-inflation-targeting-why-did-the-erm-crisis-happen

17. A capital account liberalization is a decision by a country's government to move from a closed capital account regime, where capital may not move freely in and out of the country, to an open capital account system in which capital can enter and leave at will. There are two views employed by developing countries as regards the choice of capital account liberalization. The first view, of Allocative Efficiency draws on the predictions of the standard neoclassical growth model, whereby liberalizing the capital account facilitates a more efficient international allocation of resources and produces all kinds of salubrious effect. Here, the resources flow from capital-abundant developed countries, where the return to capital is low, to capital-scarce developing countries where the return to capital is high. The flow of resources into the developing countries reduces their cost of capital, triggering a temporary increase in

investment and growth. The second view regards Allocative Efficiency as a fanciful attempt to extend the results on the gains to international trade in goods to international trade in assets. This alternative view is bets characterized by Dani Rodrik in his 1998-published and provocatively titled "Who Needs Capital Account Convertibility?", where he argues that the benefits of an open capital account, if indeed they exist, are not readily apparent, but that the costs are manifestly evident in the form of recurrent emerging-market crises. Henry, P. B. (n.d.). Capital Account Liberalization: Theory, Evidence, and Speculation. *FEDERAL RESERVE BANK OF SAN FRANCISCO - WORKING PAPER SERIES*. Retrieved December 23, 2022, from https://www.frbsf.org/economic-research/wp-content/uploads/sites/4/wp07-32bk.pdf.

18. For Brazil, the period 1994-1999 was a turning point in its economic history, as it represented the implementation of the Real Plan in 1994, the devaluation crisis in 1999, and the subsequent adoption of inflationary targets. The period also left its scars, such as high budget and current account deficits, accompanied by a policy of elevated interest rates and, until 1999, a highly appreciated exchange rate. See Averbug, A. (2002). The Brazilian economy in 1994-1999: From the real plan to inflation targets. *The World Economy*, *25*(7), 925–944. https://doi.org/10.1111/1467-9701.00472

19. This was because the economic policies were under the scrutiny of IMF-supported programmes. With an engagement going back to the early 1990s, Argentina did enjoy a stable period of growth and low inflation until 1998, when it slipped into recession, partly due to strictures in convertibility regime that arrested macroeconomic tools to plan a recovery. As the economy slowed, and the international investors became nervous, the country's high external debt service burden grew to a point where the debt became unsustainable. For more, see (n.d.). (working paper). *The Role of the IMF in Argentina, 1991-2002*. Retrieved December 23, 2022, from https://www.imf.org/external/np/ieo/2003/arg/index.htm#top.

20. Margin call occurs when the broker asks for additional funds because the equity in the customer's account declines below certain required levels.

21. Brinke, K. (2004). *The Turkish 2000-01 banking crisis*. RaboResearch - Economic Research (Rabobank). Retrieved December 23, 2022, from https://economics.rabobank.com/publications/2013/september/the-turkish-2000-01-banking-crisis/.

22. One must speak here of inadequacies in ratings agencies s they were accused of having failed to predict the 1990s East Asian Crisis and then for overly under-rating them when the even unfolded. Ratings agencies hav been issuing unsolicited opinions on the creditworthiness of borrowers for decades. Only in the late 1960s did Moody's begin to charge issuers for their services. Moody's was subject to US Department of Justice investigation in 1996 for its anti-competitive practices in its ratings of some types of debt securities. Gilpin, K. N. (1996, March 28). Federal Antitrust Inquiry Has Begun Against Moody's. *The New York Times*. Retrieved December 26, 2022, from https://www.nytimes.com/1996/03/28/business/federal-antitrust-inquiry-has-begun-against-moody-s.html.

23. The 2008-09 sub-prime crisis and financial recession is to be dealt with separately.

24. A special mention has to be made of the G7 Summit in Halifax, Nova Scotia, Canada in 1995, which had specific emphasis on giving member countries mutual encouragement in the face of difficult economic decision. Some of the prime issues discussed during the Summit were, growth & employment; meeting the challenges of the 21st century; strengthening the global economy; promoting sustainable development; reducing poverty, safeguarding the environment, preventing & responding to crises; reinforcing coherence, effectiveness & efficiency of institutions; creating opportunities through open markets; economies in transition; and nuclear safety. At the Summit, the roles of the Paris and London Clubs were acknowledged in restructuring sovereign debt, but, the proposal for establishing an international bankruptcy court to meet the need of sovereign debtors was rejected.

25. EFM fosters consultations between the Fund's Management and Executive Board; SDDS &

GDDS helps improve transparency.

26. SRF was put in place to provide financial assistance to a member country experiencing exceptional balance of payments difficulties due to a short-term financing need resulting from a sudden and disruptive loss of market confidence reflected in pressure on the capital account and the member's reserves. International Monetary Fund (IMF). (1997, December 17). IMF Approves Supplemental Reserve Facility. *IMF PRESS RELEASE NO. 97/59*. Retrieved December 27, 2022, from https://www.imf.org/en/News/Articles/2015/09/14/01/49/pr9759.

27. The Contingent Credit Line (CCL) was introduced in 1999 to provide members with strong economic policies with a precautionary line of defense against capital account problems that might arise from contagion. It was never used, since there was a fear that a request for a CCL could be viewed as a sign of weakness rather than strength. Allen , M. (2003). (rep.). *Completion of the Review of the Contingent Credit Lines and Consideration of Some Possible Alternatives*. International Monetary Fund (IMF). Retrieved December 27, 2022, from https://www.imf.org/external/np/pdr/fac/2003/111203.htm.

28. The FSF was established by the G7 finance ministers and central bank governors in 1999 to promote international financial stability through enhanced information exchange and international cooperation in financial market supervision and surveillance. The current FSF comprises national financial authorities (central banks, supervisory authorities and finance ministries) from the G7 countries, Australia, Hong Kong, Netherlands, Singapore and Switzerland, as well as international financial institutions, international regulatory and supervisory groupings, committees of central bank experts and the European Central Bank. The FSF Secretariat is based at the Bank for International Settlements in Basel, Switzerland. Reserve Bank of India . (2009, March 17). *India to Become Member of Financial Stability Forum*. Retrieved December 27, 2022, from https://www.rbi.org.in/scripts/BS_PressReleaseDisplay.aspx?prid=20332.

29. The objective of an SDRM is to facilitate the orderly, predictable, and rapid restructuring of unsustainable sovereign debt, while protecting asset values and creditors' rights. If appropriately designed and implemented, such a mechanism could help to reduce the costs of a restructuring for sovereign debtors and their creditors, and contribute to the efficiency of international capital markets more generally. For exposition of SDRM, see Krueger, A. O. (2002). (rep.). *A New Approach to Sovereign Debt Restructuring*. International Monetary fund (IMF). Retrieved December 27, 2022, from https://www.imf.org/external/pubs/ft/exrp/sdrm/eng/sdrm.pdf. For a critique of SDRM, see Raffer, K. (2006). The IMF's SDRM—simply disastrous rescheduling management? *Sovereign Debt at the Crossroads*, 246–266. https://doi.org/10.1093/0195168003.003.0013

30. A dense and very detailed memoir by Timothy Geithner titled "Stress Test: Reflections on Financial Crises" is a good beginning to understand the crises. As Chairman of the Federal Reserve Bank of New York, Geithner explains what went wrong, and how Ben Bernanke (Chairman, Federal Reserve),Hank Paulson (Treasury Secretary), and Geithner attempted to fix or relieve some stress on the markets. He goes into depth about the stress test they designed for the banks to avoid future problems. Geithner explains what attempts were made at legislation to prevent future problems along with what is good, adequate or poor and what is missing and needs to be corrected.

31. Across the Atlantic, Iceland, Ireland and Spain were no different when it came to real estate surges and subsequent collapse of the markets there.

32.

33. The 2011 Hollywood Movie starring Kevin Spacey and Jeremy Irons, "Margin Call" comes to mind. A respected financial company is downsizing, and one of the victims is the risk-management division head, who was working on a major analysis just when he was let go. His protégé completes the study late into the night, then frantically calls his colleagues in about

the company's financial disaster he has discovered. What follows is a long night of panicked double-checking and double-dealing as the senior management prepare to do whatever it takes to mitigate the coming debacle even as the handful of conscientious comrades find themselves dragged along into the unethical abyss. Although a fictional account of true events, it portrays the madness on the Wall Street during the crisis, and is most notable for Jeremy Irons' dialogue - 'Be first. Be smarter. Or cheat'. imdb. (2011). *Margin Call* . *Margin Call*. Retrieved December 29, 2022, from https://www.imdb.com/title/tt1615147/.

34. Zero Interest Rate Policy or (ZIRP) and Negative Interest Rate Policy (NIRP) have been practiced in the wake of the global financial crisis. ZIRP is a macroeconomic concept that describes conditions characterized by extremely low nominal interest rates. In other words, this is a situation when Central banks pushes interest rates to 0% for its short-term benchmark. ZIRP is an unconventional monetary policy instrument and can be used to arrest slow economic growth, deflation, and deleveraging. The goal of ZIRP is to spur economic activity by encouraging low-cost borrowing and greater access to cheap credit by firms and individuals. NIRP has been implemented by countries such as Switzerland, Sweden, Denmark, Japan and the Euro area. While the official interest rates that the Central banks set have gone negative, that generally doesn't mean that the interest rates on people's bank accounts have been below zero. And while the interest rates on the money people borrow have generally fallen, they have still tended to be above zero, too. When interest rates are negative, financial firms are more likely to charge lower interest rates on loans to customers. Customers will then spend this money on goods and services, which helps boost growth in the economy and inflation. Lower interest rates also tend to lead to a lower exchange rate. A lower exchange rate, in turn, will tend to mean that exports of goods and services are cheaper for people in other countries to buy. And a lower exchange rate will also tend to mean that goods and services from abroad cost more.So a central bank might want to lower interest rates if growth or inflation is too low.

35. Quantitative Easing (QE) is an unconventional monetary policy tool employed by the Central banks, and is often controversial, muddy with little empirical evidence that isn't ambiguous. QE is a large-scale purchase of assets by the Central banks. Immediately after the crisis, QE was carried out by the Fed leading to a large increase in the Federal Reserve's balance sheet. Typically, these assets are long-maturity government debt but also of private assets, such as corporate debt or asset-backed securities. The process of reversing QE is known as Tapering.

36. Cliff Effect is the disproportionate positive or negative results of an action. For eg, if a company takes on too much debt and a credit ratings agency downgrades its bond rating, this may increase the company's borrowing costs significantly, which in turn gives it less cash on hand to make coupon payments. This can lead to a further downgrade and the cycle would continue. The cliff effect that relatively separates a company from being seen as quite healthy to being seen as a poor investment. Cliff Effect. (n.d.) *Farlex Financial Dictionary*. (2009). Retrieved December 30 2022 from https://financial-dictionary.thefreedictionary.com/Cliff+Effect

37. *Post-2008 financial crisis reforms*. Financial Stability Board. (n.d.). Retrieved December 30, 2022, from https://www.fsb.org/work-of-the-fsb/market-and-institutional-resilience/post-2008-financial-crisis-reforms/

38. The Economic Stimulus Act of 2008 contained multiple provisions to boost the economy in the wake of the global finance recession. The law provides for tax rebates to low- and middle-income U.S. taxpayers, tax incentives to stimulate business investment, and an increase in the limits imposed on mortgages eligible for purchase by government-sponsored enterprises (e.g. Fannie Mae and Freddie Mac).

39. TARP was a critical part of the government's efforts to combat the worst financial crisis since the Great Depression. Pioneered by Hank Paulson, the then Treasury Secretary and signed into Law with the passage of the Emergency Economic Stabilization Act, 2008, TARP's orig-

inal rationale was to increase liquidity in the money markets and secondary and mortgage markets by purchasing the MBS, and through that reduce the potential losses of the institutions that owned them. Later, TARP's aim was modified slightly to allow the government to buy equity in banks and other financial institutions. TARP initially gave the Treasury purchasing power of $700 billion; the Dodd-Frank Wall Street Reform and Consumer Protection Act (simply referred to as Dodd-Frank) later reduced the $700 billion authorization to $475 billion. Segal, T. (2020, September 29). Troubled Asset Relief Program (TARP), What It Was, How It Worked. C. Potters (Ed.), *Investopedia*. Retrieved December 30, 2022, from https://www.investopedia.com/terms/t/troubled-asset-relief-program-tarp.asp.

40. Global crisis in Italy has impacted on a system that had deteriorated after twenty years of political instability and economic decline. Since 2000 coalitions of both the Right and Left have been in office in Italy and neither has proved capable of solving Italy's problems. When the global economic crisis hit the country, Berlusconi's government confronted it in two main ways: supporting banks and big firms, and cutting public expenditure. This policy had also been recognised as the correct one by the Opposition but the way in which the Government put it into practice was contested – mainly on grounds of a lack of transparency, inefficiency and inequity. The global crisis has also shaped the political balance in Italy. Quirico, R. D. (2010). Italy and the Global Economic Crisis. *Bulletin of Italian Politics*, *2*(2), 3–19.

41. During the period from 31 December 2006 to 31 December 2009 Italian public debt increased from €1,559 billion to €1729 billion. In the same period the deficit rose from approximately €49 billion to €81 billion.

42. Saito, J. (2010, October 1). *Why Was Japan Struck So Hard by the 2008 Crisis?* Japan Economy Update. Retrieved January 2, 2023, from https://www.jcer.or.jp/english/why-was-japan-struck-so-hard-by-the-2008-crisis

43. The initial program totaled 4 trillion Yuan ($586.68 billion), and comprised CNY 1.18 trillion in Central Government funding plus local government inputs and bank credit. The package amounted to 12.5% of China's GDP in 2008, to be spent over 27 months. In relative terms, this was the biggest stimulus package in the world, equal to three times the size of the United States effort. The United States stimulus including temporary tax cuts and increased government spending was worth just over USD 700 billion, or about 5% of GDP, spread over two years.

44. The Currency Composition of Official Foreign Exchange Reserves (COFER) database is managed by the Statistics Department of the IMF. The COFER Website disseminates end-of-period quarterly data on COFER in the format of statistical aggregates. The currencies identified in COFER are: U.S. dollar, Pound sterling, Japanese yen, Swiss francs, Canadian dollar, Australian dollar, and Euro. All other currencies are indistinguishably included in the category of "other currencies." Prior to the introduction of Euro in 1999, several European currencies were separately identified in COFER. COFER data are reported to the IMF on a voluntary and confidential basis. COFER data for individual countries are strictly confidential. The data published on this website are aggregates for each currency for three groupings of countries (total, advanced economies, and emerging and developing economies).

45. See Jhang, M. (2009, April 14). *The Impact of the Global Crisis on China and its Reaction (ARI)*. GLOBALIZATION, DEVELOPMENT AND GOVERNANCE. Retrieved January 3, 2023, from https://www.realinstitutoelcano.org/en/analyses/the-impact-of-the-global-crisis-on-china-and-its-reaction-ari/

46. Joseph, M. (2009). InWEnt-DIE Conference on Global Financial Governance – Challenges and Regional Responses. In *Global Financial Crisis: How was India Impacted?* Berlin; idos. Retrieved January 3, 2023, from https://www.idos-research.de/fileadmin/_migrated/content_uploads/Global_Financial_Crisis_and_Impact_on_India_Berlin030909.pdf.

47. Subbarao, D. (2009, March). *India - Managing the Impact of the Global Financial Crisis*. *Confederation of Indian Industry's National Conference and Annual Session 2009*. New Delhi. Retrieved January 3, 2023, from https://rbidocs.rbi.org.in/rdocs/Speeches/PDFs/IGFCCII26309.pdf.

2. INTERMEDIATE - THE CURIOUS CASE OF TRILEMMA

Developing countries or Emerging Market Economies have had to face the brunt of the severe hard currency shortages as a result of the financial crises that riddled through the 1990s and 2000s. One mechanism that these countries inserted in their policy reforms as a result was hoarding international reserves. Yet another reason that compelled these countries to go for such hoardings was suspicion towards the International Monetary Fund (IMF) as a source of emergency funds with its stringent conditions imposed on such debt-ridden countries. What, then are international reserves? International Reserves or reserve assets in the balance of payments are those external assets that are readily available to and controlled by a country's monetary authorities, usually the Central Bank. According to the IMF, these reserves are comprised of foreign currencies, assets denominated in foreign currencies, gold reserves, special drawing rights (SDRs) and the IMF reserve positions. These reserves may be used for direct financing of international payments imbalances via intervention in the Forex markets in order to affect the exchange rate of the country's currency.[1]

There are three key pillars to Macroeconomic policies, viz. Fiscal Policy, Monetary Policy and Exchange Rate Policy. Fiscal is when the Government changes spending and taxation. Governments can then influence economic activity through recurrent and capital expenditure directly, or through the effects of spending, taxes and transfers on private consumption, investment and net exports indirectly. Fiscal policy is an instrument for stabilizing fluctuations that might riddle the economy and reflects a discretionary action undertaken by the government, or as wrought by automatic stabilizers, the latter of which refer to governmental expenditure and revenue that are sensitive to changes in the economy, and to the size and inertia of the government in a generic sense.[2] Monetary policy is when the Central Bank changes money supply and this affects interest rates which in turn affect investment and consumption. The central banks change the interest rates in the money market to effectuate monetary policies, and relies on open market operations by either increasing or decreasing the supply of funds used to settle transactions between banks. If demand pressures are building up in the economy, the central banks tighten their policy to dampen demand, and conversely when weak demands persist, monetary policy can be loosened to pump up economic activity. But merely tweaking monetary policy isn't suggestive or determinant of expansionary or contractionary economy, as the economies undergo such phases even when monetary polices haven't been tweaked. In an open economy, changes to interest rates will impact demand for currency. The third is the exchange rate policy.[3] The exchange rate is a key financial variable that affects the decisions made by foreign exchange investors, exporters, importers, bankers, businesses, financial institutions and policy-makers, since they affect the value of international investment portfolios, competitiveness of the EXIM sector, international reserves, and currency value of debt payments.

Before linking the three pillars of macroeconomy to the continuing problem of the 'Trilemma', it is essential to know what is actually meant by the word, which was adumbrated at the end of the last chapter. Economic policy deciders or makers grapple with permutations and combinations of Monetary Independence, Exchange Rate stability and Financial Openness while deciding on their policies to reach out to a level of sustainability in economic growth. The Trilemma states that with whatever permutation and combination, one could only normalize two of the three variables. In other words, of the three variable choices of Monetary Independence, Exchange Rate Stability and Financial Openness, policy makers must face a trade-off of choosing two, but cannot choose all of the three. The figure below is a schematic representation of the Trilemma.

