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Chakraborty, Lekha S

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Lekha Chakraborty

Abstract

Against the backdrop of mounting geopolitical risks and inflationary pressures, if RBI will hike the policy rates, the growth recovery process may slow down. At the same time, keeping the policy rates status quo for prolonged period could catalyse the de-anchoring of inflationary expectations. The union budget 2022-23 has accommodated high fiscal deficits and has emphasised on "crowding-in" effects of public infrastructure investment. The intensity of global macroeconomic uncertainties on economic recovery in India can be lessened through sustainable fiscal and monetary policy co-ordination.

Introduction

The Union Budget 2022 was presented in the Parliament prior to the mounting geopolitical risks of war in Ukraine. How these global macroeconomic uncertainties impact the fiscal arithmetic in India depend on the fiscal-monetary policy interface to respond to the crisis. The recent Omicron wave is also a reminder that ever-mutating coronavirus would continue as a determinant of macroeconomic uncertainties. Globally, several central banks have begun monetary policy normalisation, by reducing their balance sheets by ending asset purchases and also through an "earlier than expected" hikes in policy rates (Roubini,2022). The financial markets in emerging economies have turned volatile indicating strong capital flight, with mounting uncertainty on the potential rate hikes by US Federal Reserve.

The Reserve Bank of India (RBI) in the Monetary Policy Committee (MPC) deliberations during February 8-10, 2022 has delayed normalisation procedure by maintaining a status quo policy rate at 4 per cent as they focus on growth recovery first (RBI, 2022). However, when inflation is rising, a slower policy tightening by the central bank could accelerate the de-anchoring of inflation expectations, further exacerbating stagflation (Roubini, 2022; Chakraborty, 2021). Given the mounting pressures of inflation, if central banks "bite the bullet and become hawkish" by hiking rates, the growth recovery process will be severely dampened. Given these constraints on monetary policy stance, can we rely on "fiscal dominance" to counter the adverse impacts on growth recovery of exogenous supply shocks? Globally, fiscal authorities have increasingly accommodated high fiscal deficits to support growth recovery, and servicing these debts will become much more expensive if there is hike in interest rates.

There is an increasing recognition for accommodative fiscal space in the times of pandemic crisis. The efficacy of "fiscal rules"—whether adhering to numeric threshold ratios of deficit is growth-enhancing- needs a recalibration in the times of pandemic . If the path to fiscal consolidation is through expenditure compression rather than increased tax buoyancy, the quality of fiscal consolidation gets affected (Chakraborty, 2021). High deficit has no fiscal costs if it can be substantiated with increased public investment or "output gap" reduction (Blanchard, 2019).

Climate change risks further accentuate the macroeconomic uncertainties . How well monetary policy stance can incorporate such risks and uncertainties, within the available toolkit, is questioned by many economists. There is a broad consensus among economists that fiscal policy is capable to deal with the climate crisis, and national budgets have become an important tool to address climate change commitments. The Union Budget 2022 has announced green bonds for the first time ever in India.

Against this backdrop, this paper analyses the monetary-fiscal interface of Union Budget 2022-23 in India and green bonds. The paper is organised into 5 sections. Section 1 analyses the global uncertainties and the monetary policy stance. Section 2 analyses the fiscal dominance by analysing the macroeconomic framework of the Union Budget 2022-23. Section 3 analyses the sectoral credit stimulus and financial stability. Section 4 analyses the green bonds and highlights the monetary-fiscal interface of climate change commitments. Section 5 concludes.

1. The Global Uncertainties and the Monetary Policy Stance

The International Monetary Fund (IMF) revised global output and trade growth projections for 2022 downward to 4.4 per cent and 6.0 per cent from its earlier forecasts of 4.9 per cent and 6.7 per cent, respectively , in its January 2022 update of the World Economic Outlook. These revisions in global growth is due to the hardening of commodity prices and mounting inflationary pressures. The war in Ukraine will accentuate the global stagflationary recession when inflationary expectations are becoming unanchored and the massive negative supply shock in the global economy will reduce growth further (Roubini, 2022). The volatility in energy prices – the spike in oil prices to well above $100 per barrel; along with hardening of global commodity prices – will add to the uncertainties. Roubini (2022) highlighted that a deep stagflationary shock is also a nightmare scenario for central banks, which will be damned if they react, and damned if they don't.

