

Q2 FY23 GDP GROWTH AT 5.8% SHROUDED IN SIGNIFICANT UNCERTAINTIES: A RANGE (5.6%-6%) IS BETTER THAN A POINT ESTIMATE

**Issue No. 45, FY23
Date: 28 Nov 2022**

There is a wide divergence in market consensus regarding Q2 GDP numbers to be released on Nov 30. Consensus estimates are at 6.1%. However, due to lag of two months in the quarterly GDP data, the decision makers use high frequency data for the GDP projection for quarterly projections. This process of projecting the present state of economy through quarterly GDP growth projection, using the high frequency indicators is commonly known as “Nowcasting”.

Nowcasting techniques were first introduced by the Central Banks using Bridge equations. Subsequently, due to inability of bridge equations in dealing with large set of information, Principal Component Analysis became prominent for GDP Forecasting. Dynamic Factor Models (DFM) first introduced in 2008 used the collinearity of the underlying series of variables to derive a common dynamic factor, which since then has taken the prominent place in nowcasting due to the forecast accuracy.

Different Central banks such as US Federal reserve, Bank of England, European Central bank, Reserve Bank of New Zealand use the GDP nowcasting. RBI in its Working Paper titled ‘Nowcasting Indian GDP growth using a Dynamic factor Model’ from Feb 2020 has constructed single index dynamic factors using sequentially expanding list of 6,9,12 high frequency indicators. DF-6 includes domestic economic activity indicators, DF-9 combines indicators of trade and services and DF-12 adds financial indicators in the model. RBI’s nowcasting Model provided in-sample and out of sample forecast accuracy.

SBI has also developed Class of Models for GDP nowcasting in the form of Dynamic Factor Model, MIDAS model and LASSO models and their in-sample forecast accuracy is found to be precise however, when it comes to out of sample forecast accuracy, it is found that their forecast accuracy has been dented with the advent of Covid-19 and subsequent phase-wise lockdowns in different part of the worlds. To deal with this challenging scenario, SBI has further developed a Nowcasting Model with Artificial Neural network (ANN) of the Machine Learning, using 30 high frequency indicators, in which out of sample forecast accuracy is again converging to the actual growth number. On the basis of the ANN model, GDP growth for Q2 FY23 is projected at 5.8%.

IMF has projected that Global Growth will slow from 6% in 2021 to 3.2% in 2022 and 2.7 % in 2023 due to sharper than expected slowdown, high inflation, tighter financial conditions, increase in cost of living, Russia Ukraine War and lingering Covid-19 pandemic. Several indicators suggest that the Indian economy is making resilient progress in Q2 FY23 in spite of the drag from global spill overs, elevated inflation and some slackening of external demand as geopolitical developments take their toll on world trade.

The SBI Composite Leading Index (CLI) (a basket of 41 leading indicators which includes parameters from almost all the sectors) based on monthly data shows declining economic activity after June 2022 to September 2022. In the month of October 2022, it signals of turning-points with increase in economic activity, making the Q3 FY 23 GDP growth more optimistic.

We believe that Q2 Manufacturing sector growth is likely be weak on the back of margin compression. For example corporate results, ex BFSI, for Q2FY23 shows degrowth in EBIDTA by 14% yoy as against 35% EBIDTA growth in Q2 FY22, though the top line continued to grew at a healthier pace. Net sales grew by 28% in Q2FY23 while bottom line down by around 23%. Further, corporate margin seems to be under pressure, as reflected in results of around 3000 listed entities ex BFSI, on account of higher input costs with declining EBIDTA margin, on aggregate basis, from 17.7% in Q1FY22 to 10.9% in Q2FY23.

Overall, a sub 6% growth if it materialises in Q2, could imply that India is likely to have expanded at lower than the 7% benchmark. We however believe there is somehow a large disconnect between leading indicators and GDP growth since the onset of pandemic. Growth impulses continue to be strong and it may be better to look through the GDP headline numbers for a couple of quarters before arriving at a definitive conclusion about the growth trajectory.