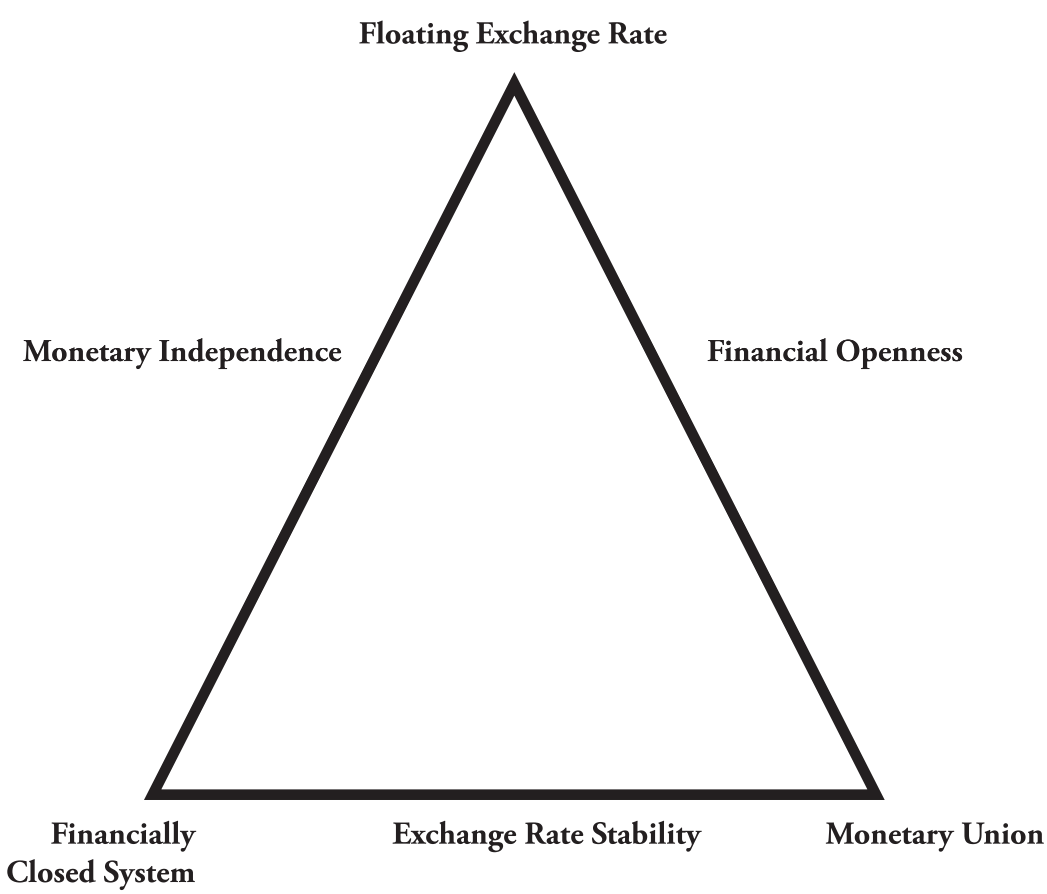


Figure 1 - Schematic diagram of the Trilemma

The three sides of this triangle represent the ideal goal, but the Trilemma says that it is not possible to be on all three sides simultaneously. for instance, the top vertex, floating exchange rate is associated with the full extent of monetary independence and financial openness, but doesn't partake in exchange rate stability.

[4]As financial globalization began to gather momentum through the 80s and 90s of the last century, the influence of financial markets became significant. This ushered in an era of accelerating financial liberalization to countries hitherto untouched by it. Though liberalization helps promote efficient allocation of financial resources, alleviates financial repression, and enhance economic development, it also has an underside to it, in that it can exacerbate boom-bust cycles as more spigots of cross-border capital flows are opened. When it comes to monetary independence, this tool could stabilize economy through monetary policy. But, the real world is far from an ideal and is riddled with price and wage rigidities with the likelihood of enticing policymakers at manipulating output movements, thus leading to output and inflationary volatility. Elsewhere, if autonomy of the monetary authorities is geared towards monetizing the fiscal debt, this could destabilize the economy as a result of inflationary volatility. Exchange rate stability enhances price stability by providing a hinge point, and lower risk premium by mitigating uncertainty, thereby fostering investment and international trade. [5]If during an economic crisis, maintaining a pegged exchange rate increases the credibility of policy makers, then greater levels of exchange rate stability could also rid policy makers of a policy choice of using exchange rate as a tool to absorb external shocks. This is strongly argued by Eswar Prasad[6] when he says that exchange rate rigidities would prevent policy makers from implementing appropriate policies consistent with macroeconomic reality, implying that would then be prone to cause asset boom and bust by overheating the economy.

If we look back at Figure 1 and conflate it with the rudiments of Trilemma, it can be seen that of the many pairs that can be made of the three policy choices, the effective efficiency or otherwise of each choice made thus can differ on what the other policy is paired with. For instance, Exchange rate stability can be more destabilizing when it is paired with financial liberalization (openness), while, if it is paired with monetary independence, exchange rate stability can be more stabilizing. This gets us to a set of differences between the developed and the developing world, and how have, in a more or less generic sense of the term, used these policy choices. For the developed world, financial openness surged in the 1990s, while monetary independence showed a declining trend. when the decade of the 1990s ended, exchange rate stability rose. Many pundits claim these trend-lines were as a result of the introduction of the EURO as a common currency. For the developing world, exchange rate stability declined through the decade and a half starting from the 1970s, and in the wake of some degree of retrenchment due to the debt crisis in the 1980s, financial openness began to rise in the decade of the 1990s (India is a good example here contextually). However, monetary independence did not show any measurable trend-lines. what, however was interesting was these developing countries began to hoard volumes of international reserves during the this time to act as a buffer in a trade-off arising from the Trilemma. So, what is the link between international reserves and the three policies that comprise the Trilemma? Holding an adequate amount of international reserves may allow an economy to achieve a certain target combination of the three Trilemma policies. For example, a country pursuing a stable exchange rate and monetary autonomy may try to liberalize cross-border financial transactions while equally determined not to give up the current levels of exchange rate stability and monetary autonomy. In such a case, the monetary authorities (Central banks) may try to hold a sizable amount of international reserves so that they can stabilize the exchange rate movement while retaining monetary autonomy. Or, an economy with open financial markets and fixed exchange rate could independently relax monetary policy, though temporarily, as long as it holds a massive volume of international reserves.[7] If this were the case, how did the Global Financial Crisis impact the relationship? The answer is more geographical determinants, as developing countries in Asia have tended to increase their monetary independence along with their retention of international reserves, while developing countries in South and Central America have tended to arrest their financial openness, and developing countries in eastern and central Europe have affined towards more financial openness trading-off monetary independence.

Developing countries with persistent current account surpluses (some of the Asian economies have shown this pattern) may experience surges in gross capital inflows.[8] These could be due to portfolios from the developed world moving towards assets in the developing world. Upon reaching the developing world, these portfolio demands are accommodated through the intervention of the Central Bank, as a result of which international reserves see an uptick. When the Central Bank undertakes currency appreciation, net private claims of foreigners rise as a result of reduced current account balance. But there is a positive correlation between net emerging market capital inflow surges and easing of monetary policy.[9] Whether the Central Bank intervenes or not, there is an immediate impact on the domestic financial markets, although if the Central Bank intervenes, the impact is expansionary from the point of view of increased domestic money supply and domestic bank credit. But, capital inflow surges can lead to fragilities and thus also open up to capital flow reversals. After the Global Financial Crisis, the recoveries of the developed world had slowed considerably due to the effects of the public and private debt overhang, and the recourse taken by the Central banks in those countries continually put in stimulus in the form of ultra-low interest rates coupled with forward guidance, which is the likely future course about monetary policy initiatives, and unorthodox quantitative measures. Developing countries, on the other hand, which had avoided debt run-ups suffered less, and thus were less vulnerable to forward guidance tweaks in comparison to the developed countries. But what did happen with these developing countries was that currencies, bonds, equities and real-estate had all appreciated due to transfer of portfolio from the developed to the emerging world. Appreciation contributed to financial stability as well as competitiveness concerns, and countries that had resisted exchange rate stability through intervention saw increased pressure on the domestic asset prices, on domestic growth and in general on inflation. Due to these increased pressures, the developing world is now susceptible to global financial flows (including reversals)[10].

As the landscape changes from financial feast to financial famine (that is how a logical sequence is ought to be as regards the effects of global portfolio shifts that one is witnessing at present), the role of monetary policy gains a lot of gravity undoubtedly for these developing countries, but cannot be considered as the sole response to capital inflow surges. In the words of Guillermo Calvo, Leonardo Leiderman and Carmen Reinhart,[11]

[T]he countries that have been most successful in managing capital flows [...] have implemented a comprehensive policy package and not relied on a single instrument. At the outset of the surge in inflows, these countries reacted by trading inflows as temporary and resisted a nominal exchange rate appreciation; the foreign exchange intervention was mostly sterilized. As the inflows persisted, sterilization efforts were scaled back and the domestic currency was allowed to appreciate. To moderate the extent of the real appreciation and prevent the economy from overheating, fiscal policy was tightened. To moderate the volume of the inflows and lengthen their maturities, exchange rate flexibility was increased and measures to curb inflows wee implemented.

BOX 5 **INDIA'S TRILEMMA**

The Reserve Bank of India is faced with two major issues, viz. the dilemma of "Growth versus Inflation", and the "Impossible Trinity" or "Trilemma", which deals with exchange rates, the inflow of capital and monetary policy independence.

- Exchange Rate - The RBI has to responsibility to ensure that the currency (INR) does not fluctuate too much. The INR does not have a fixed rate. So, the RBI cannot intervene too much to fix the exchange rate. At best, it can buy or sell Dollars to control fluctuations.

- Inflow of Capital - As the exchange rate is not fixed, investments from abroad or payments done by India in foreign currency impacts the INR, and in turn impacts the exchange rate.

- Monetary Policy Independence - As the RBI does not have the freedom to set exchange rates, or to influence inflow of capital, it doesn't really enjoy autonomy in setting interest rates. Autonomy, in this sense is autonomy from external factors. In other words, if the RBI wants to have the autonomy in setting interest rates, then it must be able to control exchange rates as well as influence inflow of capital.

- What then is the Trilemma that the RBI faces? Assume that the RBI is able to fix exchange rates independently. This is independent of the monetary policy of any other country, C. Assume that the RBI fixes the interest rate @8% because India's inflation is higher. It's interest rate is higher than C's, which is @7%. Higher interest rates implies higher returns on deposits. So investors are likely to borrow cheap in C and invest in India. This means that inflow of capital is going to be high. This will appreciate the value of INR. Now that money is coming into the system, it means that supply of money is high. When supply is more than demand, price would fall. And in this case, the price is the interest rate. Now, a fall in interest rate is against RBI's policy of setting the interest rate high, and thus inflation will not be curbed. To successfully negotiate this, the RBI will have to control inflow of capital. This means that it can either choose to be independent or control flows, and that's RBI's Trilemma.

In the current scenario, India like any other economy continues to face the Trilemma. India has opted for monetary independence, and usually it allows for a free exchange rate. But, if Vector Autoregressive models are used to assess the quantum and effectiveness of sterilization in India, and the impact of forex market interventions on monetary independence post 1991, then it is discovered that there is effective sterilization of the money supply impact arising from the forex market interventions and no major constraining influence of these on the independence of monetary policy.*

BOX 6 **NATIONALIZATION OF THE BANKING SECTOR IN INDIA**

In India, the RBI (Transfer of Public Ownership) Act was passed in order to nationalize the Reserve Bank of India and as a result on the 1st of January, 1949, the RBI was nationalized. Similarly, in the year 1955 the Imperial Bank of India underwent nationalization and later it was named as the State Bank of India, which, in the present time, is the largest public sector bank in India. The SBI was established by the State Bank of India Act 1955 and since then it has been serving as RBI's principal agent responsible for handling bank transactions across the country.

Nationalization refers to the transfer of public sector assets to be operated or owned by the state or central government. In India, the banks which were previously functioning under the private sector were transferred to the public sector by the act of nationalization and thus the nationalized banks came into existence. There were six main reasons why nationalization was carried out, viz.

1. For social welfare
2. for developing banking habits
3. for expansion of banking sector
4. for controlling private monopolies
5. to reduce regional imbalances, and
6. for prioritizing sector lending.

The government through the Banking Companies (Acquisition and Transfer of Undertakings) Ordinance, 1969, and nationalized the 14 largest commercial banks on 19 July 1969. These lenders held over 80 percent of bank deposits in the country. Soon, the parliament passed the Banking Companies (Acquisition and Transfer of Undertaking) Bill, and it received presidential approval on 9 August 1969. The banks that were nationalized included Allahabad Bank, Bank of Baroda, Bank of India, Bank of Maharashtra, Central Bank of India, Canara Bank, Dena Bank, Indian Bank, Indian Overseas Bank, Punjab National Bank, Syndicate Bank, UCO Bank, Union Bank and United Bank of India.Thereafter, in 1980, six more banks that were nationalized included Punjab and Sind Bank, Vijaya Bank, Oriental Bank of India, Corporate Bank, Andhra Bank, and New Bank of India.

A less productive policy mix has consisted of persistent sterilization that keeps short-term interest rates comparatively high, heavy intervention in the foreign exchange market that results in little short-run exchange rate uncertainty, and no controls on short-term capital movements. All of these policies have tended to provide especially strong incentives for short-term capital inflows.[12]

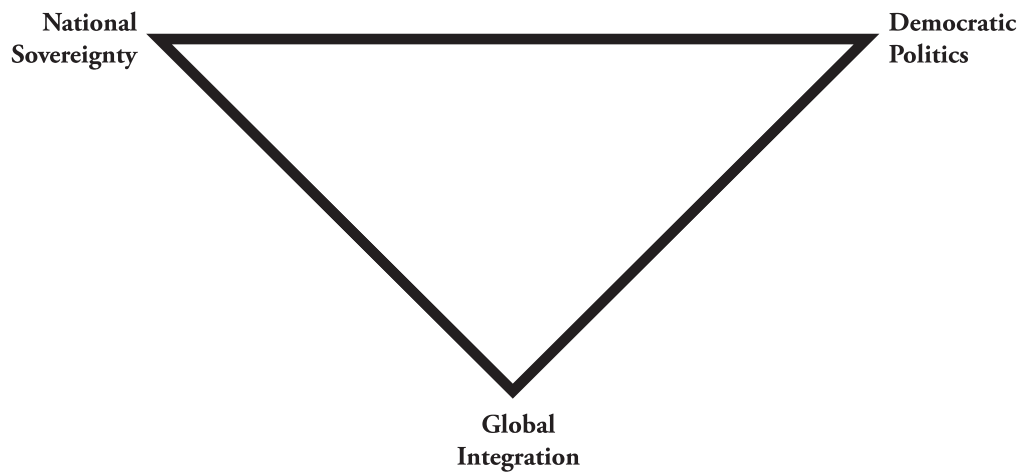


Figure 2 - Yet another schematic diagram of the Trilemma

From the look of it, it seems that there is no easy resolution to the question of "Trilemma", or is there? Let us conclude this section with the challenges encountered along the way. Extrapolating the definition of the Trilemma to an extreme, it is noticed that if a government chooses free capital flow (i.e. sans the tariffs and controls) and managing monetary independence (i.e. by moving the interest rates up or down as their discretion allows), it will have to abandon fixed exchange rates and embrace floating rates. If a government instead opts for fixed exchange rates and an autonomous monetary policy, it will end up with a Bretton Woods scenario with arrested capital mobility. And if a government opts for fixed exchange rates and mobile capital, it will have to give up monetary autonomy, as was the case with the gold standard. Figure 2 is an extrapolated lateral inversion of Figure 1, or an extremum. The idea is elaborated in Dani Rodrik,[13] where nation states, democratic polity and tight coupling of global economic integration lead to an inescapable paradox. Rodrik opines, if the government chooses sovereignty and democratic politics, it has to renounce further global integration, ending up with some sort of Bretton Woods agreement. If the government embraces deepening global integration and democratic politics, it will end up with increased global federalism and less sovereignty, and if the government chooses to strengthen global integration and nation-states, it will end up with a golden straitjacket and limited leverage for democratic voting. In other words, it is possible to have any two, but never all three. If global financial integration is deepened, it will invariably lead to elimination of differences in costs that the sovereign states impose on economic activities, be they sovereign risks, regulatory discontinuity, or costs for the supervision of domestic financial intermediaries. This is a cul-de-sac, and that is because it is caught up in a monetary monoculture, i.e almost all the currencies prevalent in the world today are similarly designed and provide the same monetary channels when it comes to liquidity.