Against the backdrop of mounting macroeconomic uncertainties, the real GDP growth for 2022-23 is projected by Monetary Policy Committee (MPC) at 7.8 per cent with Q1:2022-23 at 17.2 per cent; Q2 at 7.0 per cent; Q3 at 4.3 per cent; and Q4:2022-23 at 4.5 per cent (RBI, 2022). The thirty third meeting of the Monetary Policy Committee (MPC) - constituted under section 45ZB of the Reserve Bank of India Act, 1934 - was held from February 8 to 10, 2022. The MPC retained the status quo on repo rate at 4 percent. The reverse repo rate under the Liquidity Adjustment Facility (LAF) also remained at its status quo rate of 3.35 percent. There is no formal normalisation process yet, though the cut-off yield rate of variable reverse repo rate (VRRR) has risen to 3.99 per cent. The marginal standing facility

(MSF) rate and the Bank Rate stood at 4.25 percent. The MPC had decided to retain the 'accommodative stance' to revive economic growth on a sustained manner and mitigate the impact of COVID-19 on the macro economy. These decisions are in consonance with the objective of achieving the medium-term target for consumer price index (CPI) inflation of 4 percent within a band of +/- 2 percent, while supporting the growth momentum.

The normalisation procedure for the monetary policy stance is crucial for the effective functioning of the term structure of interest. The term structure of interest rate refers to the link between short term and long term rates of interest. For instance, the call money market rates are below the repo rate in India. As per the RBI data published on March 4th 2022, the weighted average call money rate is 3.530 percent. The Treasury-Bill cut off price of 91days is 3.70 per cent. The Treasury Bill cut off price for 182 days and 364 days was 4.19 per cent and 4.52 per cent respectively, as per March 4th, 2022. On the long term rate of interest, the average yield on 10-year government bond increased to 6.76 percent in March 4th, 2022.

There is mounting pressure on RBI to increase the policy rates due to inflationary pressures and the instability in global financial markets (due to impending taper tantrums and the plausible rise in the policy rates by US Federal Reserve) which can trigger capital flight. In India, the foreign exchange reserves increased by US$ 55 billion in 2021-22 (up to February 4, 2022) to US$ 632 billion. Correspondingly, the reserve money (adjusted for the first-round impact of the change in the cash reserve ratio) expanded by 8.4 per cent (y-o-y) on February 4, 2022. In 2022 February, the growth rate of reserve money was 13.7 per cent. The net Foreign Exchange Reserves (66.80 per cent) constitutes the major source of reserve money while the other components of the reserve money are the net RBI credit to government (34.77 per cent), and government's currency liabilities with the public (0.22 per cent) . The change in net RBI credit to the government to GDP is termed as seigniorage. In India, over the years, the seigniorage financing of deficit has been controlled due to inflationary pressures. In the next section, the levels and financing of deficit in India against the backdrop of Union Budget 2022 are discussed.

2. Fiscal Dominance : The Macro-fiscal Framework of Union Budget 2022-23

While monetary policy has limitations to trigger the economy, fiscal dominance is crucial for economic growth recovery. The Union Budget 2022-23 has predominantly focussed on the public infrastructure investment for the sustained growth recovery, through crowding-in of private corporate investment. The taxonomy of crowding out—real and financial—has been treated in detail in theoretical literature (Chakraborty, 2016). The *real* (direct) crowding out occurs when the increase in public investment displaces private capital formation broadly on a *dollar-for-dollar* basis, irrespective of the mode of financing the fiscal deficit. The *financial crowding out* is the phenomenon of partial loss of private capital formation, due to the increase in the interest rates emanating from the preemption of real and financial resources by the government through bond financing of fiscal deficit. The Finance Minister, from a position of strength, refuted these neoclassical arguments of crowding –out and she emphasized the significance of "crowding-in" effects of public investment on private corporate investment in the context of emerging economies like India. The empirical evidence also supports crowding –in rather than crowding-out effects of public investment in the context of India (Chakraborty, 2016; Vinod, Karun and Chakraborty, 2020). The mechanism through which public investment crowds-in private investment is through the multipliers related to capital infrastructure, and the Union Budget 2022-23 has given emphasis to this narrative.

