



SYMBIOSIS
INSTITUTE OF GEOINFORMATICS



REPORT ON MACROECNOMIC INDICATORS 2017-2021

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PRN : 22070243055

Course : DSSA

Subject : Data Driven

Governance

Indicators of Macro-economics

Macroeconomics:

Macroeconomic factors refer to the broader economic conditions that affect the overall performance of an economy. These factors include gross domestic product (GDP), inflation, unemployment, interest rates, and trade balances. They also include government policies such as fiscal and monetary policy, as well as external factors such as global economic conditions and natural disasters. Macroeconomic factors play a crucial role in determining the overall health and growth of an economy, and are closely watched by policymakers, investors, and businesses.

Indicators:

- **Certificates of Deposit (CDs):**

CDs are a type of savings instrument offered by banks and other financial institutions, typically with a fixed term and a fixed interest rate. They are considered a reliable indicator of the level of confidence in the banking system and the overall health of the economy.

- **Non-Food Credit:**

This indicator measures the amount of credit extended by banks and financial institutions for non-agricultural purposes, such as for industry and services. It is considered an important indicator of economic growth and development.

- **Investment in India:**

This indicator measures the level of investment in the Indian economy, including both foreign and domestic investment. It is a key indicator of the level of confidence in the economy and the level of economic growth.

- **Aggregate Deposits:**

This indicator measures the total amount of deposits held by banks and other financial institutions. It is considered an important indicator of the level of savings and liquidity in the economy.

- **Bank Credit:**

This indicator measures the amount of credit extended by banks and financial institutions. It is considered an important indicator of the level of lending and investment in the economy.

- **Credit Deposit Ratio:**

This indicator is the ratio of credit extended by banks and financial institutions to the total deposits held by them. It is considered an important indicator of the level of liquidity in the banking system and the overall health of the economy.

- **M3:**

M3 is a measure of money supply in an economy, which includes M2 (cash, checking deposits and time deposits) and other liquid assets such as short-term repurchase agreements and larger time deposits in banks. M3 is considered as a broader measure of money supply than M2.

Dataset

Dataset : macroeconomics.csv

Source: <https://dbie.rbi.org.in/DBIE/dbie.rbsite=home>

Size : 138 x 10

Description of "Sheet 1"

The trends of Aggregate Desposits (Crore), Bank Credit (Crore), Cash Deposit Ratio (), Certificates of Deposit (Amount Outstanding) (Crore), Credit Deposit Ratio (), Food Credit (Crore), Investment In India (Crore), M3 (Crore), Non Food Credit (Crore) and Number of Records for Period Year. Color shows details about Aggregate Desposits (Crore), Bank Credit (Crore), Cash Deposit Ratio (), Certificates of Deposit (Amount Outstanding) (Crore), Credit Deposit Ratio (), Food Credit (Crore), Investment In India (Crore), M3 (Crore), Non Food Credit (Crore) and Number of Records. The view is filtered on sum of Aggregate Desposits (Crore), which keeps all values.

Marks

The mark type is Line (Automatic).
Stacked marks is off.

Shelves

Rows: Measure Values
Columns: Year of Period
Filters: Aggregate Desposits (Crore), Measure Names
Color: Measure Names

Data Statistics:

data.describe()

✓ 0.9s Python

	Investment In India \n (?) Crore)	Aggregate Desposits \n (?) Crore)	Bank Credit \n (?) Crore)	Food Credit \n (?) Crore)	Cash Deposit Ratio (%)	Credit Deposit Ratio (%)	M3 \n (?) Crore)
count	1.370000e+02	1.370000e+02	1.370000e+02	137.000000	137.000000	137.000000	1.370000e+02
mean	4.055630e+06	1.378646e+07	1.017843e+07	64137.710949	4.620000	74.046496	1.720672e+07
std	6.700448e+05	2.249123e+06	1.511040e+06	17885.363165	0.487287	2.246677	2.598103e+06
min	6.893812e+05	1.865711e+06	1.406644e+06	20633.240000	3.560000	69.550000	1.311532e+07
25%	3.455511e+06	1.203376e+07	9.337447e+06	52379.080000	4.570000	72.220000	1.489453e+07
50%	4.028214e+06	1.382991e+07	1.022275e+07	63854.490000	4.690000	74.370000	1.723091e+07
75%	4.613607e+06	1.557230e+07	1.092855e+07	77603.810000	4.870000	75.840000	1.940281e+07
max	5.129486e+06	1.752588e+07	1.316158e+07	124664.010000	5.560000	78.600000	2.185936e+07