The need of the times is to have complementary currencies to make the global financial system more resilient and stable. There are at least a dozen Central banks[14] that are experimenting with digital currencies, in an attempt to expand the base money to provide a better control and regulation over monetary and fiscal system. The idea behind complementary currencies is to empower them to act as lenders of last resort, as some form of a rescue mission that provides for societal transition in general and eventually becomes more accommodative. One can think of cryptocurrency as one form of complementary currency. Complementary currencies can plug into the financial system when a deeper financial integration is envisioned and sought. Such currencies can then also be channeled towards specific purposes that are more societal in import. Figure 2 can then become,

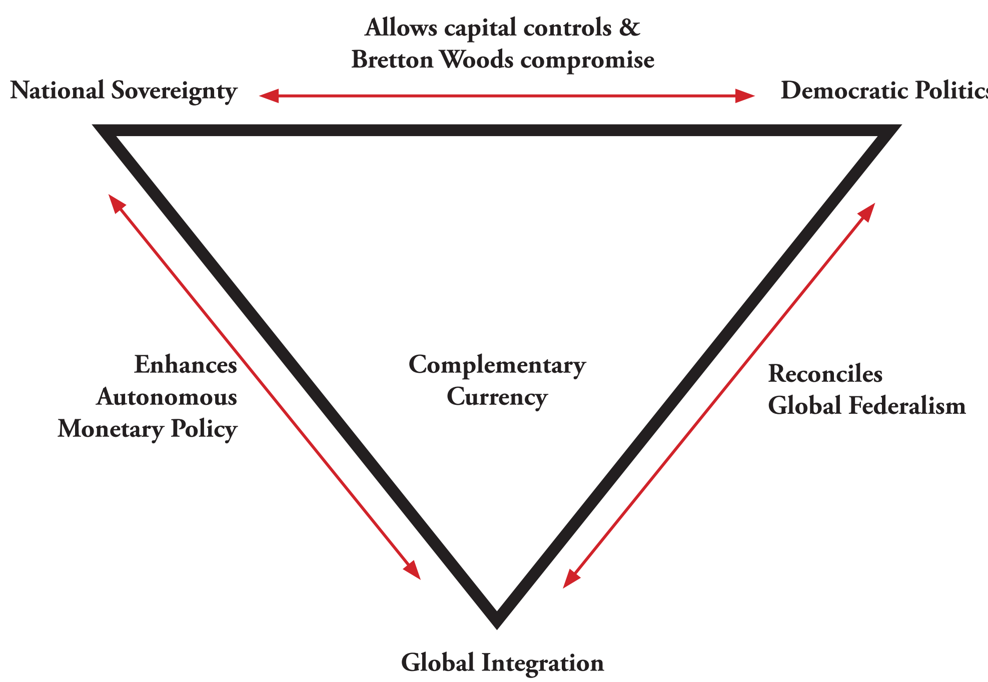


Figure 3 – The Trilemma with the introduction of complementary currency

What Figure 3 tells us basically is that reconfiguration of the Trilemma helps safeguarding in the present-day deepening of global financial integration that is vulnerable to Back Swan theoretical outcomes, non-linear tipping points, fat-tail events and asymmetric shocks. These vulnerabilities are, in all probability the outcome of financial architecture that has been prevalent for quite a long time, and unless complementariness is reached in a parallel architecture, the Trilemma would continue to haunt the global financial system. An example of how the Trilemma is negotiated is in the case of EU, where the ability to independently issue liquidity at a national, regional or corporate level to finance local, regional or global commons, the tight hold for member countries of the EU can be loosened. A dual currency system would also affect a Bretton Woods-type compromise by establishing a form of capital control and a fixed or pegged currency regime between the two currency systems in question. The plus of a dual currency system lies in the fact that it can further economic and financial integration by providing provisions for liquidity and purchasing power to a majority of the population that has still not been integrated with globalization. But, is this really what is conceived of as a resolution? Granted that such parallel currency systems would help leverage national sovereignty, democracy and deepening financial and economic integration (either by way of Central Bank Digital Currencies or Cryptocurrencies), the practical efficacy would lie in its testability, whereby all three factors constituting the Trilemma can be picked up and considered evenly.

Before concluding the First Intermediate, it is essential to look at the Trilemma that is encountered in blockchains and cryptocurrencies.[15] This segment is slightly technical in nature, and hence the reader can skip it if she wants to.

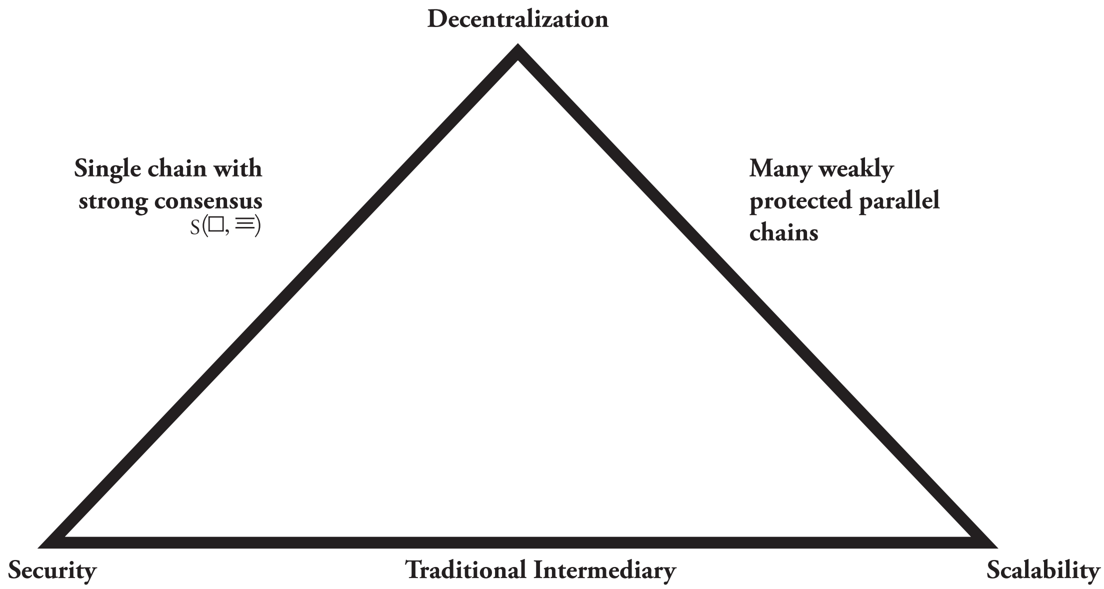


Figure 4 - Vitalik Buterin's Scalability Trilemma (Blockchain Trilemma)

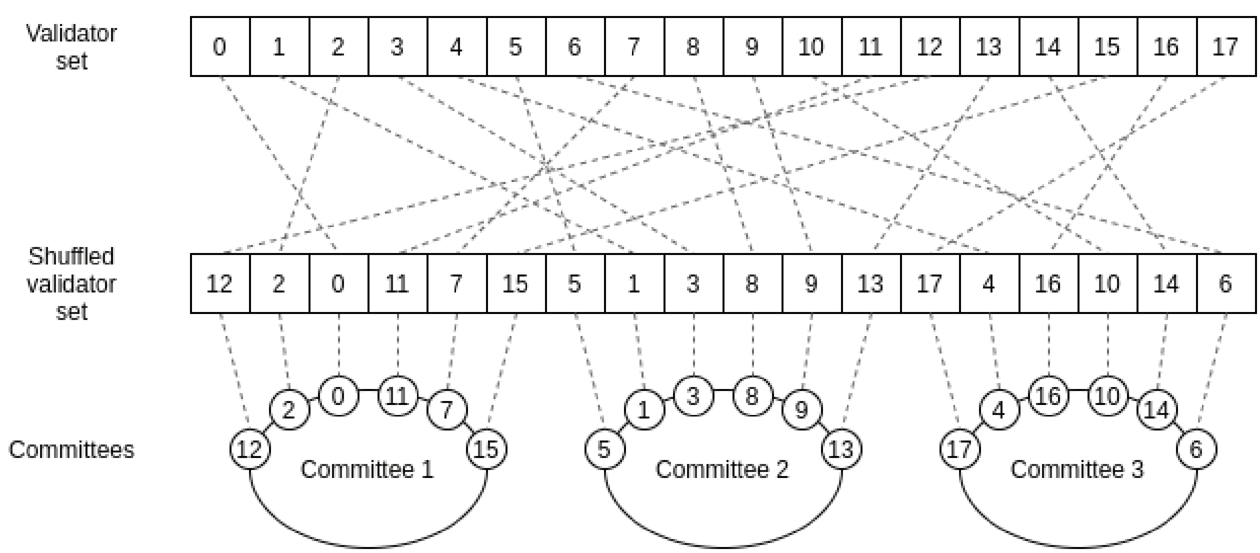
The blockchain trilemma is the notion that decentralization, security and scalability cannot all be represented in one blockchain.

The Bank of International Settlements (BIS) refers to this as the Scalability Trilemma, which is the same as Blockchain Trilemma or the Crypto Trilemma. Now for the parallels, at the bottom of the triangle marked with vertices 'Security' and 'Scalability', the central banks' fiat currencies are generally considered to be secure and scalable, whereas the top vertex of 'Decentralization' does not apply to fiat currencies. Leaping to cryptocurrencies, these are generally decentralized and secure. There are up north of 2 billion digital payments made around the world every day. The process of updating the blockchains used to keep track of these kinds of cryptocurrency exchanges is notably costly in terms of resources[16], and is by comparison with methods like modern credit card transactions, impossibly slow for addressing this volume of transactions. This goes on to question the scaleability of cryptocurrencies. The expansion of scale cryptocurrencies is in part driven by the arrival of new ones, which are decentralized but then often turn out to be less secure[17]. According to the Annual Report[18] of the Bank of International Settlements,

"*The limited scale of blockchain is a manifestation of the so-called scalability trilemma. By their nature, permission-less blockchains can achieve only two of three properties, damle scaleability, security or decentralization. Security is enhanced through incentives and decentralization, but sustaining incentives via fees entails congestion, which limits scaleability. Thus, there is a mutual incompatibility between these three key attributes, preventing blockchains from adequately saving the public interest.*"

The question here is if the crypto trilemma can have a resolution. According to Vitalik Buterin, founder of Ethereum, "Sharding" is the possible resolution, which is the process of verifying the blockchain after undergoing a random splitting up into smaller pieces ("Shards"), such that the transaction blockchain would in effect be verified by a "committee". In layman's terms, sharding would introduce parallel processing, enabling the secure distribution of data storage requirements and making nodes easier to operate. In the current blockchain processing system, transactions are processed one block after the other. But, with sharding, the network can process multiple blocks of transactions concurrently. In the words of Buterin,

[19]"The easiest way to understand sharding is through random sampling. The core idea is as follows: Suppose you have a proof of stake chain with a large number of validators (eg. 10000), and you have a large number of blocks (eg. 100) that need to be verified. No single computer is powerful enough to validate all of these blocks before the next set of blocks come in. Hence, what we do is we randomly split up the work of doing the verification. We randomly shuffle the validator list, and we assign the first 100 validators in the shuffled list to verify the first block, the second 100 validators in the shuffled list to verify the second block, and so on. A randomly selected group of validators that gets assigned to verify a block is called a committee. When a validator verifies a block, they attest a signature implying they have done so. Everyone else, instead of verifying the entirety of 100 blocks, now only verifies 10000 signatures, a much smaller amount of work. Instead of every block being broadcasted through the same P2P network, each block is broadcasted on a different sub-network, and nodes need only join the subnets corresponding to the blocks that they are responsible for. Mathematically speaking, this is brought forth using the Big O Notation,[20] where O(C) refers to the computational capacity of a single node. A traditional blockchain can process blocks of size O(C). A sharded chain can process O(C) blocks in parallel, and each block has O(C) capacity, and so the sharded chain's capacity is O(C²), or what is known as quadratic sharding, and this effect is a key reason why we think that in the long run, sharding is the best way to scale the blockchain."



Even if Sharding is one of the means of addressing the problems of scaleability, other approaches too have been floated, but they all seem to water down decentralization or security for the sake of scaleability. One of these approaches is bigger blocks, while the other is layering. In the former, a blockchain is altered to bundle transactions into larger packets before they are validated and added to the network, improving its performance. This is achieved through a process called "forking". In Layering, a protocol is built on top of an existing blockchain that can manage transactions independently. This has been achieved in Bitcoin's Lightning Network and Ethereum's Polygon.[21] Trilemma in the crypto world wasn't really a problem when the technology was in its infancy, or rather when it was niche, but with the traditional finance turning to blockchains as a transparent, trusted environment for exchange and collaboration, these limitations as a result of the trilemma is increasingly becoming a frustrating agent. The question of trilemma is alive and kicking as it is a determinant of a country's monetary policy autonomy, while it is plugged into the world economy. The trilemma does not rule out common shocks that has the potential to affect all countries and economies, and monetary autonomy or independence is not guarantee about insulation from the global economy. The implications of the trilemma opens up more scope for addressing shocks with monetary policy in a country with floating exchange rates, or with strong controls on international capital flows, that for a country with a pegged currency and open capital markets. ●

Endnotes

1. *International Reserves (USD)*. Focus-Economics. (n.d.). Retrieved January 4, 2023, from https://www.focus-economics.com/economic-indicator/international-reserves-usd
2. Automatic stabilizers have a stabilizing effect on fluctuations in aggregate demand and operate without requiring any specific actions by the government. For example, if the economy slows down, then on the revenue side of the budget the amount of tax collected declines because corporate profits and taxpayers' incomes fall. On the expenditure side, unemployment benefits and other social spending increases. The effects of these changes tend to offset part of the decline in aggregate demand that would otherwise occur. This cyclical sensitivity makes fiscal policy automatically expansionary during downturns and contradictory during upturns in an economy. Commonwealth of Australia , & Dolamore, R., The tools of macroeconomic policy—a short primer (n.d.). Parliament of Australia . Retrieved January 5, 2023, from https://www.aph.gov.au/About_Parliament/Parliamentary_departments/Parliamentary_Library/pubs/BriefingBook44p/MacroeconomicPolicy.
3. India's exchange rate policy has evolved over time in line with the gradual opening up of the economy as part of the broader macroeconomic reforms and liberalization since the early 1990s. In the post-independence period, India's exchange rate policy has seen shifts from a par-value system to a basket-peg and further to a managed float system. After the Bretton Woods System broke down in 1971, India's currency pegged to Pound Sterling. In order to overcome the weaknesses associated with a single currency peg and to ensure stability of the exchange rate, the rupee, with effect from September 1975, was pegged to a basket of currencies till the early 1990s. The initiation of economic reforms saw, among other measures, a two step downward exchange rate adjustment by 9 per cent and 11 per cent between July 1 and 3, 1991 to counter the massive draw down in the foreign exchange reserves, to install confidence in the investors and to improve domestic competitiveness. The Liberalised Exchange Rate Management System (LERMS) was put in place in March 1992 involving the dual exchange rate system in the interim period. The dual exchange rate system was replaced by a unified exchange rate system in March 1993. The experience with a market determined exchange rate system in India since 1993 is generally described as 'satisfactory' as orderliness prevailed in the Indian market during most of the period. Dua, P., & Ranjan, R. (n.d.). (publication). *Exchange Rate Policy and Modelling in India*. Retrieved January 5, 2023, from https://www.rbi.org.in/scripts/PublicationsView.aspx?id=12252.
4. Global financial systems/institutions have attempted to achieve a combination of two of the three. For example, Gold Standard guaranteed capital mobility and exchange rate stability, whereas the Bretton Woods guaranteed monetary autonomy and exchange rate stability. During periods of crises, these policy tools become a mixed bag of pros and cons for managing macroeconomic conditions.

5. Aizenman, J., Chinn, M. D., & Ito, H. (n.d.). THE IMPACTS OF CRISES ON THE TRILEMMA CONFIGURATIONS. *NBER WORKING PAPER SERIES*. Retrieved January 6, 2023, from https://www.nber.org/system/files/working_papers/w30406/w30406.pdf.

6. Prasad, E. S. (2007). Conference on China's Exchange Rate Policy. In *Monetary Policy Independence, the Currency Regime, and the Capital Account in China*. Washington DC. Retrieved January 6, 2023, from https://www.piie.com/sites/default/files/publications/papers/prasad1007.pdf.

7. Aizenman, J., Chinn, M. D., & Ito, H. (n.d.). THE IMPACTS OF CRISES ON THE TRILEMMA CONFIGURATIONS. *NBER WORKING PAPER SERIES*. Retrieved January 6, 2023, from https://www.nber.org/system/files/working_papers/w30406/w30406.pdf.

8. Gross capital formation (formerly gross domestic investment) consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. Fixed assets include land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. Inventories are stocks of goods held by firms to meet temporary or unexpected fluctuations in production or sales, and "work in progress." The World Bank. (n.d.). Gross Capital Formation . *Metadata Glossary*. Retrieved January 6, 2023, from https://databank.worldbank.org/metadataglossary/world-development-indicators/series/NE.GDI.TOTL.ZS.

9. Calvo, G. A., Leiderman, L., & Reinhart, C. M. (1996). Inflows of capital to developing countries in the 1990s. *Journal of Economic Perspectives*, *10*(2), 123–139. https://doi.org/10.1257/jep.10.2.123

10. Obstfeld, M. (2015, January). *Trilemmas and trade-offs: living with financial globalisation*. Bank of International Settlements - BIS Working Papers No 480. Retrieved January 6, 2023, from https://www.bis.org/publ/work480.pdf

11. Calvo, G. A., Leiderman, L., & Reinhart, C. M. (1996). Inflows of capital to developing countries in the 1990s. *Journal of Economic Perspectives*, *10*(2), 123–139. https://doi.org/10.1257/jep.10.2.123

12. Obstfeld, M. (2015, January). *Trilemmas and trade-offs: living with financial globalisation*. Bank of International Settlements - BIS Working Papers No 480. Retrieved January 6, 2023, from https://www.bis.org/publ/work480.pdf

13. Rodrik, D. (1997). *Has Globalization Gone Too Far?* Institute for International Economics .

    Globalization is exposing social fissures between those with the education, skills, and mobility to flourish in an unfettered world market—the apparent "winners"—and those without. These apparent "losers" are increasingly anxious about their standards of living and their precarious place in an integrated world economy. The result is severe tension between the market and broad sectors of society, with governments caught in the middle. Rodrik, D. (2011). The globalization paradox: Why global markets, states, and democracy can't coexist. Oxford University Press.

14. Norway, Sweden, Canada, The Bahamas, Israel and The Philippines are some of these. India too is thinking about the possibility of such an introduction.

15. We shall have ample opportunities to discuss blockchains and cryptocurrencies at different stages throughout this work. The notion is introduced in this section for its congruity with fiat currencies.

16. Taylor, T. (2021, September 27). Bitcoin's Remarkably High Electricity Use [web log]. Retrieved January 23, 2023, from https://conversableeconomist.com/2021/09/27/bitcoins-remarkably-high-electricity-use/.

17. An example of this is the case of Terra stablecoin, which was supposed to have fixed the value of USD, but ended up being worth nothing and wiping out about $60 billion in value.

18. Bank of International Settlements . (2021). (tech.). *III. CBDCs: an opportunity for the monetary system*. Retrieved January 23, 2023, from https://www.bis.org/publ/arpdf/ar2021e3.htm.

19. Buterin , V. (2121, April 7). *Why sharding is great: demystifying the technical properties*. Vitalik Buterin's website. Retrieved January 24, 2023, from https://vitalik.ca/general/2021/04/07/sharding.html

20. Big O Notation is a mathematical notation that describes the limiting behavior of a function when the argument tends towards a particular value of infinity. Invented by Paul Bachmann and Edmund Landau, the letter O was chosen by Bachmann to stand for Ordnung, meaning the order of approximation. In computer science, the Big O Notation is used to classify algorithms according to how their run time or space requirements grow as the input size grows.