In Union Budget 2022-23, the Government has increased the capital spending to a record high of 2.9 per cent of GDP. However, the fiscal deficit to GDP is 6.9 per cent in 2021-22 RE as compared to the pegged 6.8 per cent in 2021-22 BE. The fiscal deficit-GDP ratio was 9.2 per cent in 2020-21. High fiscal deficit-GDP ratio of 9.5 per cent of GDP in the RE of 2021-22 against the pegged 3.5 per cent in 2021-22 BE was announced against the backdrop of macroeconomic uncertainty due to covid-19 pandemic. However, an excessive deficit procedure roadmap has also been announced to bring down the fiscal deficit to GDP ratio to 4.5 per cent by financial year (FY) 2025-26. The revenue deficit GDP ratio is 3.8 per cent in 2022-23 BE, as against 4.7 per cent in 2021-22 RE (Table 1). In 2020-21 Actuals, revenue deficit to GDP ratio was 7.3 per cent. In the times of pandemic, the high revenue deficit is crucial for economic growth recovery. The "golden rule" of Fiscal Responsibility and Budget Management (FRBM) was to phase out the revenue deficit. However, this rule was eliminated in the 2018 Amendment of FRBM and the clauses relate to this is included in the Finance Bill

of 2018. Making revenue deficit to zero in the time of pandemic is not feasible, as compression in revenue expenditure can affect economic recovery (Chakraborty, 2022).

Table 1: Levels of Deficit (Rs crores)

	2020-21 Actuals	2021-22 BE	2021-22 RE	2022-23 BE
1. Fiscal Deficit	1818291 (9.2)	1506812 (6.8)	1591089 (6.9)	1661196 (6.4)
2. Revenue Deficit	1449599 (7.3)	1140576 (5.1)	1088352 (4.7)	990241 (3.8)
3. Effective Revenue Deficit	1218734 (6.2)	921464 (4.1)	850667 (3.7)	672598 (2.6)
4. Primary Deficit	1138422 (5.8)	697111 (3.1)	777298 (3.3)	720545 (2.8)
Revenue Deficit to Fiscal Deficit Ratio (%)	**79.72**	**76.00**	**68.40**	**59.61**

Source: Government of India (2022), Union Budget documents

The revenue deficit to fiscal deficit ratio is 59.61 per cent in 2022-23 BE. This ratio was 79.72 per cent in 2021-22 Actuals (Table 1). The primary deficit, which is difference between fiscal deficit and interest payments, is pegged at 2.8 per cent in 2022-23 BE. The primary deficit to GDP has reduced from 5.8 per cent in 2021-22 (actuals) to 3.3 per cent in 2021-22 (RE). The primary deficit reflects the current fiscal policy stance of the government, without the legacy of past interest liabilities. The Union Budget 2022-23 needs to be co-read with the FRBM Act, which includes the statements of the macroeconomic framework and medium term fiscal policy cum strategy to reduce the current general government debt to GDP of 90.6 per cent (Singh, 2022). However, the efficacy of "cyclically neutral fiscal deficit" needs to be threaded with caution, because if the fall in GDP is a permanent drop from the trend growth rather than a transient deviation, it is incorrect to assume that an upturn in business cycle can eliminate the cyclical part of deficit (Chakraborty, 2021).

The fiscal rules at the State level has been revised and borrowing limit of 4 per cent than the 3 per cent in the state FRBM with 0.5 per cent is efficiency parameter-linked to power sector reforms. In addition to this, a capital outlay of Rs one lakh crore is transferred to the States for strengthening their infrastructure development through state highways, Pradhan Mantri Gram Sadak Yojana and other related capital projects. This focus on infrastructure projects to the states is against the backdrop of State elections. However, the Union Budget 2022-23 has not engaged in populist policy announcements to incentivize the "calculus of consent" of voters.

A threshold-ratio of debt and deficit and the fiscal rules might prove detrimental in the time of pandemic as it constraints the fiscal space. High public debt has no fiscal costs if real rate of interest (.r) is not greater than real rate of growth (g) of economy. In the Union Budget 2022-23 BE, the fiscal

deficit to GDP ratio is pegged to be 6.4 per cent. In the last Union Budget, budget transparency was given an emphasis, by incorporating a portion of off-budget borrowings – for instance, The Food Corporation of India's borrowings from the National Small Savings Fund (NSSF) was stopped. Therefore, the fiscal deficit of 9.2 per cent of GDP in 2021-22 was inclusive of budget transparency as well, along with new expenditure priorities. The sources of financing the fiscal deficit show that there is a deviation between BE and RE for the gross market borrowing in 2021-22, from Rs 9,74,708 crores to Rs 8,75,771 crores.