Data Sample:

```
data.head()
```

✓ 0.2s Python

	Investment In India \n (? Crore)	Aggregate Desposits \n(? Crore)	Bank Credit \n(? Crore)	Food Credit \n(? Crore)	Cash Deposit Ratio (%)	Credit Deposit Ratio (%)	M3 \n(? Crore)	Certificates of Deposit (Amount Outstanding) \n(? Crore)
0	3351691.91	10825793.60	7864021.59	48577.26	4.69	72.55	13127718.20	116803.23
1	3330252.17	10797552.23	7884644.91	62225.05	4.75	72.92	13115316.32	128621.74
2	3378759.24	10835725.94	7931080.97	68234.77	4.67	73.10	13183233.73	121648.94
3	3348844.29	10794825.65	7934714.61	74375.39	4.66	73.41	13147309.31	121891
4	3357543.54	10837667.60	7998188.28	68773.74	4.61	73.63	13214984.47	119659.3

Dataset statistics

Number of variables 10

Number of observations 137

Missing cells 0

Missing cells () 0.0

Duplicate rows 0

Duplicate rows () 0.0

Total size in memory 10.8 KiB

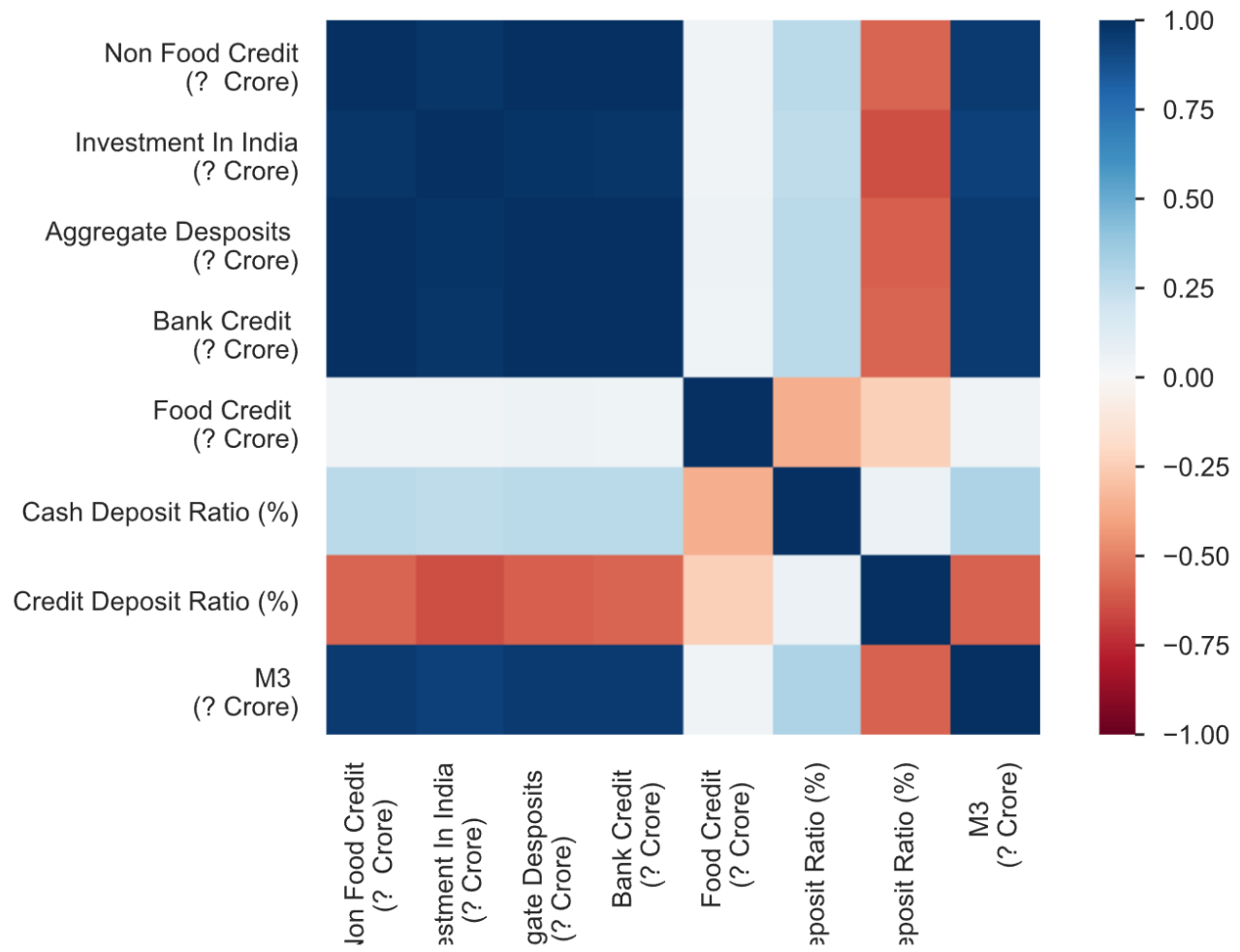
Average record size in memory 80.9 B

Variable types

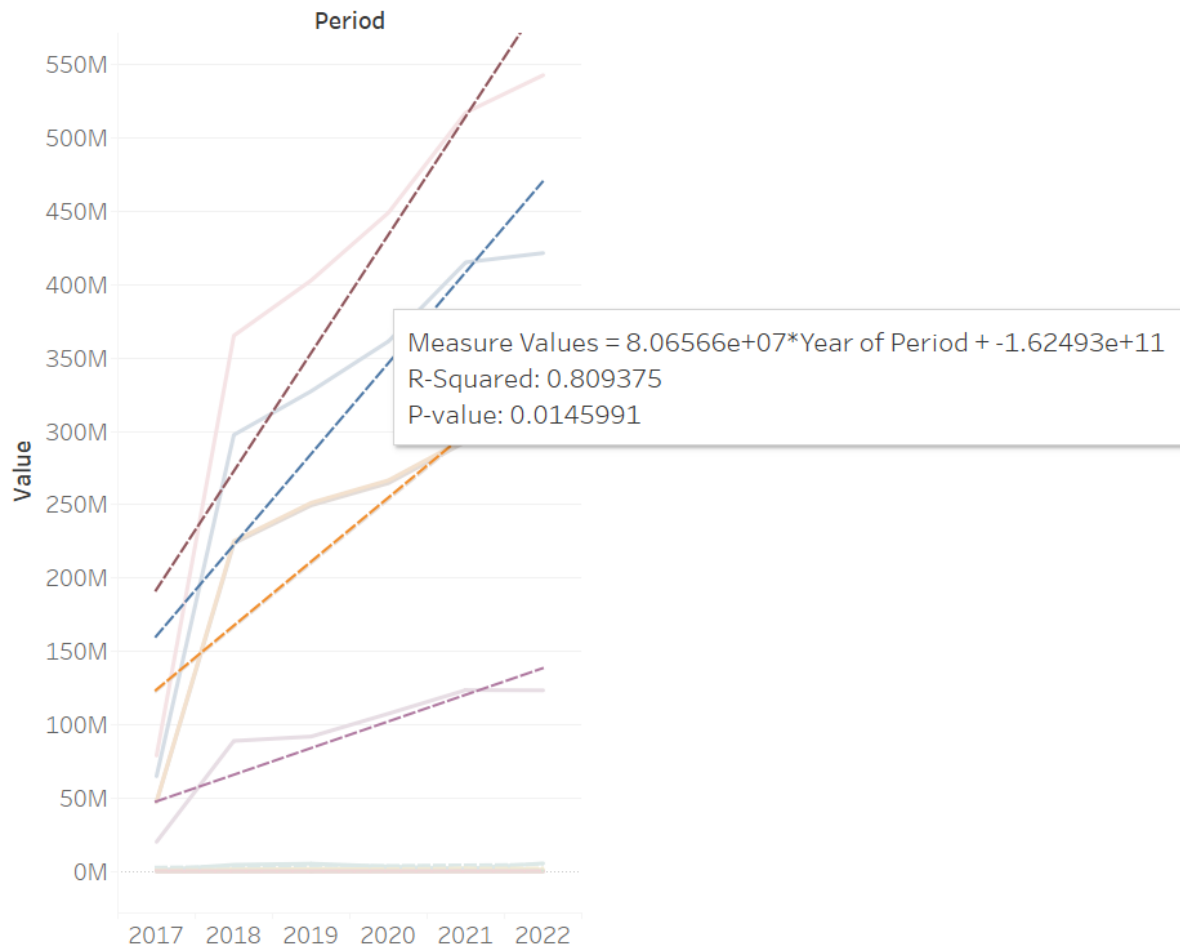
Categorical 2

Numeric 8

Correlations



Analysis



Measure Names

- Aggregate Deposits ..
- Bank Credit (? Crore)
- Cash Deposit Ratio (%)
- Certificates of Deposi..
- Credit Deposit Ratio (..
- Food Credit (? Crore)
- Investment In India (?..
- M3 (? Crore)
- Non Food Credit (? Cr..
- Number of Records

Trend Lines Model