21. The Lightning Network is designed to make bitcoin transactions as fast and cheap as possible. This is part of Layer-2 blockchains, where some traffic is offloaded to the Lightning Network's Layer-2 blockchain to enable faster traffic on Layer 1. Polygon is a stack of protocols designed to fix Ethereum's scaleability issues. The network addresses the challenges by handling transactions on a separate Ethereum-compatible blockchain. Polygon then returns transactions to the main Ethereum blockchain post-processing. this approach lowers the network load on Ethereum and speed up transactions and lower transactions costs simultaneously.

3.
THE INDIA STORY

During the pre-independence era, the Indian financial system was quite informal with financial structures that were still rudimentary. In effect, the financial system was characteristically closed with a semi-organized securities market, a closed circle industrial entrepreneurship, restricted access to foreign savings, and with an absence of financial institutions in long-term industrial financing. After the country gained its independence, this system continued into the early 1950s and was affined to what is known as Nehruvian Socialism.[1] The ideals of socialism approached a planned economic development, wherein distribution of financial resources would happen under the aegis of the government.

This consequently led to public ownership of financial institutions resulting in the 1935-established Reserve Bank of India (RBI) getting nationalized in 1949. The Insurance Act 1938 was the first legislation governing not only life insurance, but also non-life insurance to provide stricter state control over insurance business. The demands for the nationalization of insurance industry was made repeatedly in the past, but only in 1944 did it gain momentum when a Bill to amend the Life Insurance Act 1938 was introduced in the Legislative Assembly. But nationalization of life insurance was still a good 12 years away. The procedure of nationalization was two-fold, viz. initially the management of the companies was taken over by means of an Ordinance, and later the ownership was acquired by means of a comprehensive bill. The Parliament of India passed the Life Insurance Corporation Act in June 1956, and the Life Insurance Corporation of India was created on the 1st of September 1956. The major objective of LIC was to spread life insurance wider and especially in the rural areas with a view to reach all insurable persons in the country.

In 1963, "Unit Trust of India" (UTI) was established that launched the Mutual Funds industry in the country. The Trust was established by an Act of Parliament and set up by the Reserve Bank of India. the Trust functioned under the Regulatory and Administrative Control of the RBI until 1978, when it was delinked and taken control of by the Industrial Development Bank of India (IDBI). This could be called the first-phase of the Mutual Fund industry, and lasted till 1987. The second phase was brief, but characterized by the entry of Public Sector Funds in the industry, and lasted from 1987-1993.[2] The third phase marked the entry of Private Sector Funds in the mutual funds industry, giving more options to the investors to choose from. This phase lasted rom 1993 till 2003. It was in 1993 that the Mutual Funds Regulations came into being, under which all Mutual Funds, except the UTI were to be regulated and governed[3]. The 1993 SEBI (Mutual Funds) Regulations were replaced by a more comprehensive and revised Mutual Fund Regulations in 1996, and the industry now functions under the 1996 SEBI (Mutual Fund) Regulations. The fourth phase began in 2003 and is still continuing. This phase began with the repeal of the Unit Trust of India Act 1963, whereby the UTI was bifurcated [4]into two entities. The first is the Specified Undertaking of the UTI, functioning under an administrator and under the rules framed by the Government of India and does not come under the purview of the Mutual Fund Regulations. The second is the UTI Mutual Fund, which is registered with SEBI and functions under the Mutual Fund Regulations. Currently, the Indian Mutual Fund Industry's Average Assets Under Management (AAUM) stands at INR 40.80 trillion or Rs. 40.80 lakh crore.[5]

The year 1969 was a turning point in the banking sector of the country, when the Government of India nationalized 14 banks, and repeated the same story in 1980 when it nationalized 6 more banks in the country.

Box 6 - Nationalization of Banks in India

The state-controlled financial system dominated the economy with the establishment of various financial institutions, including Development financial Institutions (DFIs)[6] like Industrial Finance Corporation of India (IFCI) in 1948, and a host of state finance corporations at the state level. Development Financial Institutions are intermediaries between public aid and private investment, facilitating international financial flows, and such do not accept deposits from the people. Their corpus of funds is built by borrowing funds from governments and selling their bonds to the general public. DFIs provide a guarantee to banks on behalf of companies and subscriptions to shares and debentures. Broadly speaking, the DFIs are sector-specific, and in India, these are specific to industry, foreign trade, agriculture and housing. In Industry, the DFIs are,

a. IFCI (Industrial Finance Corporation of India), the first DFI set up in 1948.

b. ICICI (Industrial Credit and Investment Corporation of India Limited) set up in 1955 by an initiative of the World Bank.

c. IDBI (Industrial Development Bank of India) was setup in 1964, and granted autonomy in 1976. It was responsible for credit flow to various sectors. It was converted to Universal Bank[7] in 2003.

d. IRCI (Industrial Reconstruction Corporation of India) was setup in 1971 to revive weak manufacturing units and provide technical and financial assistance.

e. SIDBI (Small Industries Development Bank of India) was setup in 1989 as a subsidiary of IDBI, and then granted autonomy in 1998.

In foreign trade the DFI EXIM Bank, or Export Import Bank, which was setup in 1982 as an apex institution in the area of foreign investment. It is also invested with providing technical assistance and loan to exporters, in addition to providing an insurance cover. In the agriculture sector, NABARD (National Bank for Agriculture and Rural Development) was a

BOX 6 **NATIONALIZATION OF THE BANKING SECTOR IN INDIA**

In India, the RBI (Transfer of Public Ownership) Act was passed in order to nationalize the Reserve Bank of India and as a result on the 1st of January, 1949, the RBI was nationalized. Similarly, in the year 1955 the Imperial Bank of India underwent nationalization and later it was named as the State Bank of India, which, in the present time, is the largest public sector bank in India. The SBI was established by the State Bank of India Act 1955 and since then it has been serving as RBI's principal agent responsible for handling bank transactions across the country.

Nationalization refers to the transfer of public sector assets to be operated or owned by the state or central government. In India, the banks which were previously functioning under the private sector were transferred to the public sector by the act of nationalization and thus the nationalized banks came into existence. There were six main reasons why nationalization was carried out, viz.

1. For social welfare
2. for developing banking habits
3. for expansion of banking sector
4. for controlling private monopolies
5. to reduce regional imbalances, and
6. for prioritizing sector lending.

The government through the Banking Companies (Acquisition and Transfer of Undertakings) Ordinance, 1969, and nationalized the 14 largest commercial banks on 19 July 1969. These lenders held over 80 percent of bank deposits in the country. Soon, the parliament passed the Banking Companies (Acquisition and Transfer of Undertaking) Bill, and it received presidential approval on 9 August 1969. The banks that were nationalized included Allahabad Bank, Bank of Baroda, Bank of India, Bank of Maharashtra, Central Bank of India, Canara Bank, Dena Bank, Indian Bank, Indian Overseas Bank, Punjab National Bank, Syndicate Bank, UCO Bank, Union Bank and United Bank of India.Thereafter, in 1980, six more banks that were nationalized included Punjab and Sind Bank, Vijaya Bank, Oriental Bank of India, Corporate Bank, Andhra Bank, and New Bank of India.

DFI established in 1982 on the recommendation of the Sivaraman Committee[8], and functions as a refinancing institution.[9] In the housing sector, the DFI is NHB (National Housing Bank), which is the apex regulatory body and licenses housing finance companies in India. Established in 1988 under the National Housing Bank Act, its prime objective was to promote housing finance institutions at the local and regional levels. The Finance Act 2019 has amended the National Housing Bank Act 1987, and confers the power of regulation of housing finance companies to the RBI.

The setting up of ICICI (Industrial Credit and Investment Corporation of India Limited) was landmark event in the history of development financing in India. At this juncture, Indian Financial System underwent a sea change in terms of compliance frameworks, operational policies and guidelines, and legal structures that strengthened the financial system. This pre-liberalization era as characterized by a flawed configuration of efficient sourcing, management and distribution of capital. In particular, during this era industrial activities were financed by the state, and the role of institutionalized public savings was minimal. This not only limited financing, but also gave a fillip to the political-industrial nexus, a disorder that further opened up the avenue for a lopsided capital structure at the company level, and characterized by high debt-to-equity ratio, lesser promoter risk as capital at risk was low, and a higher probability of default. Other hindrances that were wrought by this structural arrangement was exclusion of masses and small and medium enterprises in the overall economic matrix.[10]

By the turn of the 1980s into the 1990s, India was beginning to experience the Balance of Payments crisis. Summarily considering the events that led to the crisis, it is necessary to travel back to 1981, when the largest loan until then was concluded in International Monetary Fund's (IMF) history. The Special Drawing Rights (SDR) US $5 billion loan extended by the IMF took many months in materializing and was majorly negotiated in secrecy and informal meetings with key representative of the Government of India. By its sheer size, scope of influence and conditionalities imposed, this Extended Fund Facility (EFF) loan to India was unprecedented. When this loan agreement became public, it rocked the Parliament as it became evident that extremely controversial "structural adjustment" terms had been imposed, diminishing India's sovereign capabilities to determine its economic policies. It also signaled the advent of a new and toughened phase in the Fund's relationship with developing countries. N. Ram, the then Washington DC correspondent of The Hindu exposed these highly secretive negotiations that were underway in the US Capital, and that too without taking the Parliament of India into confidence. William Dale, the then Deputy Managing Director of the IMF conceded that the reporting had severely questioned the institution's credibility "…because of the sensitivity of the information and the delicacy of the negotiations, [the IMF] management regarded this leak as 'quite possibly the most serious and damaging…in the history of the Fund."[11] Seeds were already sown by this loan agreement for further engagement with the Fund, if the country were to face the crisis in the future.

So, what exactly was this Balance of Payment Crisis that precipitated the country to liberalize its economy? The statement that files all the legal transactions between the government anatomies, entities and/or individuals of one country with another is known as balance of payment. The main reason behind the BOP crisis is that it occurs when a particular country is unable to pay for essential imports or the services of its external debt payments. The Balance of Payment crisis hit India in 1991 as the imports increased dramatically causing massive inflation. In mid-1991, India's exchange rate was subjected to a severe adjustment, as the rupee continued its slide. The RBI defended the currency by expending international reserves and slowing the decline in value. However, by the middle of 1991, when India's foreign reserves were severely depleted, the Government of India interfered by permitting a sharp depreciation that took place in two steps of 9.5% and 23% against the US Dollar. With assistance from the IMF and after an initial stage of stabilization through administrative controls, the Government embarked on a structural adjustment program featuring macroeconomic stabilization and structural reforms.[12] This consequently led to the liberalization of the economy in the early 1990s. This adoption of the market-led approach helped the state withdrawal from controlling the financial system. Moreover, the State took on the dual as well as nuanced role of a facilitator and reformer, and began to shed its role as the owner of financial intermediaries and markets.

In a period spanning 10 years beginning 1992, three regulatory bodies were established, viz. Security and Exchange Board of India (SEBI) in 1992, Insurance Regulatory and Development Authority of India (IRDAI) in 1999, and Pension fund Regulatory and

Box 7 - How autonomous is the RBI?

Development Authority (PFRDA) in 2003. These regulatory mechanisms were a further step to reconfiguring the rudiments of financial system in the country. As the markets were opened up, private players and investors were attracted to existing DFIs like IFCI and IDBI, and consequent to which the credibility of DFIs suffered, as private investors had their philosophy that wasn't appropriately aligned with these of the existing DFIs. The result of this was conversion of IDBI to a commercial bank, closing down of Industrial Investment Bank of India, which had existed since 1971, and merger of ICICI Ltd. with a subsidiary to form ICICI Bank Ltd. These changes brought with them a transformation of the banking sector in the country with the entry of private and foreign players. Here, the role of the RBI was paramount in bringing about this transformation in the banking sector as a regulator.

Once the reforms mechanisms set in after 1991, the industry engagement with the capital market became denser. Institutions of national importance like the NSE (National Stock Exchange Ltd.)[13] were established in 1992. Security markets as part of the Indian financial system witnessed significant transformation under the purview of SEBI. Special market intermediaries for the facilitation of new issue started playing key roles in the primary market.[14] A few positive disruptions were then launched that changed the secondary market interaction with greater transparency, inclusivity and liquidity. These included the establishment of National Securities Depository Limited (NSDL)[15] in 1996, and Central Depository Services Limited (CDSL)[16] in 1999, after the enactment of the Depositories Act 1996[17]. By the turn of the century, derivative trading[18] in India became a reality.

This is a skeletal structure of the financial system in the country, and a launchpad to explore infrastructural financing. but, in conclusion to this chapter, it is essential to note a few important characteristics that have come to define Indian Financial System, by way of four important components, viz. financial institutions, financial assets, financial services and financial markets.

Financial institutions are mediators, intermediaries managing the flow of funds between entities and/or parties. In other words, the system is invested with the responsibility of managing and governing the mechanism of production, distribution, exchange and holding of financial assets or instruments of all sorts. The chief functions of financial institutions is facilitating short-term liability into a long-term investment; mitigating the risks associated with investments, and crucially to act as a medium of convenience denomination[19]. These institutions are mainly of two types, banking and non-banking (insurance, mutual funds, and brokerage companies). These institutions are regulated by Regulatory Institutions (RBI, PFRDA etc.). Financial assets are financial products traded in the financial markets. These assets are backed by securities based

BOX 7 **HOW AUTONOMOUS IS THE RBI?**

The Central Bank autonomy is related to three main aspects, viz. personnel matters, financial aspects, and conduct of policy. Personnel refers to the extent to which the government distances itself from appointment, term of office and dismissal procedures of top central bank officials and the governing board. Financial independence relates to the freedom of the central bank to decide the extent to which the Government expenditure is either directly or indirectly financed via central bank credits. If accessibility of the Government is direct to central bank, it implies monetary policy as subordinate to fiscal policy. Conduct of policy is the flexibility given to the central bank in the formulation and execution of monetary policy. Apart from these 3, there are also goal independence and instrument independence criteria, wherein, in the former, the central bank can choose the policy priorities of stabilizing output or prices at any given point of time, thus setting the goal of monetary policy, whereas in the latter, the central bank is free to choose the means to achieve the objective set by the Government.

It needs to be stressed that central bank, independence by itself cannot ensure monetary policy credibility, which, to an extent, depends on the overall credibility of the Government policy as a whole. Central bank independence is a means, the end being an appropriate division of responsibility between the monetary and the fiscal authority and policy coordination. The reforms brought in after India experienced a balance of payment crisis in 1990-91 paved the way for a new dimension added to the relationship between the RBI and the Government with the supplemental agreement signed between the two in 1994 that advocated abolition of the ad hoc treasury bills to be made effective from the beginning of the fiscal year 1997-98. This measure eliminated the automatic monetization of Government deficits, and resulted in considerable moderation of the monetized deficit in the latter half of the 1990s. So far so good, but then how does this pan out in the last 2 decades?

In terms of redefining the functions of the RBI, enabling a movement towards meaningful autonomy, Governor Bimal Jalan's Statement on Monetary and Credit Policy on April 19, 2001 was a landmark event

First, it was decided to divest RBI of all the ownership functions in commercial banking, development finance and securities trading entities. Secondly, a beginning was made in recommending divestiture of RBI's supervisory functions in regard to cooperative banks, which would presumably be extended to non-banking financial companies and later to all commercial banks. Thirdly, the RBI signaled initiation of steps for separation of Government debt management function from monetary policy. Immediately after this, three other developments took shape that were supposed to have far reaching ramifications in the operational framework of monetary policy in India. The first was the tabling of the Fiscal Responsibility and Budget Management Legislation, which aimed at the medium-term management of the fiscal deficit. The objective of the legislation was to impose fiscal discipline on Government spending and ensure a transparent and accountable fiscal system. The second development was the coordinated endeavor of the Government of India and the RBI to consider the implementation of International Financial Standards and Codes. The third one, though preceding Jalan's Statement by a year related to the Budget speech in February 2000, wherein the Finance Minister, Yashwant Sinha had noted that in the fast changing world of finance, it had become necessary to accord greater operational flexibility to the RBI for the conduct of monetary policy and regulation of the financial system and that accordingly, he had intended to bring to Parliament proposals for amending the relevant legislation.

Relationship between the Modi Government and the RBI never settled on the same page, at least during Modi's first term, when the differences came out in the open during Raghuram Rajan's term as the Governor at the RBI. Rajan's successor Urjit Patel too didn't have a smooth relationship. Viral Acharya, one of the four deputies of Urjit Patel remarked that economic conditions prevailing in India were as fragile as those that led to the Argentinian crisis. Acharya further said that the Government had been interfering with the independence and autonomy of the RBI. It once again begs the question if the RBI is independent? The former Governor of the RBI, YV Reddy in his autobiographical work, Advice & Dissent - My Life in Public Service wittily writes, "There is no such thing as blanket independence. RBI is independent within the limits set by the Government." The real contentious issue was the stringency of the Prompt Corrective Action (PCA) by the RBI, which the Modi Government wanted eased out to enable MSME sector to avail of credits.

After Urjit's departure from the RBI, Shaktikanta Das took over as the Governor, who in his initial days of the tenure maintained that the RBI was more than autonomous, but the Government was a sovereign. The debate rages on…

on their risk factors. Treasury bills, certificate of deposits, term money and commercial paper are some of the financial assets. Financial services are generally provided by Asset Management and Liability Management companies that help channel funds and make sure they are efficiently invested. Banking, insurance, investment and forex services are predominantly used. Services primarily deal with selling, borrowing and purchasing securities to bring to effect payments, settlements, lending and investing. Financial markets are where trades and transactions in money, bonds, shares and other assets take place. These are mainly of four types, viz. capital markets, which are comprised of corporate securities, government securities and long-term loan markets to deal with financing the long-term investment; money markets comprised of organized and unorganized money markets that are wholesale debt markets working on low-risk and high-liquid instruments; foreign exchange markets, which are highly developed and sophisticated markets and determined by exchange rates; and, credit markets that give out short-term and long-term-loans.

How much of these markets, and how are these markets geared towards investments in infrastructural reinforcements is where we turn in the next chapter on a case study of Hydropower Financing. But, some basics on infrastructure need to be set right here.

What is Infrastructure?