GD GROWTH & OUTLOOK: Q2FY23

- ◆ IMF, in World Economic Outlook October 2022, has projected that Global Growth to slow from 6% in 2021 to 3.2% in 2022 and 2.7% in 2023 due to sharper than expected slowdown, high inflation, tighter financial conditions, increase in cost of living, Russia Ukraine War and lingering Covid-19 pandemic.
- ◆ IMF has projected that Global inflation will rise from 4.7% in 2021 to 8.8% in 2022 but will decline to 6.5% in 2023 and to 4.1% by 2024.
- ◆ Several indicators suggest that the Indian economy is making resilient progress in Q2 FY23 in spite of the drag from global spill overs, elevated inflation and some slackening of external demand as geopolitical developments take their toll on world trade.
- ◆ In 2022, India has been confronted with high volatility in the forex market as well as elevated and persistent inflation brought on by external spillovers. How India deals with these challenges from a position of strength imparted by the resilience of its macro-fundamentals, buffers and sound macro management by policymakers needs to be watched.
- ◆ **GDP Growth as per SBI composite leading indicator (CLI):** The CLI Index (a basket of 41 leading indicators which includes parameters from almost all the sectors) based on monthly data shows declining economic activity after June 2022 to August 2022. Beginning September 2022, it signals of turning-points with increase in economic activity, making the Q3 FY 23 GDP growth more optimistic.

SBI NOWCASTING MODEL

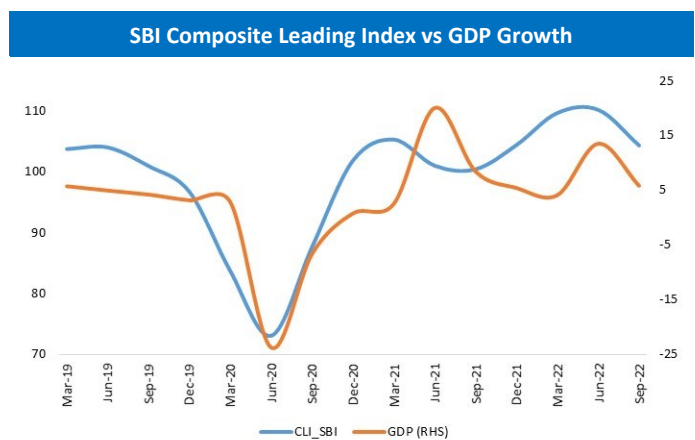
- ◆ We have developed Artificial Neural Network (ANN) model which reflect the behavior of human brain, allowing computer programs to recognize patterns and solve problem with machine learning.
- ◆ An Artificial neural network is a computational network based on biological neural networks that construct the structure of the human brain. Similar to a human brain has neurons interconnected to each other, artificial neural networks also have neurons that are linked to each other in various layers of the networks. These neurons are known as nodes.
- ◆ ANN comprises of Node layers containing of An Input layer, hidden layers, and an output layer. Each individual node is composed of input data, weights, a bias (threshold) and an output. ANNs rely on training data to learn and improve their accuracy over time.

FY23 Real GDP Projections		
	SBI	RBI
Q2 P	5.8%	6.3%
Q3 P	4.5%	4.6%
Q4 P	4.4%	4.6%
Annual P	6.8%	7.0%

Source: RBI; SBI Research

Mapping of Leading Indicators with GDP Growth			
Year	Quarter	% of indicators showing acceleration	GDP Growth (%)
FY18	Q1 FY18	59	6.1
	Q2 FY18	70	5.3
	Q3 FY18	71	6.7
	Q4 FY18	80	8.9
FY19	Q1 FY19	73	7.5
	Q2 FY19	73	6.5
	Q3 FY19	63	6.2
	Q4 FY19	48	5.7
FY20	Q1 FY20	41	4.9
	Q2 FY20	35	4.2
	Q3 FY20	34	3.2
	Q4 FY20	39	2.8
FY21	Q1 FY21	19	-23.8
	Q2 FY21	29	-6.6
	Q3 FY21	50	0.7
	Q4 FY21	59	2.5
FY22	Q1 FY22	75	20.1
	Q2 FY22	70	8.4
	Q3 FY22	61	5.4
	Q4 FY22	61	4.1
FY23	Q1 FY23	89	13.5
	Q2 FY23	76	5.8

Source: SBI Research



Source: SBI Research

- Once input layer is determined and weights are assigned, all inputs are multiplied with their respective weights and then summed, afterward the output is passed through an activation function, which determines the output. If that output exceeds a given threshold, it activates the node passing data to the next layer in the network, thereby making output of one node becoming the input of next node.