A linear trend model is computed for Measure Values given Period Year. The model may be significant at $p \leq 0.05$. The factor Measure Names may be significant at $p \leq 0.05$.

Model formula: Measure Names*(Year of Period + intercept)

Number of modeled observations: 60

Number of filtered observations: 0

Model degrees of freedom: 20

Residual degrees of freedom (DF): 40

SSE (sum squared error): 7.1617e+16

MSE (mean squared error): 1.79042e+15

R-Squared: 0.954552

Standard error: 4.23134e+07

p-value (significance): < 0.0001

Analysis of Variance:

<u>Field</u>	<u>DF</u>	<u>SSE</u>	<u>MSE</u>	<u>F</u>	<u>p-value</u>
Measure Names	18	1.3960442e+18	7.7558e+16	43.3182	< 0.0001

Individual trend lines:

<u>Panes</u>	<u>Color</u>	<u>Line</u>	<u>Coefficients</u>
<u>Row</u>	<u>Column</u>	<u>Measure Names</u>	<u>p-value</u>
Measure Value	Year of Period	Number of Records	0.148009
			4
			Yea
			r of
			Peri
			od
			inte
			rcep
			2.94286
			1.64437
			3320.8
			1.78966
			0.148009
			0.1492

Measure Values	Year of Period	Non Food Credit (Crore)	0.028	4	t Year of Period	27		278	
			8702			4.34916e+07	1.30021e+07	3.34497	0.0287028
					intercept	-8.76003e+10	2.62577e+10	-3.33617	0.0289387
Measure Values	Year of Period	M3 (Crore)	0.0145991	4	Year of Period	8.06566e+07	1.95715e+07	4.12112	0.0145991
					intercept	-1.62493e+11	3.95247e+10	-4.11118	0.014718