Table 2: Sources of Financing Fiscal Deficit (Rs crores)

	2020-21 Actuals	**2021-22 BE**	**2021-22 RE**	**2022-23 BE**	**Composition**			
1. Debt Receipts (Net)	**1825479**	**1435428**	**1416902**	**1660444**	**2020-21 Actuals**	**2021-22 BE**	**2021-22 RE**	**2022-23 BE**
2. Market Borrowings(G-sec +T Bills)	1239737	974708	875771	1158719	68.18	64.69	55.04	69.75
3. Securities against Small Savings	483733	391927	591524	425449	26.60	26.01	37.18	25.61
4. State Provident Funds	18514	20000	20000	20000	1.02	1.33	1.26	1.20
5. Other Receipts (Internal Debts and Public Account)	13314	54279	(-)90140	37025	0.73	3.60		2.23
6. External Debt	70181	1514	19746	19251	3.86	0.10	1.24	1.16
7. Draw Down of Cash Balance	(-)7187	71383	174187	752	-0.40	4.74	10.95	0.05
8. Grand Total (1+7)	**1818291**	**1506812**	**1591089**	**1661196**	100	100	100	100

Source: Government of India (2022), Union Budget documents

In the Union Budget 2022-23(BE), gross market borrowings is Rs 16,60,444 crores, around 69.75 per cent of total debt. There is a deviation between BE and RE for the securities against Small Savings in the year 2021-22, it has increased from Rs 3,91,524 crores (BE) to Rs 5,91,524 crores. The securities against Small Savings constitute 25.61 per cent of total debt in 2022-23 (BE) (Table 2). The State Provident Fund constitutes 1.20 per cent of total public debt in FY23. The deficit incurred through off-budget borrowings (OBB) through public sector enterprises is not the part of fiscal deficit; it can be captured better through the construction of "Public Sector Borrowing Requirement" (PSBR) data. The coverage of PSBR is the general government deficit plus borrowing through public sector enterprises. However, India has not yet constructed a time series on PSBR.

In the Union Budget 2021-22, in the revenue account, the revised estimates (RE) was higher than budget estimates (BE) for the tax and nontax revenue buoyancy. However, the non-debt creating capital receipts, particularly the disinvestment/privatisation proceeds, showed a fiscal slippage. With a disinvestment target of Rs 1.75 lakh crore, government has received only Rs 78,000 crores in 2021-22. In 2020-21, the proceeds from disinvestment was only Rs 37,897 crores as against the target of Rs 2.1 lakh crores. In 2022-23 BE, government has provided very conservative estimate targeting only Rs 65,000 crores (Table 3).

Table 3: Union Budget 2022-23: Disaggregated Revenue and Expenditure

	2020-21 Actuals	2021-22 BE	2021-22 RE	2022-23 BE	(2021-22) RE/BE Ratio
1. Revenue Receipts	**1633920**	**1788424**	**2078936**	**2204422**	**1.16**
2. Tax Revenue (Net to Centre)	1426287	1545396	1765145	1934771	1.14
3. Non Tax Revenue	207633	243028	313791	269651	1.29
4. Capital Receipts	**1875916**	**1694812**	**1691064**	**1740487**	
5. Recovery of Loans	19729	13000	21975	14291	1.69
6. Other Receipts (Disinvestment/ Privatisation proceeds)	37897	175000	78000	65000	0.45
7. Borrowings and Other Liabilities (fiscal deficit)	1818291	1506812	1591089	1661196	1.06
9. Total Expenditure (10+13)	**3509836**	**3483236**	**3770000**	**3944909**	**1.08**
10. On Revenue Expenditure, of which	3083519	2929000	3167289	3194663	1.08
11. Interest Payments	679869	809701	813791	940651	1.01
12. Grants in Aid for creation of capital assets	230865	219112	237685	317643	1.08
13. On Capital Expenditure	426317	554236	602711	750246	1.09
14. Effective Capital Expenditure (12+13)	**657182**	**773348**	**840396**	**1067889**	**1.09**
Interest Payments/Revenue Receipts	**41.61**	**45.27**	**39.14**	**42.67**	