Infrastructure, though definitionally an elusive term, encompasses an economic standpoint consisting of large capital intensive natural monopolies. The term attains it heterogeneity by including physical structures of various types used by many industries as inputs to the production of goods and services. By this, it has come to mean either social, or economic infrastructure, wherein, in the former, are schools, hospitals etc, while in the latter are energy, water, transport, and digital communications, often considered essential ingredients in the success of the modern economy. Conceptually, infrastructure may affect aggregate output in two main ways: (i) directly, considering the sector contribution to GDP formation and as an additional input in the production process of other sectors; and (ii) indirectly, raising total factor productivity by reducing transaction and other costs thus allowing a more efficient use of conventional productive inputs. Infrastructure can be considered as a complementary factor for economic growth. How big is the contribution of infrastructure to aggregate economic performance? The answer is critical for many policy decisions – for example, to gauge the growth effects of fiscal interventions in the form of public investment changes, or to assess if public infrastructure investments can be self-financing.

Why is infrastructure even important? Extensive and efficient infrastructure is critical for ensuring the effective functioning of the economy, as it is an important factor determining the location of economic activity and the kinds of activities or sectors that can develop in a particular economy. Well-developed infrastructure reduces the effect of distance between regions, integrating the national market and connecting it at low cost to markets in other countries and regions. In addition, the quality and extensiveness of infrastructure networks significantly impact economic growth and affect income inequalities and poverty in a variety of ways. A well-developed transport and communications infrastructure network is a prerequisite for the access of less-developed communities to core economic activities and services. Effective modes of transport, including quality roads, railroads, ports, and air transport, enable entrepreneurs to get their goods and services to market in a secure and timely manner and facilitate the movement of workers to the most suitable jobs. Economies also depend on electricity supplies that are free of interruptions and shortages so that businesses and factories can work unimpeded. Finally, a solid and extensive communications network allows for a rapid and free flow of information, which increases overall economic efficiency by helping to ensure that businesses can communicate and decisions are made by economic actors taking into account all available relevant information. There is an existing correlation between infrastructure and economic activity through which the economic effects originate in the construction phase and rise during the usage phase. The construction phase is associated with the short-term effects and are a consequence of the decisions in the public sector that could affect macroeconomic variables: GDP, employment, public deficit, inflation, among others. The public investment expands the aggregate demand, yielding a boost to the employment, production and income. The macroeconomic effects at a medium and long term, associated with the utilization phase are related to the increase of productivity in the private sector and its effects over the territory. Both influence significantly in the competitiveness degree of the economy. In conclusion, investing in infrastructure constitutes one of the main mechanisms to increase income, employment, productivity and consequently, the competitiveness of an economy. Is this so? Well, thats what the economics textbook teaches us, and thus governments all over the world turn to infrastructure development as a lubricant to maintain current economic output at best and it can also be the basis for better industry which contributes to better economic output. Governments, thus necessitate realignment of countries' infrastructure in tune with the changing nature of global political economy. Infrastructure security and stability concerns the quantity of spare capacity (or security of supply). Instead of acting on the efficiency frontier, infrastructure projects must operate with spare capacity to contribute to economic growth through ensuring reliable service provisions. Spare capacity is a necessary condition for a properly functioning system. To assure the level of spare capacity in the absence of storage and demand, the system needs to have excess supply. However, no rational profit-seeker will deliberately create conditions of excess supply, since it would produce a marginal cost lower than the average cost, and to circumnavigate this market failure, governments are invested with the responsibility of creating incentives ensuring securities of supply. This is seeding the substitutability of economics with financialization.

This is where social analysts need to be incisive in unearthing facts from fiction and this faction is what constitutes the critique of development, a critique that is engineered against a foci on GDP-led growth model. This is to be done by asking uncomfortable questions to policy-makers, such as: What is the most efficient way to finance infrastructure spending? What are optimal infrastructure pricing, maintenance and investment policies? What have proven to be the respective strengths and weaknesses of the public and private sectors in infrastructure provision and management, and what shapes those strengths and weaknesses? What are the distributional consequences of infrastructure policies? How do political forces impact the efficiency of public sector provision? What framework deals best with monopoly providers of infrastructure? For developing countries, which have hitherto been plagued by weaker legal systems making regulation and enforcement more complicated, the fiscally weak position leads to higher borrowing costs. A most natural outcome is a systemic increase in financial speculation driven by deregulation transforming into financial assets. Contrary to common sense and what civil society assumes, financial markets are going deeper and deeper into the real economy as a response to the financial crisis, so that speculative capital is structurally being intertwined with productive capital changing the whole dynamics of infrastructure investment. The question then is, how far viable or sustainable are these financial interventions? Financialization produces effects which can create long-term trends (such as those on functional income distribution) but can also change across different periods of economic growth, slowdown and recession. Interpreting the implications of financialization for sustainability, therefore, requires a methodological diverse and empirical dual-track approach which combines different methods of investigations. Even times of prosperity, despite their fragile and vulnerable nature, can endure for several years before collapsing due to high levels of indebtedness, which in turn amplify the real effects of a financial crisis and hinder the economic growth.

The Role of Development Banks

Where do development banks fit into the schema as regards infrastructure investment? This question is a useful gamble in order to tackle AIIB, the new kid on the bloc. As the world struggles to find funds to meet the ***Sustainable Development Goals (SDGs)***, development banks could be instrumental in narrowing the gap. So, goes the logic promulgated by these banks. They can help to crowd-in the private sector and anchor private-public sector partnerships, particularly for infrastructure financing. However, misusing development banks can lead to fiscal risks and credit market distortions. To avoid these potential pitfalls, development banks need a well-defined mandate, operate without political influence, focus on addressing significant market failures, concentrate on areas where the private sector is not present, monitor and evaluate interventions and adjust as necessary to ensure impact, and, finally, be transparent and accountable. All of these are the ideals, which more often than not go the other way. ●

Endnotes

1. Jawaharlal Nehru implemented policies based on import substitution industrialization and advocated a mixed economy where the Government controlled public sector would co-exist with the private sector. He believed that the establishment of basic and heavy industry was fundamental to the development and modernization of the Indian economy. The Government, therefore, directed investment primarily into key public sector industries, viz. steel, iron, coal and power, and promoting their development with subsidies and protectionist policies. The economist, Jean Dreze, though, thinks of Nehruvian Socialism as a derogatory expression conflating socialism with the License Raj of the Yore. He says that India, under Nehru was far from socialist, though it certainly assigned an important role to the state in economic development. Despite policy failures, India did make some real breakthroughs as compared with the prolonged stagnation in the first half of the 20th century. For instance, the Indian economy grew at an average of 4% per annum from independence till the time Nehru passed away in 1964. Ullekh, N. P., & Dreze, J. (n.d.). 'Nehruvian Socialism' a derogatory term, 4% growth till 1964 was a breakthrough - Jean Dreze . The Economic Times . other. Retrieved from https://economictimes.indiatimes.com/opinion/interviews/nehruvian-socialism-a-derogatory-term-4-growth-till-1964-was-a-breakthrough-jean-dreze/articleshow/21195855.cms.
2. This phase marked the entry of non-UTI, public sector mutual funds set up by public sector banks and the LIC of India, as well as the General Insurance Corporation of India (GIC), which was established in 1972.
3. Kothari Pioneer that eventually merged with Franklin Templeton was the first private mutual fund to be registered in July 1993.
4. Upon bifurcation, the Government handed over one part comprising the 43 net asset value-based schemes (UTI-II) to a company floated by LIC, SBI, PNB and Bank of Baroda. On the other hand, the Government continued exercising its control on UTI-I that comprised the flagship scheme US-64 and other assured return schemes. Bennett, Coleman & Co. Ltd.

(2003, January 15). Uti bifurcated, trading in Us-64 to resume. The Times of India. Retrieved February 13, 2023, from https://timesofindia.indiatimes.com/business/india-business/uti-bifurcated-trading-in-us-64-to-resume/articleshow/34478979.cms.

5. Average Assets Under Management (AAUM) of Indian Mutual Fund Industry for the month of January 2023 stood at ₹ 40,80,311 crore. Assets Under Management (AUM) of Indian Mutual Fund Industry as on January 31, 2023 stood at ₹ 39,62,406 crore. The AUM of the Indian MF Industry has grown from ₹ 8.26 trillion as on January 31, 2013 to ₹39.62 trillion as on January 31, 2023 around 5 fold increase in a span of 10 years. The MF Industry's AUM has grown from ₹22.41 trillion as on January 31, 2018 to ₹39.62 trillion as on January 31, 2023, around 2 fold increase in a span of 5 years. The Industry's AUM had crossed the milestone of ₹10 Trillion (₹10 Lakh Crore) for the first time in May 2014 and in a short span of about three years, the AUM size had increased more than two folds and crossed ₹ 20 trillion (₹20 Lakh Crore) for the first time in August 2017. The AUM size crossed ₹30 trillion (₹30 Lakh Crore) for the first time in November 2020. The Industry AUM stood at ₹39.62 Trillion (₹ 39.62 Lakh Crore) as on January 31, 2023. The mutual fund industry has crossed a milestone of 10 crore folios during the month of May 2021. The total number of accounts (or folios as per mutual fund parlance) as on January 31, 2023 stood at 14.28 crore (142.8 million), while the number of folios under Equity, Hybrid and Solution Oriented Schemes, wherein the maximum investment is from retail segment stood at about 11.43 crore (114.3 million). World investor Week Nov 22-28, 2021. Association of Mutual Funds in India. (n.d.). Retrieved February 13, 2023, from https://www.amfiindia.com/indian-mutual

6. DFIs or Development finance companies (DFCs) are institutions owned by the Government or charitable institutions to provide funds for low-capital projects or where their borrowers are unable to get it from commercial banks/lenders. They also provide technical assistance like Project Report, Viability study, and consultancy services.

7. Generally speaking, universal banks are incorporated under the companies act, whereas development banks are established by acts of Parliament. In a universal bank, a commercial bank and an investment bank are often combined into a single company that provides all services.

8. The Committee to Review Arrangements for Institutional Credit for Agriculture and Rural Development (CRAFICARD) was under the chairmanship of B. Sivaraman that recommended the formation of NABARD.

9. Refinancing institutions are major financial entities that provide loans to other financial institutions, which in turn provide loans to end clients. The National Housing Bank, for example, is an Indian housing finance refinancing organisation. It does not provide direct loans to applicants for home loans.

10. Not to be negative alone, there were positives in the form of dependency reduction, following up on procedural formulae, and the state mandate.

11. Ram , N. (1981, October 20). World's most powerful supranational Govt. The Hindu.

12. Cerra, V., & Saxena, S. C. (2020, October). What Caused the 1991 Currency Crisis in India? . IMF Working Paper - European I Department . Retrieved February 15, 2023, from https://www.imf.org/external/pubs/ft/wp/2000/wp00157.pdf

13. The National Stock Exchange of India Limited (NSE) is India's largest financial market headquartered in Mumbai. This is ranked fourth in the world by equity trading volume. Today, the NSE conducts transactions in the wholesale debt, equity, and derivative markets. One of the more popular offerings of the NSE is the NIFTY 50 Index, which tracks the largest assets in the Indian equity market. US investors can access the index with ETFs (exchange traded funds), such as the iShares India 50 ETF (INDY). Chen, J. (2022, October 29). What is the National Stock Exchange of India Limited (NSE)? Investopedia. Retrieved March 3, 2023, from https://www.investopedia.com/terms/n/national_stock_exchange.asp

14. Primary market intermediaries include merchant bankers, underwriters, bankers to an issue, portfolio managers, debenture trustees, and registrar to an issue and share transfer agents. Secondary market intermediaries include stock brokers, and sub brokers.

15. NSDL, one of the largest Depositories in the World, established in August 1996 has established a state-of-the-art infrastructure that handles most of the securities held and settled in dematerialized form in the Indian capital market. Although India had a vibrant capital market which is more than a century old, the paper-based settlement of trades caused substantial problems like bad delivery and delayed transfer of title, etc. The enactment of Depositories Act in August 1996 paved the way for establishment of NSDL. NSDL - National Securities Depository Limited. (n.d.). Retrieved March 3, 2023, from https://nsdl.co.in/index.php

16. Central Depository Services Limited ("CDSL") was founded in 1999 to fulfill one goal: Convenient, Dependable and secured depository services. About CDSL. CDSL. (n.d.). Retrieved March 3, 2023, from https://www.cdslindia.com/About/overview.html

17. An Act to provide for the regulation of depositories in securities and for matters connected therewith or incidental thereto. Securities and Exchange Board of India chapter I Preliminary Chapter II ... (n.d.). Retrieved March 3, 2023, from https://www.sebi.gov.in/acts/act03a.pdf

18. Derivative contracts are short-term financial instruments that come with a fixed expiry date. The underlying asset can be stocks, commodities, currencies, indices, exchange rates, or even interest rates. Derivative trading involves buying and selling of these contracts in the market. For a historical perspective of the same in India, please refer to Vashishtha, A., & Kumar, S. (2010). Development of Financial Derivatives Market in India- A Case Study. International Research Journal of Finance and Economics, (37), 15–29.

19. Fine tuning the imbalance of small deposits with large loans or large deposits with small loans.

4.
HYDROPOWER FINANCING - A CASE STUDY

India is 5th globally for installed hydropower capacity.[1] The hydroelectric power potential is almost double of what is installed at the moment and stands at 84 GW at 60% of the load factor.

The Government of India has taken many policy initiatives for sustainable hydropower development. In 2008, the Government came out with a hydro policy[2] with an objective to achieve the implementation of these projects. Thereafter, the Centre and the states initiated hydropower projects through Public Private Partnerships (PPPs) to attract investors for the development of water resources in an environmentally-friendly manner and generate revenue while ensuring project viability. Despite the mechanism of PPP, many of these projects have had to struggle due to rehabilitation and resettlement concerns, problems associated with land acquisition, clearance and approval procedures, capability of developers, to name a few. These factors have indeed given the projects a troubled track record, but what is concerning are inherent risks associated with the hydro sector that makes investors averse to entering the fray. Inherent risks include geological surprises, calamities, environmental and forest-related concerns, and commercial risks, the last of which include high capital costs, and long payback period resulting from long gestation period culminating in a deterrence for the entry by the private players. Furthermore, hydropower projects are capital-intensive and thus financing them for long periods become a challenge. But, textbook project financing still continues to place private players as the fulcrum of financing hydro as well as renewables for the simple reason that these players seek commensurate returns with respect to risks involved in the sector. For these risks to effectuate into implementation, it is the onus of the Government to remove impediments along the way by either restoring investor faith in the sector or by creating an enabling environment.

The Financial Ecosystem

The Indian hydropower financial sector could be zeroed in on to National Hydroelectric Power Corporation (NHPC) to begin with. NHPC, though a centrally-owned institution is not a typical financial intermediary, in that, it invests the funds that it raises directly. The portfolio of NHPC is actually quite modest, and the only noticeable expansion is the inclusion of development of wind and tidal power. NHPC pays only a nominal dividend on the equity capital which the Government holds, and receives a considerable grant support from the Ministry of Power. The main income is through sale of electricity and consultancy services, where the main clientele happens to be state electricity boards. NHPC has to put up 30% of the cost of every project which it develops as share capital. As it cannot develop this equity from the limited revenues of its own projects, the government needs to regularly increase its share capital. The other 70% of the cost is financed through debt. During the initial period of NHPC's existence, this debt was provided by the Government. However, since the decade of the 1980s, NHPC started raising debts through commercial loans and bonds, both as private placements and public issues. The international source of funds for NHPC is through export credit agencies, and not through the multilateral development banks like the World Bank, or the Asian Development Bank.

The other main agency involved in financing power is Power Finance Corporation, which unlike NHPC is a financial intermediary. The major part of PFC's funds are raised through rupee-denominated bonds. Bonds issued by PFC enjoy the highest ratings in Indian and international markets and are on par with India's sovereign rating. It borrows short-term and long-term from various banks and other financial institutions in addition to raising external commercial borrowings through private placement in the US market. PFC is the primary institution of the government of India for financing generation, transmission and distribution projects of the state electricity boards. Hydro projects up to 25 MW are financed by the Rural Electrification Corporation, of which the PFC is the Holding Company. Like the NHPC, PFC also provides consultancy services to its clientele. Like the international financial institutions, PFC has an attached conditionality clause to its loans, where the borrowers need to carry out Operational Financial Action Plans (OFAPs) in order to avail loans. The divide is clear between states that have undertaken power restructuring reforms getting loans at lower rates, while the states that have failed to undertake any such reforms have eventually lost out on PFC loans. The Government of India supports PFC's resource mobilization in that PFC is attributed a large share of tax-free bonds on the Indian capital market. Rupee-bonds, loans from the Government and loans from Indian banks and other financial institutions form the domestic sources, while multilateral and bilateral agencies form the major sources of funds from international sources.

Other major financial players happen to be Industrial Credit and Investment Corporation of India (ICICI), which extends rupee and foreign currency loans by raising capital internally and externally through concessional bonds[3] from the Reserve Bank of India, or from syndicated loans as sourced from foreign commercial institutions, and bilateral credit lines from JBIC, KfW DFID; Industrial Development Bank of India (IDBI) extending loans and other assistance in rupees and foreign currencies by raising capital on both the domestic as well as international markets; and Infrastructure Development Finance Corporation (IDFC),[4] which came into existence in 1997 with the aim to provide additional financing for private infrastructure projects.

Hydropower lending is not just confined to commercial banks and development financial institutions, but even non-banking financial institutions. The leader in this category happens to be Life Insurance Corporation of India, or LIC in short. LIC has taken up bonds from and extended loans to state electricity boards and centrally-owned institutions like NTPC, NHPC, PFC, and the Power Grid Corporation. The issue of non-performing assets has plagued LIC, and the insurance company is almost on par with the State Bank of India with its distressed assets. Other non-banking financial companies like the General Insurance Corporation of India (GIC) and Unit Trust of India (UTI) are fast picking up their stakes in the power sector, and the reason for their lagging in comparison to LIC is because their funds do not have the same extended maturity as the funds of life insurer.

Since most of these institutions are Government owned, the role of private sector participation isn't very much evident, but this should not be taken to mean that private sector involvement is compromised by the involvement of these public institutions. On the contrary, private-sector involvement is considered to be a catalyst for infrastructural development, though there are differing opinions about their role, or even if at all they should be invited. Notwithstanding the rationale behind their involvement, it is obligated we look at what promoted their invitation to the electricity sector in general and to hydropower in particular.