Measure Values	Year of Period	Investment In India (Crore)	0.0195131	4	Year of Period	1.81806e+07	4.81552e+06	3.77541	0.0195131
					intercept	-3.6623e+10	9.72495e+09	-3.76588	0.0196744
Measure Values	Year of Period	Food Credit (Crore)	0.255613	4	Year of Period	181486	136909	1.32559	0.255613
					intercept	-3.65047e+08	2.76488e+08	-1.3203	0.257217
Measure Values	Year of Period	Credit Deposit Ratio ()	0.190536	4	Year of Period	202.899	128.883	1.57429	0.190536
					intercept	-408063	260279	-1.56779	0.192001
Measure Values	Year of Period	Certificates of Deposit (Amount Outstanding) (Crore)	0.45968	4	Year of Period	386849	473369	0.817224	0.45968
					intercept	-7.77746e+08	9.5597e+08	-0.813567	0.461547
Measure Value	Year of Period	Cash Deposit Ratio ()	0.128732	4	Year of	14.4274	7.55325	1.9101	0.128732

Measures	Year of Period	Bank Credit (Crore)	0.02 9091 2	4	Period	-	15253	-	0.12
					interecept	29030 .7	.8	1.90 318	0.12 9762
Measures	Year of Period	Aggregate Desposits (Cror e)	0.02 0184 1	4	Year of Period	4.367 31e+0 7	1.311 29e+0 7	3.33 053	0.02 9091 2
					interecept	- 8.796 53e+1 0	2.648 16e+1 0	- 3.32 176	0.02 9330 4
Measures	Year of Period	Aggregate Desposits (Cror e)	0.02 0184 1	4	Year of Period	6.203 09e+0 7	1.660 18e+0 7	3.73 64	0.02 0184 1
					interecept	- 1.249 57e+1 1	3.352 73e+1 0	- 3.72 701	0.02 0349 8