Source: Government of India (2022), (Basic Data), Union Budget documents

The public expenditure is pegged at Rs 39 lakh crore in 2022-23 (BE) , which is higher than the 2021-22 (RE) at Rs 37 lakh crore. The revenue and capital expenditure constitute respectively 81 and 19 per cent of the total expenditure. The effective capital expenditure is inclusive of grants-in-aid for creation of capital assets within the revenue expenditure. Over the years, the effective capital expenditure has increased from around Rs 6 lakh crore in 2020-21 (actuals) to around Rs 8 lakh crore in 2021-22 (RE), and it is pegged at around Rs 10 lakh crore in 2022-23 (BE). There is a huge deviation between BE and RE in both revenue and capital expenditure in India for the year 2021-22. The fiscal slippage in revenue expenditure in 2021-22 was from around Rs 29 lakh crore in BE to Rs 31 lakh crore in RE. The revenue and

capital expenditure are pegged at a higher amount in 2022-23 (BE) than 2021-22 (RE). The interest payments as per cent of revenue receipts is as high as 42.67 per cent in 2022-23 (BE) is a matter of concern.

There is an increasing recognition of the fact that public investment has suffered from fiscal consolidation when the national and subnational governments have over-adjusted to the fiscal rules by capital expenditure compression (Chakraborty, 2021). Therefore, the emphasis on the public infrastructure investment in the Union Budget 2022-23 is crucial for strengthening the gross capital formation. This is especially when the credit infusion, the predominant component of economic stimulus package has limited impact. The next section deals with the analysis of credit stimulus and the financial stability.

3. Analysing the Credit Stimulus and Financial Stability

Credit infusion into the economy has been the predominant narrative of pandemic economic stimulus programmes in India. The RBI has done a heavy-lifting to support the economic growth recovery through liquidity infusion strategies. The Operation Twist – simultaneous buying (long term) and selling (short term) of bonds has led to elongation of maturity structure of bond markets, by postponing the refinancing risks to engage in economic growth revival process. The RBI has also engaged in targeted repo operations to provide liquidity to the stressed sectors of the economy. Has the credit infusion into the economy been an effective strategy for economic recovery? Stiglitz and Rasheed (2020) highlighted in their paper titled "Which Economic Stimulus Works?" that the credit-related economic stimulus has limited multiplier effects. It is also cautioned that the credit infusion might also lead to mounting non-performing assets if there is no corresponding growth of credit growth in the economy.

The data on credit deployment for the month of January 2022 was published by RBI (collected from select 39 scheduled commercial banks, accounting for about 92 per cent of the total non-food credit deployed by all scheduled commercial banks) on February 28th 2022 showed that the non-food bank credit growth stood at 8.3 percent in January 2022 as compared to 5.9 percent in January 2021, on a year-on-year (YoY) basis (Table 4).

Table 4: Sectoral Deployment of Bank Credit , January 2022

Sector	Outstanding as on (Rs crores)	Variation (Year-on-Year)		Composition
	28.Jan2022	29.Jan,2021 / 31.Jan,2020	28.Jan,2022 / 29.Jan,2021	28.Jan,2022
		%	%	
I. Gross Bank Credit (II + III)	**11582442**	**5.9**	**8.2**	
II. Food Credit	**82390**	**10.4**	**-5.4**	**0.7**
III. Non-food Credit	**11500052**	**5.9**	**8.3**	**99.3**
				0.0
1. Agriculture and Allied Activities	**1432743**	**8.5**	**10.4**	**12.4**
2. Industry (Micro and Small, Medium and Large)	**3046833**	**0.7**	**6.4**	**26.3**
2.1. Micro and Small	464420	0.5	19.7	4.0
2.2. Medium	223376	21.8	74.7	1.9
2.3. Large	2359037	-0.2	0.5	20.4
3. **Services**	**2904619**	**8.1**	**7.3**	**25.1**
4. **Personal Loans**	**3180477**	**8.7**	**11.6**	**27.5**
5. **Priority Sector (Memo)**	**4345054**			**37.5**

Source : RBI (2022): Sectoral Deployment of Bank Credit – January 2022 , published on February 28, 2022.