Electricity Sector in India - A Context Building

In 1991, the Government of India opened the hydropower development in the country to private participation and allowed 16 per cent return on equity (ROE)[5] in 1992. The doors to private participation were further greased by the Electricity Act 2003,[6] whose main objective was to promote competition for consumers to have the best possible price and quality of supply. The model to be adapted was similar to the World Bank model that was implemented in Odisha (then called Orissa) and thereafter picked up by other states. Called the "Single Buyer Mode", the Act mandated that state electricity boards undertake unbundling of generation, transmission and distribution. The principal point in order to enhance generation, licensing had to be done away with completely excepting the need for techno-economic clearance for hydro projects. The Act was aimed at providing an investor friendly environment for potential developers in the power sector by removing administrative hurdles in the development of power projects by providing impetus to distribution reforms in India. Provisions like delicensing of thermal generation, open access and multiple licensing, and removal of surcharge for captive generation paved the basis for a competitive environment through private participation.

In 2008, Government came out with a policy called Power to All by 2012. Called the Hydro Policy 2008, it encouraged private participation by giving incentives for accelerating the development of hydropower development in the country. Having failed in achieving its target of power to all by 2012, certain impeding factors like long gestation period, and capital intensive nature of the projects were held culpable. Private-sector implementation was augmented by the rise of Public Private Partnerships (PPPs), which are projects based on a contract or a concession agreement, between a government or statutory entity on the one side and a private sector company on the other side, for delivering an infrastructure service on payment of user charges. That PPP has been a policy game changer could be adduced from the fact that the Government is laying emphasis on it in order to resolve budgetary constraints, faster implementation of projects, reduced whole life costs, better risk allocation, improved quality of services, transfer of technology and project stability.

Private Engineering

One of the two key instruments of private engineering happens to be Public Private Partnership (PPP). Public Private Partnerships are contractual arrangements between a public agency and a privately owned service provider. They are used to finance and operate projects that are considered important or desirable to the general public. Private agencies are incorporated because it has become increasingly apparent to both governments and donors that private enterprises are more cost-efficient and effective at delivering valuable products and services. The other instrument happens to be a Special Purpose Vehicle (SPV), which function as subsidiary entities for larger parent organizations and are typically used to finance new operations at favorable terms. The SPV can raise capital without carrying the debt or other liabilities of the parent organization even though the subsidiary is often operated by the same individuals and serves purposes that benefit the parent organization. SPVs are first and foremost an off-balance-sheet capital tool. This means that companies can change their overall asset/liabilities framework without having it show up in their primary financial statements. Many private partners in a PPP demand an SPV as part of the arrangement. This is especially true for very capital-intensive endeavors, such as an infrastructure project. The private company wants to limit its exposure to liabilities, so an SPV is created to absorb some of the risks. There isn't a uniform operational role or legal design for the use of SPVs in a PPP; the particulars vary depending on the agreements of the actors and stakeholders in the project. However, every SPV needs to be created in accordance with the proper legal and accountancy rules in the jurisdiction. Most public projects rely on support from commercial banks or other financial institutions. Almost always, the SPV represents the financing wing and is used to attract funds from other lenders and investors. This protects the parent company and all financing parties from immediate counter-party risk. In the case of non-recourse financing, the lender's only valid claims are limited to project assets in the case of default or non-completion. In turn, the SPV is not directly exposed to balance sheet issues with the parent or government agency. The government agency is often able to keep project debt and liabilities off its own balance sheet. This leaves more fiscal space for other public obligations. This can be especially important for governments that issue bonds because more fiscal space equates to higher bond credit ratings.[7]

So, if an SPV is such a robust engineering tool, why does it have to face up to criticisms? The answer to this quandary lies in architecture, the architectural setup of SPVs drawing on the Indian context. SPVs are invested with responsibilities to plan, appraise, approve, releasing funds, implement, and evaluate development projects within the ambit of financing renewable projects, including hydropower. According to the Union Government, every SPV will be headed by a full-time CEO, and will have nomination from the central and state government in addition to members from the elected Urban Local Bodies (ULBs) on its Board. Who the CEO isn't clearly defined, but if speculation is to be believed in concomitance with PPP, these might be from the corporate world. Another justification lending credence to this possibility is the proclivity of the Government to go in for Public-Private Partnerships (PPPs). The states and ULBs would ensure that a substantial and a dedicated revenue stream is made available to the SPV. Once this is accomplished, the SPV would have to become self-sustainable by inculcating practices of its own credit worthiness, which would be realized by its mechanisms of raising resources from the market. It needs to re-emphasized here that the role of the Union Government as far as allocation is concerned is in the form of a tied grant through creating infrastructure for the larger benefit of the people. This role, though lacks clarity, unless juxtaposed with the agenda that the Central Government has set out to achieve, which is through PPPs, Joint Ventures (JVs) subsidiaries and turnkey contracts.

If one were to look at the architecture of SPV holdings, things get a bit muddled in that not only is the SPV a limited company registered under the Companies Act 2013, the promotion of SPV would lie chiefly with the state/union territory and elected ULB on a 50:50 equity holding. The state/UT and ULB have full onus to call upon private players as part of the equity, but with the stringent condition that the share of state/UT and ULB would always remain equal and upon addition be in majority of 50%.[8] So, with permutations and combinations, it is deduced that the maximum share a private player can have will be 48% with the state/UT and ULB having 26% each. Initially, to ensure a minimum capital base for the SPV, the paid up capital of the SPV should be with an option to increase it to the full amount of the first installment provided by the Government of India. This paragraph commenced saying the finances are muddled, but on the contrary this arrangement looks pretty logical, right? There is more than meets the eye here, since a major component is the equity shareholding, and from here on things begin to get complex. This is also the stage where SPV gets down to fulfilling its responsibilities and where the role of elected representatives of the people, either at the state/UT level or at the ULB level appears to get hazy. Why is this so? The Board of the SPV, despite having these elected representatives has in no certain ways any clarity on the decisions of those represented making a strong mark when the SPV gets to apply its responsibilities. SPVs, now armed with finances can take on board consultative expertise from the market, thus taking on the role befitting their installation in the first place, i.e. going along the privatization of services in tune with the market-oriented neoliberal policies in new clothes sewn with tax exemptions, duties and stringent labour laws in bringing forth the most dangerous aspect, viz. privatized governance.

In India, private engineering is plugged in with Government initiatives through a host of measures by the latter in creating fecund grounds furthering efficiency and faster execution. Responsibilities are no more split between Ministry of Power, Ministry of Coal and Ministry of New and Renewable Energy, for hitherto it was difficult managing projects under departments working in silos at the central level. Ever since the present ruling dispensation of National Democratic Alliance (NDA) stressed on making hydropower a cardinal component in the energy mix for the country, the Government of India has undertaken a number of initiatives in the recent past, supported by various policy-level changes to promote hydropower development and facilitate investment in the sector. As a part of these initiatives, the government has increased financial allocation, along with other non-financial support, and is also in the process of establishing a dedicated hydropower development fund[9] to improve the investment attractiveness of the sector. Other than that, the government could use the clean energy fund to provide loans to hydro projects at a lower rate of interest. On a smaller scale, the Indian Renewable energy Development Agency (IREDA), National Clan Energy Fund (NCEF) has already launched a refinancing scheme by providing loans at 2% for the revival of operational small hydro-projects (SHP) and biomass projects which have been affected by low tariffs, low plant load factor (PLF) levels, or *force majeure* conditions. Government's promise to offer long-term finance to infrastructure projects, and meet the country's target of generating 15% of its energy from renewable sources affirms its commitment to providing financial and administrative assistance to hydropower generation, the economic viability of which would be determined by investors and developers. It needs to be noted that as of now, not all of hydropower is considered to be renewable, but the government is mulling over the fact that all of hydropower needs to be categorized as such. At present, hydropower projects below 25 MW are considered renewables, and comes under the purview of the Ministry of New and Renewable Energy. Large hydro is with the Ministry of Power, as is National Hydro Power Corporation (NHPC). If all of hydropower is categorized under renewable energy, it would facilitate the Government to meet its Intended Nationally Determined Contributions (INDC) targets, as committed in the

Paris Climate-Change summit 2016. Recognising hydropower as renewable might, however, not mean that its purchase will be included in the renewable purchase obligation (RPO) of distribution companies. Currently, the government guidelines for the long-term RPO trajectory keep hydropowerout of the calculation of total energy consumption, and thus for any change to be effectuated, the Government would have to discuss the details with the stakeholders, including segment regulators.[10]

Generic Trends in Financing Power

The capital intensive nature of power projects requires raising debt for longer tenure (more than 15 years) which can be supported by life of the Power Project (around 25 years). However, there is wide disparity between the maturity profiles of assets and liabilities of banks exposing them to serious Asset Liability Maturity mismatch (ALM). Accordingly, the longest term of debt available from any bank or financial institution is for 15 years (door-to-door) which could create mismatch in cash flow of the Power project and may affect the debt servicing. Options like refinancing are explored to make funds available for the power project for a long tenor. Though maturity profiles of funds from insurance sector and pension funds are more suited to long gestation power projects, only a minuscule portion is deployed in power sector. At this stage, it becomes appropriate to talk of how and why pension funds are not really the funds to run after when it comes to financing Hydropower in the country. That these funds are not the *de facto* choice would be statement made in a hurry, for the government could in time switch financing instrumental gears to cater to investments in hydropower, provided these are amalgamated with Green bonds. Internationally, the Green bonds base is up-north of $82 billion, whereas in India, the Green bonds are minuscule, but all slated for an exponential growth. Banks like Yes Bank and World Bank have launched green bonds. Green Bonds as a debt instrument by an entity raising funds 'earmarked' for use towards financing 'green' projects, assets, and business activities with environmental benefits. It attracts new class investor base – insurance funds, pension funds, sovereign wealth funds apart from the traditional investors. It helps in enhancing an issuer's reputation illustrates green credentials of the issuer and demonstrates commitment towards the development and sustainability of the environment. The caution is that green bonds come with currency risk. However, if one raises green masala bonds, one will not have the risk of forex. To have the need for appropriating fiscal incentives in order to explore the ways to channelize savings, new debt instruments and sources of funds viz. Infrastructure Debt Fund, Clean Energy Funds etc. are identified for the purpose of infrastructure financing.

When it comes to cost of funds, cost of Rupee funding is high as compared to foreign currency funding due to currency fluctuations in the form of appreciation and depreciation. In a competitive bidding scenario, higher cost of borrowing could adversely affect the profitability and debt servicing of loan. External Commercial Borrowings (ECBs) for power projects is not well suited due to issues relating to tenor, hedging costs, exposure to foreign exchange risks etc. Project financing by multilateral agencies (World Bank, Asian Development Bank) has been low due to various issues.[11] While bond offerings are a lower cost option to raise funds vis-à-vis syndicated loans, corporate bond market for project financing is virtually absent in India. Innumerable committees have opined on the reasons for the relative underdevelopment of India's corporate bond market. However, despite several recommendations being implemented, there is still anaemic activity in existing corporate bonds, and anaemic issuance of new corporate bonds in relative terms. In addition, it appears that debt to equity ratios of Indian corporates have been falling steadily since the late 1990s, potentially a symptom of relative reductions in activity in the corporate debt market. Theoretically the presence of corporate bonds would provide an important alternative source of funding for corporations, which will enable them to optimize capital structure in an environment of friction. Such a market should enable additional cash to fund operations or long-term expansion plans without diluting corporate control. The government should also welcome the development of the corporate bond market because it would spur corporate activity and thus economic growth. Finally, investors such as pension funds and insurance companies should welcome corporate bonds as an additional set of instruments in which to invest, providing, in theory, a better overall risk to reward trade-off since there would be more opportunities for diversification. But, despite all these positives, the corporate bond market in the country is anemic. One important fact might hold the clue to explaining the lack of growth of this market. That is the huge pile of corporate debt that is currently being held in the form of loans, especially by state-owned banks. This massive inventory of loans generates significant incentives for three parties – banks, corporations and the government – to delay or inhibit the development of a significant corporate bond market. It goes without saying that large corporations with significant levels of unsustainable debt have no incentive to issue increased levels of debt, and indeed, have significant incentive to ensure the creation and perpetuation of information asymmetries that will inhibit liquidity in the market for their debt. So, the problem is not merely a problem of demand – from banks, but, also extends to debt supply. From the government's point of view, there is a trade-off. In the short run, enabling a vibrant corporate bond market will result in significant losses to the banking sector, especially for nationalized banks, which are significantly exposed to bad corporate loans. This is because better price discovery will reveal the full extent of the problem of non-performing assets resulting from exposure to over-leveraged corporates. It is also the case that there may be more corporate failures if the full scale of the bad loans problem is revealed to the world. But, it must also be remarked that the credit rating of the power projects being set up under Special Purpose Vehicle (SPV) structure is generally lower than investment criterion of bond investors and thus there is a need for credit enhancement products.

Creation of specialized long-term debt funds to cater to the needs of the infrastructure sector; a regulatory and tax environment that is suitable for attracting investments is the key for channelizing long-term funds into infrastructure development. Reserve Bank of India (RBI) may look into the feasibility of not treating investments by banks in such close-ended debt funds as capital market exposure. Insurance and Regulatory Development Authority of India (IRDA) may consider including investment in Securities and Exchange Board of India (Sebi) registered debt funds as approved investments for insurance companies. Insurance Companies, Financial Institutions are encouraged/provided incentives to invest in longer dated securities to evolve an optimal debt structure to minimize the cost of debt servicing. This would ensure lowest tariff structure and maximum financial viability. Option of a moratorium for an initial 2 to 5 years may also reduce tariff structure during the initial years. One of the most serious contenders for acquiring funds and one that has been extensively experimented with is the Viability Gap Funding (VGF). The power projects that are listed under in generation or transmission and distribution schemes in remote areas like North-eastern region, J&K etc and other difficult terrains need financial support in the form of a viability gap for the high initial cost of power which is difficult to be absorbed in the initial period of operation. A scheme may be implemented in the remote areas as a viability gap fund[12] either in the form of subsidy or on the lines of hydropower development fund, a loan which finances the deferred component of the power tariff of the first five years and recovers its money during 11th to 15th year of the operation may be introduced. Any extra financing cost incurred on such viability gap financing should also be permitted as a pass through in the tariff by regulators.

Green Bonds

Shifting terrain here, it is obligatory to talk of green bonds and how they could be the next 'big' thing in financing. Green bonds are like other bonds with the key difference being the former are specifically used for 'green' projects that are environmentally friendly. These bonds could help reduce the cost of capital if there are open door policies aimed towards attracting foreign investment, and especially so, when Foreign Direct Investment policies in India are getting more and more market friendly. The history of 'green' bonds could be dated back to 2007, when the European Investment Bank and the World Bank launched these bonds. Subsequently, 2013 witnessed corporation participation leading to its overall growth. In India, Yes Bank became the first bank to issue these bonds worth Rs. 1000 crore in 2015.

So, what of Sebi[13] and any of rules and regulations mandating additional information about these bonds? For designating an issue of a corporation bond as a 'green' bond, an issue apart from complying with the issue and listing of debt securities regulations, the corporation would have to disclose additional information in the offer document such as use of proceeds. Sebi's board had considered and approval a proposal for issuance and listing of green bonds way back in January 2016 to help meet the huge financing requirements worth USD 2.5 trillion for climate change actions in India by 2030. It is to be noted that 'green' bonds can be key to help meet an ambitious target India has of building 175 gigawatt of renewable energy capacity by 2022, which will require a massive estimated funding of $200 billion. Hydropower has a significant role to play in achieving the goals of the Paris Agreement.[14] Supporting the growth of the green bonds market is an important step towards aligning emission reduction targets with appropriate market signals and incentives.[15] One example of Green bonds being used to finance hydropower in India is the Rampur Hydropower Project, across River Satluj in Simla and Kullu districts of Himachal Pradesh. This 412 MW installed capacity project has been financed on a 70:30 debt equity ratio basis, and is backed by a US$ 400 million by the World Bank.[16]

Take Out Financing

The Reserve Bank of India (RBI) has stipulated guidelines for Take-out Financing through External Commercial Borrowings (ECB) Policy.[17] The guidelines stipulate that the corporate developing the infrastructure project including Power project should have a tripartite agreement with domestic banks and overseas recognized lenders for either a conditional or unconditional take-out of the loan within three years of the scheduled Commercial Operation Date (COD). The scheduled date of occurrence of the take-out should be clearly mentioned in the agreement. However, it is felt that the market conditions cannot exactly be anticipated at the time of signing of document and any adverse movement in ECB markets could nullify the interest rate benefit that could have accrued to the project. Hence, it is suggested that tripartite agreement be executed closer to project COD and instead of scheduled date of occurrence of the take-out event, a window of 6 or 12 months could be mentioned within which the take-out event should occur.

Further, the guidelines stipulate that the loan should have a minimum average maturity period of seven years. However, an ECB of average maturity period of seven years would entail a repayment profile involving door-to-door tenors[18] of eight to ten years with back-ended repayments. It is likely that ECB with such a repayment profile may not be available in the financial markets. Further, the costs involved in hedging foreign currency risks associated with such a repayment profile could be prohibitively high. Hence it is suggested that the minimum average maturity period stipulated should be aligned to maturity profiles of ECB above USD 20 million and up to USD 500 million i.e. minimum average maturity of five years as stipulated in RBI Master Circular No.9 /2011-12 dated July 01, 2011.[19] RBI exposure norms applicable to IFCs allow separate exposure ceilings for lending and investment. Further, there is also a consolidated cap for both lending & investment taken together. In project funding, the IFCs are mainly funding the debt portion and funding of equity is very nominal.[20] Therefore, the consolidated ceiling as per RBI norms may be allowed as overall exposure limit with a sub-limit for investment instead of having separate sub-limits for lending and investment. This will leverage the utilization of un-utilized exposures against investment. It is well justified since lending is less risky as compared to equity investment. This will provide additional lending exposure of 5% of owned funds in case of a single entity and 10% of owned funds in case of single group of companies, as per existing RBI norms. RBI Exposure ceilings for IFCs are linked to 'owned funds' while RBI exposure norms as applicable to Banks & FIs (Financial Institutions, but also Financial Intermediaries) allow exposure linkage with the total regulatory capital i.e. 'capital funds' (Tier I & Tier II capital). Exposure ceilings for IFCs may also be linked to capital funds on the lines of RBI norms applicable to Banks. It will enable to use the Tier II capitals like Reserves for bad and doubtful debt created under Income Tax Act, 1961,[21] for exposures.