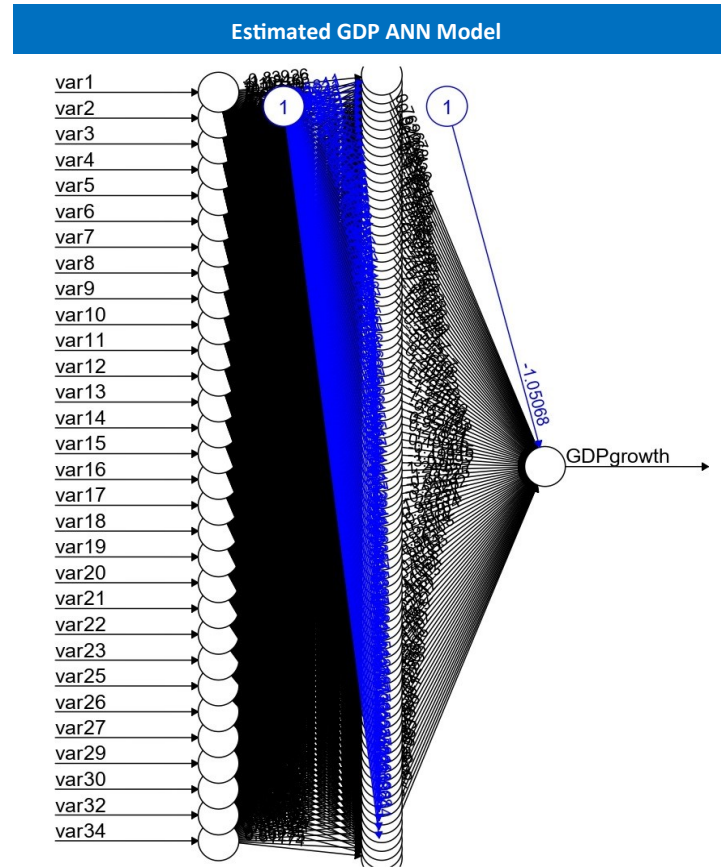
$$\sum_{i=1}^n w_i x_i + bias = w_1 x_1 + w_2 x_2 + w_3 x_3 + bias$$

$$Output = \begin{cases} 1 & \text{if } \sum_{i=1}^n w_i x_i + bias \geq 0 \\ 0 & \text{if } \sum_{i=1}^n w_i x_i + bias < 0 \end{cases}$$

- We have developed a ANN model with 30 high frequency indicators. ANN has been trained for the quarterly GDP data from 2011 to 2020. The forecast performance of the model in the previous periods has been precise.
- On the basis of the deep learning ANN model, we forecast that the quarterly GDP growth for the Q2FY23 would be at 5.8%, though there could be still a forecasting bias.

SOARING TOPLINE, SQUEEZING MARGINS

- Corporate results, ex BFSI, for Q2FY23 shows degrowth in EBIDTA by 14% yoy as against 35% EBIDTA growth in Q2 FY22, though the top line continued to grow at a healthier pace. Net sales grew by 28% in Q2FY23 while bottom line down by around 23%.
- Further, corporate margin seems to be under pressure, as reflected in results of around 3000 listed entities ex BFSI, on account of higher input costs with declining EBIDTA margin, on aggregate basis, from 17.7% in Q1FY22 to 10.9% in Q2FY23.



Source: SBI Research

Corporate Results Key Parameters							
Qtr.	Rs in crore			EBIDTA	Growth % (YoY)		
	Net Sales	EBIDTA	PAT	Margin %	Net Sales	EBIDTA	PAT
Q3 FY20	1382408	173730	80250	12.57%			
Q4 FY20	1321402	66091	15988	5.00%			
Q1 FY21	847287	88668	971	10.46%			
Q2 FY21	1184166	199323	112157	16.83%			
Q3 FY21	1374044	234382	126936	17.06%	-1	35	58
Q4 FY21	1572680	256828	162508	16.33%	19	289	916
Q1 FY22	1399820	247137	127880	17.65%	65	179	13063
Q2 FY22	1632594	269390	175014	16.50%	38	35	56
Q3 FY22	1808870	275784	162656	15.25%	32	18	28
Q4 FY22	1974550	275590	187507	13.96%	26	7	15
Q1 FY23	2112567	264254	141429	12.51%	51	7	11
Q2 FY23	2156660	235292	137116	10.91%	28	-14	-23

Source: SBI Research; Cline; around 3000 listed entities ex BFSI

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