The composition of outstanding credit showed that credit deployment to agriculture (12.4 per cent) was relatively smaller than the credit to industrial sector (26.3 per cent) and service sector (25.1 per cent) as per the outstanding credit figures in January 2022. The large industries received 20.4 per cent of total credit deployment, while micro industries and medium industries received 4 per cent and 1.9 per cent of total credit. The personal loans constitute 27.5 per cent of total credit deployment , where housing loan constitute (13.4 per cent of total credit deployment) the major component. The non-food credit at the aggregate level constitutes 99.3 per cent of total credit deployment. The broad inference from the credit deployment statistics from RBI is an uneven access to credit when large industries accessed credit significantly higher than the small and medium industries.

The credit growth to agriculture and allied activities grew to 10.4 percent in January 2022 as compared to 8.5 percent in January 2021. The credit to industry improved to 6.4 per cent in January 2022 from 0.7 per cent in January 2021. The credit growth to services sector registered 7.3 per cent in January 2022 as compared to 8.1 per cent in January 2021. Within the service sector, the credit growth is registered in 'NBFCs', 'transport operators' and 'tourism, hotels

and restaurants'. The "Personal loans" has noted a robust growth rate by 11.6 per cent in January 2022 from 8.7 per cent in January 2021.

The priority lending is given as memo in credit deployment statistics, which constitute around 40 per cent. Within the priority lending, agriculture, micro and small enterprises, medium enterprise, housing, educational loans, renewable energy, social infrastructure, export credit and credit to weaker sections are included (Table 5).

Table 5: Priority Sector Lending, as on January 2022

Sector		Variation (Year-on-Year)		Composition
	28.Jan,2022	29.Jan,2021 / 31.Jan,2020	28.Jan,2022 / 29.Jan,2021	28.Jan,2022
	(Rs crores)	%	%	
Priority Sector	4345054			37.5
Agriculture and Allied Activities	1354691	8.9	8.2	11.7
Micro and Small Enterprises	1244132	6.8	4.8	10.7
Medium Enterprises	275363	42.2	42.1	2.4
Housing	480738	1.8	-1.6	4.2
Educational Loans	46303	-6.4	-7.2	0.4
Renewable Energy	1965	48.5	42.7	0.0
Social Infrastructure	2447	99.8	-0.9	0.0
Export Credit	24418	5.3	22.4	0.2
Others	39788	-8.3	115.4	0.3
Weaker Sections including net PSLC-SF/MF	875210	6.1	6.9	7.6

Source : RBI (2022): Sectoral Deployment of Bank Credit – January 2022 , published on February 28, 2022.

The Financial Stability Report published by RBI in December 2021 showed that macro stress tests for credit risk indicate that the gross non-performing asset (GNPA) ratio of Scheduled Commercial Banks may increase from 6.9 per cent in September 2021 to 8.1 per cent by September 2022 under the baseline scenario and to 9.5 per cent under a severe stress scenario. The Report further clarified that the scheduled commercial banks would, however, have sufficient capital, both at the aggregate and individual levels, even under stress conditions . The capital to risk-weighted assets ratio (CRAR) of scheduled commercial banks (SCBs) rose to a new peak of 16.6 per cent in September 2021. As per Basel III stipulated the norm of CRAR at 8 per cent. CRAR is also called Capital Adequacy Ratio (CAR) , which is bank's capital by its risk-weighted assets. The provisioning coverage ratio (PCR) (the percentage of funds that a bank sets aside for losses due to bad debts) was 68.1 per cent in September 2021.

4. Green Bonds : Climate Change is more fiscal than monetary

Green bond announced in Union Budget 2022-23 reflects India's commitment to decarbonisation against the backdrop of Glasgow deliberations. Green bond is an onshore rupee denominated sovereign bond. This is a debt-instrument is to strengthen green infrastructure projects. The sovereign green bonds will be the part of government's gross market borrowing in 2022-23. Integrating climate change criterion in fiscal policy in India has not begun with green bonds announcement this year. India was the first ever to integrate climate change criterion in the inter-governmental fiscal transfers in 2014. The green bond is a policy strategy to finance "just transition" towards a sustainable climate-resilient economy. The Fourteenth Finance Commission was the first ever in the world to integrate climate change criteria in the intergovernmental fiscal transfers. This was when the 14th FC integrated climate change as one of the criteria to determine the intergovernmental fiscal transfers to the 29 states. The Fifteenth FC has retained the criterion.