RBI norms provide for 100% provisioning of unsecured portion in case of loan becoming 'doubtful' asset. Sizable loans of Government IFCs like PFC and NHPC are guaranteed by State Governments and not by charge on assets. On such loans, 100% provisioning in first year of becoming doubtful would be very harsh and can have serious implication on the credit rating of IFC. Therefore, for the purpose of provisioning, the loans with State/Central Government guarantee or with undertaking from State Government for deduction from Central Plan Allocation or Direct loan to Government Department may be treated as secured. As per RBI norms, the provisioning for Non-Performing Assets (NPAs) is required to be made borrower-wise and not loan-wise if there is more than one loan facility to one borrower. Since Government owned IFC's exposure to a single State sector borrower is quite high, it would not be feasible to provide for NPA on the total loans of the borrowers in case of default in respect of one loan. Further, the State/Central sector borrowers in power sector are limited in numbers and have multi-location and multiple projects. Accordingly, default in any loan in respect of one of its project does not reflect on the repaying capacity of the State/Central sector borrowers. A single loan default may trigger huge provisioning for all other good loans of that borrower. This may distort the profitability position. Therefore, provisioning for NPAs in case of State/Central sector borrowers may be made loan-wise. In case of consortium financing, if separate asset classification norms are followed by IFCs as compared to other consortium lenders which are generally banking institutions; the asset classification for the same project loan could differ amongst the consortium lenders leading to issues for further disbursement etc.

Prudential Norms relating to requirement of capital adequacy are not applicable to Government owned IFCs. However, on the other side, it has been prescribed as an eligibility requirement for an Infrastructure Finance Company (IFC) being 15% (with minimum 10% of Tier I capital). Accordingly, Government owned IFCs are also required to maintain the prescribed Capital Adequacy Ratio.[22] Considering the better comfort available in case of Government owned IFCs, it is felt that RBI may consider stipulating relaxed CAR requirement for Government owned IFCs. It will help such Government owned IFCs in better leveraging. RBI prudential norms applicable to IFCs require 100% risk weight for lending to all types of borrowers. However, it is felt that risk weight should be linked to credit rating of the borrowers. On this premise, a 20% risk weight may be assigned for IFC's lending to AAA rated companies. Similarly, in case of loans secured by the Government guarantee and direct lending to Government, the IFCs may also assign risk weight in line with the norms applicable to banks. Accordingly, Central Government and State Government guaranteed claims of the IFC's may attract 'zero' and 20% risk weight respectively. Further their direct loan/credit/overdraft exposure to the State Governments, claims on central government will attract 'zero' risk weight.

As per extant ECB Policy, the IFCs are permitted to avail of ECBs (including outstanding ECBs) up to 50% of their owned funds under the automatic route, subject to their compliance with prudential guidelines. This limit is subject to other aspects of ECB Policy including USD 500 million limit per company per financial year. These limits/ceilings are presently applicable to all IFCs whether in State/Central or Private Sector. Government owned IFCs are mainly catering to the funding needs of a single sector, like in Power sector where the funding requirements for each of the power project is huge. These Government owned IFCs are already within the ambit of various supervisory regulations, statutory audit, CAG audit, etc. It, is, therefore, felt that the ceiling of USD 500 million may be increased to USD 1 billion per company per financial year for Government owned IFCs. Further, the ceiling for eligibility of ECB may also be increased to 100% of owned funds under automatic route for Government owned IFCs to enable them to raise timely funds at competitive rates from foreign markets. Thus, these measures will ensure Government owned NBFC-IFCs to raise timely funds at competitive rates thereby making low cost funds available for development of the infrastructure in India.

Enabling and Disabling Environment for Hydropower (Conclusion)

Some bottlenecks remain. With the present power scenario and major policy initiatives to increase renewable capacity (mainly solar and wind), it is becoming difficult to sell hydropower. There is reluctance on the part of distribution utilities to enter into long-term Power Purchase Agreements (PPAs). The government should declare all Hydropower Projects, regardless of the capacity, as "Renewables", particularly, the Run of the River ROR (with or without diurnal pondage) projects. Presently Ministry of Power gives pooled quota of electricity from Central Public Sector Undertakings to various states. Ministry of Power should include Hydropower projects in the pooled quota for enabling faster PPAs. There should be separate Hydropower Purchase Obligation (HPO), too. The other bottleneck that remains to be addressed is Tariff. Tariffs from hydropower projects are higher in the initial years as compared to other sources due to lack of incentives like tax concessions, financing cost and construction of projects in remote areas with inadequate infrastructure. Mega Power benefits were terminated in 2012. Major benefits associated with the Mega Power status were custom duty exemption on import of capital equipment and excise duty exemption. Mega Power benefits should be reintroduced. Since taxes constitute 15-25 per cent of project cost, it is still too early to fathom the import of Goods and Services Tax (GST) on the sector to contour its full consequences. Long term funding for hydropower project development is essential and needs to be directed through a policy. Creation of sub-sectoral limit for lending to hydropower projects on priority basis by banks is the need of the hour to revive hydropower sector in India. The banks should be advised to earmark at least 40 per cent of the total lending to power sector dedicated only for hydropower projects. Since Hydro Electric Projects are prone to various risks and uncertainties, the Return on Equity should not be decreased, except in cases of delays on account of developer. Service tax exemption to services used for Hydro Power Projects shall also lead to reduction of tariff. To reduce the weighted average cost of capital for competitive tariff, it is suggested that Debt to Equity ratio should be kept flexible, at, say 80:10:10 with mandatory incurrence of equity portion of minimum of 50 per cent before any disbursement. Funding could be 80 per cent Debt and 10 per cent subordinate debt. This could, by way of promoting hydropower as a renewable source of energy be considered a positive for India, but what really has not been accounted for is socio-environmental and economic consequences, which would in many a cases be irreparable. The third crucial aspect that needs to be addressed is financing, or rather hurdles to financing. Due to long construction period of hydro projects, interest on loan plays a very critical role in increasing project cost. Also, during operation period, higher interest on outstanding loan leads to higher yearly tariff. Non-availability of longer tenure loan necessitates higher provision for depreciation so as to generate resources required to meet repayment obligations. Benefits under section 10(23)g of IT Act, 1961 to Hydro Power Projects, which allowed for the exemption of tax on the interest income earned by the Financial Institutions from Infrastructure projects, were withdrawn and is not available with respect to infrastructure projects. As per the current regulations, State Government is to be provided 12 per cent free power as royalty from any Hydro Power Project to be developed in the State. This provision of free power to the State affects the financial viability of the project severely. Due to the very challenging and difficult logistics, cost of the project in any case is high and provision of high royalty in terms of free power, makes the project even more costlier and tariff becomes almost unsustainable. A review and revision of the financing policies for hydro projects is required with a view to provide longer tenure debt to hydro sector (say 25-30 years). Subsidy on the rate of interest on debt during the construction period of the projects should be introduced to reduce the Interest During Construction (IDC). Softer interest rates should be extended to large Hydro Plants. Tax Holiday under Section 80I (A) of the Income Tax Act, 1956 should be made applicable for 15 years for all Hydro Power Projects including under implementation projects. Hydropower projects are subjected to various types of risks like hydrological risk, power evacuation risk, geological surprises, construction risk, connectivity issues due to remote locations, extreme terrain etc. But after the commissioning of the Hydro-Electricity Plant, the majority of the risks are mitigated. The Financial Institutions, along with consortium lenders should be advised to extend the interest rebate on long term loans post commissioning of the project.

It is not just financing alone that is driven by development banks, but even building policy and regulatory mechanisms that are taken on board for creating an enabling environment to realize the true potential of hydropower leading to a spur in investments. This is mostly done with an emphasis on treating hydropower potential as a solution to long-term energy goals. The private arm of the World Bank, International Finance Corporation (IFC) has classified a new source of finance termed “Infraventures”, also known as the IFC Global Infrastructure Project Development Fund, is a $150 million global infrastructure fund that aims to develop a “bankable” pipeline of public-private partnerships and private projects for infrastructure. This fund and others are catalyzing the development of big hydropower by decreasing the initial financial barriers to investment and decreasing the financial risks so that the project is attractive to the private sector. For IFC Infraventures, the IFC then gets an equity stake in return. It is not unreasonable to claim that such approaches are criticized by Civil Society Actors[23] citing serious implications for transparency, accountability and governance.

With the mushrooming of new development banks like BRICS Bank, Asia Infrastructure Investment Bank, consideration for financing of hydropower projects has got a fillip in complementing the agenda of the already existing development banks like the World Bank and the Asian development Bank. But, the main funding spigot in the sector has changed course in India. Even though the multilateral development banks and a host of bilateral financing arrangements, be they wrought by EXIMs or bilaterally negotiated, have the necessary influence to bring to realization projects of scales varying from big hydro to run-of-the-river schemes, their actual influx by way of funds has been reduced to a mere chunk compromised by national financial institutions, either banking or non-banking.

majority of the funds are pumped in by these national institutions, even if their drive is monitored through equity investments by international financial institutions. Critics of the arrangement often point out to such a huge share as leading to stresses on the banking system eventually paving the way for NPAs. Experience has shown that the impacts of hydropower can be devastating, resulting in physical and economic displacement, the disenfranchisement of indigenous people's rights, and the destruction of fragile ecosystems. Despite the historically significant impacts of hydropower, the information provided to affected communities and to the general public appears to be woefully inadequate.[24] As the authors[25] seem to vociferously declare that the all too common adverse consequences of hydro projects do not seem sufficient to prompt a modification on development banks' investment priorities. The narrative that paints hydropower as source of clean and cheap energy continues to drive banks' priorities while sweeping under the rug the unacceptable price paid by marginalized members of society.

India, undoubtedly has vast potential for renewables, but the execution is far from encouraging. One serious reason attributable to this has been the presence of strong coal-lobby in the country. Apart from this, energy economics plays its part, in that, any investment in hydropower development is decided by the cost of debt and the interest rate on capital. It is here that many of the private players who are majorly equity investors maintain focus on capital rates rather than on equity returns. Even if the operating portfolio of private investors is much larger thus facilitating easy accessibility to cheaper debt, unless the focus is on projects, which are profitable with adequate cash flow, renewable energy and infrastructure development in India would continue to face hurdles. For example, if a project is invested into with a debt-to-equity ratio of 70:30, with a typical interest rate of 14% and a repayment period of 8 years, an approximate 22% of the total project cost in the first year is outflow to service debt. It is well nigh difficult for projects to generate this kind of cash in the first year, simply owing to the fact that revenue assessment is not very critical. Bouncing off this critical gap are challenges that projects are more often than not over-advertised with under-estimation of revenue project costs and over-estimations of energy production potential leading to inconsistency in meeting the standard benchmark for haircuts. This is in close affinity with valuation expectations by developers where missing the woods for the trees is a high commonality due precisely to inadequate diligent processes. But, does that mean this sector is riddled with detriments that cannot challenged off? It would be too far fetched to conclude this. Instead if the key issues like stringent adherence to budgets and timelines, reliable cash flow and accurate project valuations are held on to, these over-the-board-sounding-idealistic situations planned for contingencies, then most of the risks associated with financing and eventual implementation could be offset.●

Endnotes

1. As of 31st March 2020, India's installed utility-scale hydroelectric capacity was 46, 000 MW, or 12.3% of its total utility power generation capacity. Additional smaller hydroelectric power units with a total capacity of 4, 683 MW or 1.3% of its total utility power generation capacity have been installed. Central Electricity Authority (GoI, Ministry of Power). (n.d.). *ALL INDIA INSTALLED CAPACITY (IN MW) OF POWER STATIONS (As on 31.03.2020)*. web.archive.org. https://web.archive.org/web/20200512013135/http://www.cea.nic.in/reports/monthly/installed-capacity/2020/installed_capacity-03.pdf

2. Government of India , International Environmental Law Research Centre (IELRC) (2008). MoP (GoI). Retrieved June 20, 2023, from https://www.ielrc.org/content/e0820.pdf.

3. A concession is a selling group's compensation in a stock or bond underwriting agreement. The amount of compensation is based on the underwriting spread, or the difference between what the public pays for the securities and what the issuing company receives from the sale.

4. With Vishnuprayag in Uttarakhand and Srinagar in Uttar Pradesh, IDFC made forays into the hydroelectric sector sourcing its funds from bonds sold in the Indian capital market along with its share capital. IDFC, which has signed on to equatorial principles is probably India's only financial institution to have any environmental policy. It has been quite a disciplinarian in refusing loans to questionable projects, and thus has next to no non-performing assets in its portfolio.

5. Return on Equity is a measure of profitability that calculates how many dollars of profit a company generates with each dollar of shareholders' equity. Also referred to as return on net worth, it is formulaically ROE = (Net Income)/(Shareholders' Equity).

6. Ministry of Law and Justice, Legislative Department. The Electricity Act, 2003. 2 Jun 2003. http://www.cercind.gov.in/Act-with-amendment.pdf&gt

7. Investopedia. *What role do SPVs / SPEs play in public-private partnerships?* Mar 09 2015 <http://www.investopedia.com/ask/answers/030915/what-role-do-spvs-spes-play-publicprivate-partnerships.asp

8. Government of India, Ministry of Housing and Urban Affairs. *Smart Cities Mission*. 18 Jul 2017. <http://smartcities.gov.in/content/innerpage/spvs.php>

9. PricewaterhouseCoopers & ASSOCHAM India. *Hydropower @ Crossroads*. pp 7 and 14. 2016 <https://www.pwc.in/assets/pdfs/publications/2016/hydropower-at-crossroads-pwc-assocham-report.pdf>

10. Small hydro currently enjoys a slew of concessions such as tax benefits and easier environment and water clearance. To promote it as a RE source, the Centre also offers subsidy support of Rs 5 crore per MW and/or Rs 20 crore per project. To replicate these subsidies for a large project would be very heavy on government finances. Also, this move to make large hydro as renewable only benefits the country, not the sector. The sector would have to wait for the new GST (goods and services tax) regime to kick in, to know what concessions are in store for them. The earlier 10-year tax holiday for power projects has ceased to exist. Excise, Customs and like duties would be decided after the GST is notified for the sector. The Government could be looking at removing the whole subsidy mechanism for the sector, like it did in solar and wind power. So, the first target (of its proposed move) is obviously to meet the INDC and the other could be to reform the sector by linking it to market forces. The subsidy in hydro is for loan repayment and that can only happen when a project is opera-

tional. Hydro faces operational issues, regulatory hurdles and local issues. These need to be addressed. A speedy approval mechanism would entail growth of the sector.

11. The transition to private participation in infrastructure has not yet settled; consequently, the financing environment for developing-country infrastructure is not clearly defined. In many developing countries, the agenda of market liberalization, regulatory reform, and the restructuring of state-owned monopoly utilities remains unfinished. Furthermore, given the characteristics of certain infrastructure industries, including the huge sunk costs involved, elements of natural monopoly, and their political saliency, there remains a strong rationale for state intervention, even in cases where privatization has been completed. Also, investors must factor in ongoing transformations of the global infrastructure industry, such as how to accurately price and gauge demand for new products resulting from rapid technological change. Together with a series of recent financial crises, these developments have taken their toll, presenting a hierarchy of risks at the industry, country, and project levels. Those risks raise the cost of capital and make investors and creditors averse to long-term investments in developing- country infrastructure.

12. According to New Hydropower Policy 2017, there are provisions with viability gap funding for projects, compulsory hydropower purchase obligations for distribution companies and a set of good practices that states would have to follow. The policy being prepared by the power ministry will have provisions for viability gap funding, which will help in meeting the shortfall in project costs and reducing hydroelectricity tariffs for consumers. Hydropower is expensive and in some cases more than double the cost of power from coal-based thermal plants. Compulsory hydropower purchase from large projects will either be made part of the existing renewable power purchase obligation of distribution companies or a separate requirement, so that its inclusion does not affect the market for other renewable sources of energy like wind, solar or biomass. In February 2015, India's first proposed hydro-electricity project to be built on a viability gap funding (VGF) basis and PPP mode appears to have fallen flat as the Mizoram government signs an MoU with the North-East Electric Power Corporation (NEEPCO) to take up the planned project in northern Mizoram. The project 210 MW Tuivai HEP was cleared in 2013 to become the country's first VGF-based HEP in 2013, meaning the Centre was willing to foot up to Rs 750 crores of the total Rs 1,750 crores the project is estimated to cost. The project was envisaged such that it fell under the state sector, meaning Mizoram would have the rights to use as much of power generated for its needs and sell the remaining as it deems fit. But even then, plans fell through towards the end of last year as banks and private developers shied away from going ahead with the project, leaving the state government to look for other alternatives. The Indian Express. *India's first VGF hydro-power project falls through, Mizoram hands it over to NEEPCO*. 11 Feb 2015 <http://indianexpress.com/article/india/india-others/indias-first-vgf-hydro-powerproject-falls-through-mizoram-hands-it-over-to-neepco/>

13. Securities and Exchange Board of India. Memorandum to the Board: Disclosure Requirements for Issuance and Listing Green Bonds. <http://www.sebi.gov.in/sebi_data/meetingfiles/1453349548574-a.pdf>

14. International Hydropower Association Communications Team. *What will the Paris Agreement mean for hydropower development?* Jan 21 2016. <https://www.hydropower.org/blog/what-will-the-paris-agreement-mean-for-hydropower-development>

15. International Hydropower Association. *Hydropower Status Report 2017*. <https://www.hydropower.org/2017-hydropower-status-report>

16. The World Bank. Rampur Hydropower Project. <http://projects.worldbank.org/P095114/rampur-hydropower-project?lang=en>

17. External Commercial Borrowing (ECB) Policy – Take-out Finance. Jul 22 2010 <http://allindiantaxes.com/rbicir10-11-4.php>

18. Door to Door tenor/maturity is a term that is mostly used in finance sector. It is generally used to indicate the total period within which the total debt borrowed is to be paid, this total period also includes the period of moratorium (that is the period for which payment has been postponed).