On the monetary policy front, integrating climate change is a matter of debate. Economists have highlighted that monetary policy does not have sufficient toolkits to integrate climate change criterion. Hansen (2021) analysed the ways to examine the toolkits of central bank policy to combat climate change and warned that "*hastily devised policy rules unsupported by empirically grounded quantitative modelling could backfire if or when climate policy targets are missed, harming reputations of central banks and weakening their ability to act in the future on a variety of fronts; and could compromise central bank independence in the longer run*". Hansen (2021) also highlighted that "*climate change mitigation targets added to currently well-defined mandates may generate excessive expectations and unwarranted confidence in the abilities of central banks to address this important social and economic problem while diverting the attention away from fiscal policy*".

Hansen (2021) explained the significance of modeling systemic risk and climate change in support of rules-based policy for financial stability; and how to quantify the exposure of financial institutions and businesses that receive their loans to uncertain climate change. The climate-focused stress test conducted by the Central Banks is an upcoming policy tool to address long term possibilities of climate change and slanting central bank portfolios towards

green technologies. Such green stress test is to assess how the banking system is exposed to climate risks and uncertainties. Such test was first conducted by the Bank of England. Christine Lagarde of the European Central Bank (ECB) is very supportive of greening monetary policy and the ECB will conduct such tests of risk exposure of top banks in European Commission in 2022. The US Federal Reserve Chair Jay Powell also explained that the Fed has asked the lenders to articulate their risk exposure and how they can mitigate such risks. The Reserve Bank of India has published a chapter on greening monetary policy, however there is no further communication of toolkits.

Raghuram Rajan, former RBI Governor, mentioned that central banks should turn their focus to the financial stability of the green investments instead of asking whether to buy only green bonds, not brown bonds, which is primarily “fiscal” decisions. The broad consensus is that central banks should focus on price stability and financial stability. However, this can be refuted by the concern that climate change is a crucial determinant of financial stability and it is significant to integrate such climate related risks and uncertainties in financing investment decisions (Chakraborty, 2021a). In general, economists are apprehensive about the efficacy of central banks in dichotomizing green bonds and brown bonds in their asset portfolio and moving towards a low carbon-emission enterprise.

Within the environmental federalism frameworks, the “principle of subsidiarity” demands that the responsibility for providing a particular service should be assigned to the level of government closest to the people. Chakraborty (2021a) argued that this unconditional tax transfer through Finance Commissions is to compensate for the cost disabilities of the subnational governments for revenue foregone and other opportunity costs of protected areas in their path towards economic growth. However, ecological fiscal transfer is only one among many fiscal policy tools to ensure the climate change commitments. In addition to these fiscal transfers, the long term Public Financial Management (PFM) tool like climate responsive budgeting at national and subnational levels is crucial to address climate change commitments. This PFM tool links national climate action plans to budgetary commitments. The roadmap and the analytical matrices to prepare climate responsive budgeting can also eliminate the “fragmented approach” by line ministries towards adaptation and mitigation in India (Chakraborty, 2021a). However, differential tax rates can lead to “race to the bottom” to attract mobile capital and create 'pollution havens” through trading lower environmental quality for

more mobile capital. The recent initiative of green bonds is a leading example of thematic bond financing, by earmarking the sovereign bonds to a specific objective. This might open an earmarking of bond financing towards human development as well in future , in addition to climate financing.

5. Conclusion

Given the constraints on monetary policy stance to exogenous supply shocks which are growth-dampening, relying on "fiscal dominance" is crucial for sustainable economic recovery. Globally, an accommodative fiscal stance has been maintained with high fiscal deficits to support growth recovery. In India, the Union Budget 2022-23 has emphasised on "crowding-in" effects of public infrastructure investment on private investment . The efficacy of rules-based macroeconomic framework – both monetary and fiscal – needs to be recalibrated to support economic growth, as fiscal conservatism can adversely affect growth process and accentuate macroeconomic uncertainties. The credit related stimulus has limited multiplier effects and also lead to financial instability, if the liquidity infusion is not adequately followed by the credit growth in the economy. Climate change risks and uncertainties affect sustainable growth process and there is an increasing recognition to integrate climate change commitments in fiscal and monetary policies. However, the monetary policy toolkit is often viewed as inadequate to deal with climate change commitments. There is a broad consensus among economists that fiscal policy is capable to deal with the climate crisis, and national budget is an important tool for National Adaptation Communication. The financing of climate change through sovereign rupee denominated green bonds – earmarked within the gross market borrowing programme for green infrastructure – is a right step towards making fiscal policies green in future.

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