19. Reserve Bank of India. *RBI/2011-12/ 9,Master Circular on External Commercial Borrowings and Trade Credits*. Jul 01 2011 <https://www.rbi.org.in/scripts/BS_ViewMasCirculardetails.aspx?id=6501>

20. Strategic investors, venture capital, private equity are the principal providers of equity funding to RE projects. Private equity funds have dominated the equity investment scene. Majority of the investments are in INR and the funds stay invested in the companies for a period of 5 to 7 years. Typically, the hurdle rates for direct equity investments range between 16 and 20 %, and are dependent on factors, such as the size of the project, the background of sponsor, the technology risk, the stage of maturity, and geographic and policy risks. On a related note, there have been talks of Mezzannine financing. So, what exactly is meant by this, and has India had an instance of such financing? Mezzanine Finance is a form of quasi debt/equity instrument, wherein sector-specific investors or short-term investors park their funds assuring higher returns (typically 15 % more than the debt instruments). This facilitates availability of low cost equity to project promoters. The investment is secured by charging on assets after assigning first charge to the term-loan lenders. Mezzanine Finance is typically associated with debentures offered to the investor with an option to convert them to equity at a later stage. This form of finance offers flexibility to meet both the investor's and the company's requirements, and also provides medium term capital without significant ownership dilution. Mezzanine finance is less risky than equity for investors, as it provides fixed interest along with principal repayment and minimum guaranteed returns to investors. It is normally used in situations where the company is generating adequate cash flows to service coupon payments and the promoters are unwilling to dilute their equity stake in the company. The Indian RE market has seen very few mezzanine finance transactions. Few of the noteworthy transactions are – Mytrah Energy raised USD 78.5 million from IDFC Project Equity and USD 19 million from PTC Financial Services. Solar IPP Azure Power raised USD 13.6 million from Germany's DEG.

21. Government of India, Income Tax Department. *Income Tax Act 1961*. <http://www.incometaxindia.gov.in/pages/acts/income-tax-act.aspx>

22. Capital Adequacy Ratio is a measure of bank's capital, and expressed as a percentage of a bank's risk weighted credit exposures. Also known as capital-to-risk weighted assets ratio (CRAR), it is used to protect depositors and promote the stability and efficiency of financial systems.

23. Romero, M. J. Where is the public in PPPs? Analysing the World Bank's support for public-private partnerships. BrettonWoods Project. Sep 29 2014 <http://www.brettonwoodsproject.org/2014/09/public-ppps-analysing-world-banks-support-public-private-partnerships/>

24. Medallo, J. & Sampaio, A. Ongoing Trends in Hydropower. Coalition for Human Rights in Development. <http://rightsindevelopment.org/project/trends-the-rise-of-hydropower/>

25. *ibid.*

5. Responsibility, Accountability and Transparency (The RAT Case) - Conclusion

Accountability is an essential component for the efficient use of public finances and relies on a good system of public governance. Public governance consists of arrangements put in place to ensure that the intended outcomes for the stakeholders are defined and achieved. It includes, for example, institutions and processes that help stakeholders participate in debates about public policy objectives, that enable policy-makers to make decisions on which policies should be pursued, and that offer the stakeholders to monitor and appraise the implementation of public policies. Financial management is a mechanism for a government to demonstrate its performance to the public in a transparent manner and, by doing so, to showcase its accountability in managing public funds. Weaknesses in monitoring of the governments debts are reflective of poor governance which could eventually lead to the demise of the public sector organisations and ultimately the countrywide economy.

The Chartered Institute of Public Finance and Accountability (CIPFA) and the International Federation of Accountants (IFAC) talk of a framework for good governance,[1] which includes extensive public financial transactions.

1. Ensuring openness and comprehensive stakeholder engagement
2. Defining outcomes in terms of sustainable economic, social and environmental benefits
3. Determining the interventions necessary to optimize the achievement of the intended outcomes
4. Developing the entity's capacity, including capability of its leadership and the individuals within it
5. Managing risks and performance through robust internal control and strong public financial management, and

6. Implementing good practices in transparency, reporting and audit, to deliver effective accountability.

Even if we take these guidelines as standardized, the role of accountability is paramount. When public officers have an obligation to explain and justify their conduct towards other public authorities, or taxpayers and citizens, they are exposed to the judgment and, possibly, the sanctions that can be imposed for any wrongdoing. but, in order for accountability mechanisms to work, however, certain conditions must be met, including transparent access to information, reliable accounting systems and standards, and an independent judiciary and media.

From the look of it, it seems that accountability and responsibility can be used interchangeably. This is not true, as there is a subtle difference between the two. A responsibility is an assigned task or a project, whereas accountability implies a willingness to be judged on the performance of the task or the project. Accountability does not exist in a vacuum, and it requires effective communication lines of sharing inputs and outputs with all the parties who may be affected. In other words, accountability is the obligation to render an account for the responsibility conferred. Fiscal transparency, reflecting a system of well organized windows on public policy making and policy implementation, is not an end in itself, but is a means contributing to effective and comprehensive accountability that aims at securing full answerability from governments and their officials. Transparency enables all stakeholders in a country to see the structure and functions of the government, its policy intentions and fiscal projections, and accounts for past periods. The main purpose of opening these windows is to render those inside accountable and answerable for their decisions and actions.

One cannot deny the importance of public sector for any economy, and the sector is fraught with numerous challenges, which generally run through like a common thread with almost any economy. The challenges can range from demand for quality services, outdated infrastructure, tax competition, low tax base, loss of trust , and the impact of changing demographics causing funding shortfalls for welfare schemes. As governments try to come to terms with changing priorities, their decisions have far reaching and wide ranging consequences, not only for the present generation, but also for the generations to come. In other words, as the commonly denominated social contract between the government and the citizens is continually in flux, the need for responsibility, accountability and transparency is only heightened. To ensure that the government and public sector entities make informed decisions for the people, the planet and the economy, strong governance and public financial management systems need to be in place. Only then can be delivered a sustainable, inclusive and prosperous future.

There are three pillars to this version of accountability, and let us contend them one by one.

1. Good governance and a strong public finance management[2] system is essential in that, these can aid in tracking use of resources to match public policy objectives. Governments must endeavor to achieve the most with the resources they have, maximizing efficiencies in public service delivery, while minimizing losses through waste, fraud and corruption. to enhance government's accountability for decision making, high levels of transparency are required. The strength off governance and public finance management systems is critical in most jurisdictions. Embedding a foundation of financial discipline and internal control across public sector entities remains a key priority, which are dependent on commitments from the polity and bureaucracy, people with requisite skills in public financial management, and an integrated financial management information system. Added to these are the fundamentally robust accounting standards, which are increasingly accrual in nature. Accrual accounting ensures public sector assets and liabilities are appropriately recognized and valued, and improves the capability for

their management. For assets, this includes better maintenance, more appropriate replacement policies, identification and disposal of surplus assets, and better understanding of the impact of using fixed assets in the delivery of services. Reliable recording of all liabilities helps ensure appropriate repayment and extension management, such that governments are able to meet liabilities as they fall due and understand the extent to which they can afford new programs and services.[3]

7. Why does accountancy matter? The diversity and skills of public sector finance professionals, in their various roles at governance, strategic, and operational levels, are integral to inclusive, transparent decision-making within public sector entities; providing direction and clarity through decision-useful insights and information to support short, medium, and long-term financial planning; implementing spending control and assurance frameworks (including effective public procurement systems and internal controls); and supporting scenario planning and enhanced data analytics for better policy making. The professionalization and continuous professional development requirements for professional accountants working in public finance will lead to better and more transparent decision making.
8. The SDGs Milestone - The United Nation's Sustainable Development Goals (SDGs), in combination with national sustainable development plans, provide context to government policy and spending decisions to address systemic, interconnected issues such as climate, inequality, access to education, and poverty. But to date, efforts to achieve the SDGs have fallen short and widening inequality between and within countries remains a huge challenge. Governments have a significant contribution to make in delivering the SDGs, not only in their policy and operational roles, but through collaboration globally ensuring no country is left behind, and nationally with different sectors and stakeholders, including public-private sector partnerships.[4]

Going forward, public sector accountability and trust will hinge on strong governance and transparent financial and non-financial reporting by governments and public sector entities. Enhancing transparency in public sector reporting will sustain the mandate on which public officials and institutions rely to operate on behalf of stakeholders (i.e., citizens), and underpin an informed debate about longer-term tax and spending. The pace and focus of reporting non-financial information will be driven by specific information demands from specific stakeholder groups. The combination of the urgent need for action to prevent further climate change, alongside the need for better information to support the difficult decisions that most governments face following the pandemic, may provide the catalyst for such reporting changes.

Let us delve into the deeper waters of theoretical accountability before sounding off the pragmatic challenges. The notion of accountability can be classified according to the type of accountability and/or entities responding to public officials. Broadly speaking, accountability could either be political or managerial, direct or indirect; internal or external; and horizontal or vertical. At the same time accountability could also go beyond the boundaries of financial dimensions, and include political (or democratic), public, managerial, bureaucratic, professional, and personal accountability. In addition, scholar determines accountability as multiple being accountable in one form often requires compromises of other sorts of accountability. Public accountability is informal, but direct, as regards reporting to the public, communities and individuals. It is informal only regards to political responsibility. The right of the citizen to information lies at the heart of this type of responsibility. An example of this case is how the public auditor functions. Political responsibility has its genesis in the Athenian democracy, and is meant to bringing public officials to justice for their actions. Political responsibility is that those who have delegated authority are responsible for their actions to people, whether directly in ordinary societies or indirectly in complex societies.

The idea of horizontal versus vertical accountability is developed in Khotami,[5] for instance. According to him, accountability is a form of liability that refers to who and for what and what is accountable, which is understood as the obligation of the holder of the trust to provide accountability, presenting and reporting all activities that are his responsibility to the party who provides the trust has the authority to hold such accountability. The decision-makers of the government, the private sector and community organizations are accountable to the public and to the agencies concerned. The conception of accountability can be seen that government officials are not only accountable to higher authorities in the institutional chain of command but also accountable to the general public, non-governmental organizations, mass media and many other stakeholders. Public accountability consists of two kinds, namely (1) vertical accountability and (2) horizontal accountability. Vertical accountability is accountability for the management of funds to higher authorities, such as accountability of work units to local governments, regional accountability to the central government, etc. Horizontal accountability is the responsibility that is conveyed to the general community. Vertical and horizontal reporting reflects the main role of formal institutions – elections, parliaments, courts – in the field of state supervision. However, the effectiveness of vertical and horizontal forms of accountability itself is limited. Such official accountability institutions may not have the ability to constantly monitor the daily activities of the entire state apparatus. Corruption and voting studies have shown that in practice citizens often cannot punish corrupt regimes through elections.

Considering accountability in public finance and from the institutional point of view, Parliament has the biggest influence on public finance management. The accountability process which is characterized by the relations and interconnections between the Ministry of Finance and other bodies and by authorities is fulfilled in accordance with the law. The main problem lies in accountability between the Parliament and the Ministry of Finance, and accountability between the Parliament and citizens. Consequently, this problem may negatively affect the process of public finance management. The lack of vertical accountability leads to such results as the deterioration of situation.

As finances turn more complex, the challenges of accountability associated with finances and financial flows multiply. In this regard, lack of accountability mechanism could be natural or artificial, with natural alluding to growing complexity, and artificial alluding to deliberate mechanisms to permit transparency, and thereby inhibit accountability. India scores well on both counts, but it is on the latter that alarm bells keep ringing every now and then. Let us consider some of the challenges.

1. Lack of data and single overarching metric for private sector and public sector flows - As a systemic tracking mechanism is lacking, or embryonically developed at best, tracking of financial flows from private investors becomes complicated. Apart from welfare or priority lending (which is mostly charity-based), private finance is profit seeking, even though it might be mobilized through public interventions and thus attributable to specific policy objectives. As financial flows become complex, data of flows becomes very difficult to exhume, since it is largely concealed from the public domain.

9. Disparity between collective and individual reporting - This can hinder generating a complete picture of financial flows, even if it has been satisfactorily addressed as to what constitutes flows.

10. Aggregation of private versus public, concessional versus non-concessional - It could be the case that public and private flows are flowing into the same actions, but are not always easy to separate, for eg, a problem faced utterly in funds, joint ventures etc. Moreover, export credits are difficult to fathom or categorize as they are a mix of public sector interventions and which turn mobilize private finance.

11. Timing of financial flows - what is a commitment, or when are finances disbursed, or what is a point of measurement are questions categorized under here. The point at which tracking occurs, when and how (i.e. commitment or disbursement accounting), will affect the quantity of flows. Accounting for loan repayments and returns on investments (such as in disbursement accounting) will also change the net financial flow calculation. It must be mentioned that loan repayments are considered negative financial flows.

12. Impact of flow on actions - Support for R&D, capacity building, reporting/planning, ensuring property rights, etc. can be an integral part of, and have indirect impacts on actions. Plans and strategies can help mobilize funds for implementation. Determining which support or policies "mobilized" flows, and to what degree, is difficult to accurately determine. Though, there is a precedent to tracking these, especially in the case of bilateral donors that have developed a mechanism for integrated activities.

13. Loan and risk guarantees and insurance - Guarantees and insurance can help mobilize finance flows, but may not involve a financial payout. Thus it is difficult to account for their value compared to loans or grants under conventional ODA reporting frameworks, which may create perverse incentives against such instruments. The OECD export credit database lists loan guarantees before they are activated. The question is about tracking guarantees, which is absent.

14. Multiple counts across datasets - Flows may be recorded in multiple datasets. For example, in the private sector, it is not clear to what extent FDI and Bloomberg New Energy Finance data (clean energy investment) overlap; also special climate funds are in part captured in public bilateral and multilateral flow accounting. Unless reconciled in a single data base there is a risk of double-counting.

15. Country of origin and ultimate beneficiary - Attribution to a single country of origin can be challenging for multinational companies, and for subsidiaries and/or affiliates based in other countries. Finance can also flow through intermediaries in other countries (e.g. tax havens). OECD data on FDI outflows is to first counter-parties only.

Let us close anecdotally.

It is 20 something of June, 2013, and the leaders of G8 are gathered in Northern Ireland in County Fermanagh to thrash out issues of tax evasion and transparency, both legitimate concerns. The Outcome: Investments were made. Investments of trust. Tax evasion was seen in the light of the the willingness to disclose information. OECD was assigned surveillance duties over Corporations in regard to the data that was available and mechanisms put into practice to evade taxes by shifting income from one nation to another. Rules were tightened further, and voice of Corporations and Individuals in unison lamented, "Oh! Claustrophobia".

Leaders signed on to the 'Open Data Charter'. This charter is characterized by five principles, which the signatory countries pledged to apply within the national legal frameworks. These are, Open Data by Default, Quality and Quantity, Usable by All, Releasing Data for Improved Governance, and Releasing Data for Innovation. On paper, this guarantees freedom, an access to materially measurable transparency. But.

In his closing remarks, Nick Clegg, Deputy PM of England under David Cameron, stated, "Open is the new normal." But, it should be remembered that personally identifiable data, intellectual property rights and data pertinent to national security still are covered by "Close is not Abnormal", a fictitious take by Clog on Clegg!!!! There goes security in hiding, and seeking a discerning mindset for justification! **Open Government Partnership** is the partnership that could scan and monitor country's commitment to eventual signing the charter. Countries have exhibited intent on joining this partnership. What remains to be seen is whether India would, and if it would, then would it commit to commitment? Although, very early to say anything of substance here, let it at least on paper be taken for granted that development and security concerns are not convoluted and its citizens not be made to believe the incredulity.

Carrying on the baton further from there, it must be borne in mind that politic (without an 's', and used as an adjective) of transparency and accountability is getting ingrained in relationship to foreign aid on the one hand, and growth-led developmental philosophy on the other, as was hitherto the case. Well, this is forceful now, due to efforts to reach out to embrace Article 19 of the Universal Declaration of Human Rights more intimately, which makes mandatory access to Governmental information a public right. This is to be incorporated as an instrument to have better monitoring of government's action. If the former is a 'given', then the latter is to be tested empirically, for efficacy and verifiability. Assuming, such were to happen, then consequentially, the following is to be expectedly strengthened,

1. Demos having a larger share of the pie in governance, brought to life from paper, and reflect actions undertaken by their representatives: In short, a democracy much more intense and accountable.

16. Even if economic and financial screws are tightened, these are in accordance with public will, rather than governmental will on public, such that these tightening mechanisms do not nail the demos into walking horrors. Ideal, it seems, but so was communicative therapy to bring about nuanced voices to consensual ones.

17. Getting dismissive about corruption in all its various avatars!

18. Seeing in effect such a local verifiability, if true that is, elevate itself to a global norm, a generic in, by and for itself mirroring out to an universalizable principle.

It is to be hoped that any such transparency would yield a better definition of development, not just for the armchair academician, but even for the paracademic, but most importantly for the communities who have hitherto found themselves at the margins of development, or are at the receiving end. In any case, it is a call for participatory action, for an integration of the responsibility, accountability and transparency is the Holy Grail. ●

Endnotes

1. CIPFA and IFAC. (2014). *International Framework: Good Governance in the Public Sector*. Retrieved June 21, 2023, from https://www.cipfa.org/policy-and-guidance/standards/international-framework-good-governance-in-the-public-sector.

2. It is imperative to talk about the tool known as "PEFA" or Public Expenditure and Financial Accountability here. It is used for assessing the status of a country's public financial management system (PFM). The PEFA framework provides the foundation for evidence-based measurement of PFM performance at a specific point in time. The methodology can be reapplied in successive assessments to track changes over time. A PEFA assessment measures the extent to which a country's PFM systems, processes, and institutions contribute to the achievement of the three desirable outcomes of an open and orderly PFM:
   • aggregate fiscal discipline;
   • strategic allocation of resources; and
   • efficient service delivery. The PEFA framework assesses and reports on the strengths and weaknesses of PFM using 31 indicators that are further disaggregated into 94 dimensions. The performance of each indicator and dimension is measured against a four-point ordinal scale from A to D. The highest score A, is warranted if evidence clearly demonstrated the level of performance is consistent with existing good international practices, as judged by PEFA stakeholders. The 31 indicators are grouped into seven pillars of performance focusing on essential features of an effective PFM which provide the foundation for a PEFA assessment. Hawke, L. (n.d.). Public Expenditure and Financial Accountability: Assessing Public Financial Management Performance and Influencing Reform Processes Experience from Asia and the Pacific. adb.org. https://www.adb.org/sites/default/files/publication/384381/governance-brief-31.pdf

3. IFAC. (2022). *Greater Transparency and Accountability in the Public Sector*. Retrieved June 21, 2023, from https://www.ifac.org/what-we-do/speak-out-global-voice/points-view/greater-transparency-and-accountability-public-sector.

4. ibid.

5. Khotami, M. (2017). The concept of accountability in good governance. Proceedings of the International Conference on Democracy, Accountability and Governance (ICODAG 2017). https://doi.org/10.2991/icodag-17.2017.6

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