Dimensions

Measure Names has 10 members on this sheet

Members: Aggregate Desposits (Crore); Bank Credit (Crore); Cash Deposit Ratio ();
Certificates of Deposit (Amount Outstanding) (Crore); Credit Deposit Ratio (); ...

Period Year has 6 members on this sheet

Members: 2017; 2019; 2020; 2021; 2022; ...

Measures

Measure Values ranges from 6 to 543,018,218 on this sheet.

Sum of Aggregate Desposits (Crore) ranges from 64,912,439 to 421,697,786 on this sheet.

The filter associated with this field keeps all values.

Data Source Details

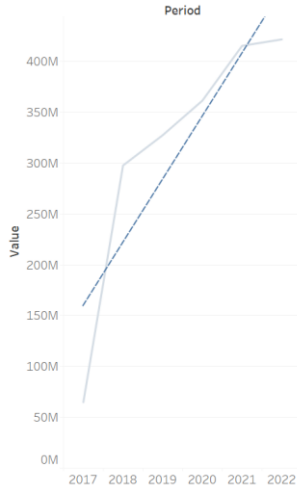
Data Source: moh_final_ddg

Type: Federated

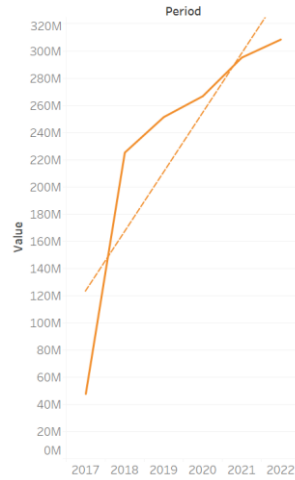
Table: moh_final_ddg#csv

VISUALIZATION OF EACH MACROECONOMIC FACTOR

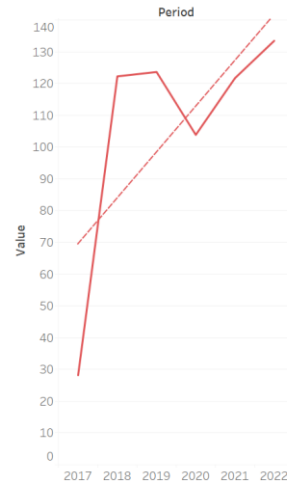
Aggregate Deposits(in crores)



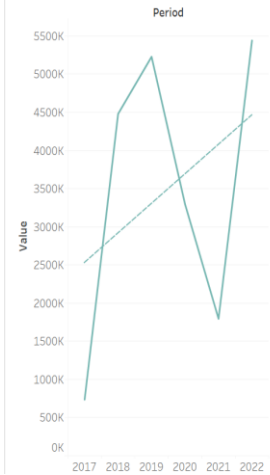
Bank Credit(in crores)



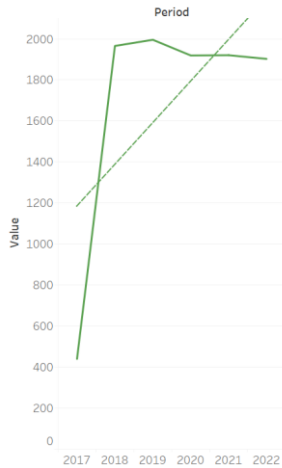
Cash Deposit Ratio(in crores)



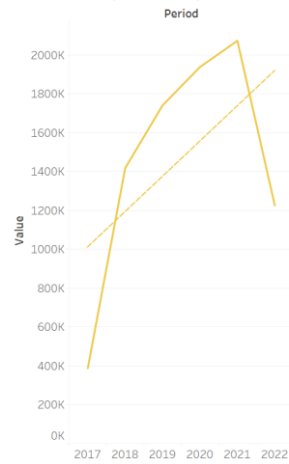
Certificates of Deposits(in crores)



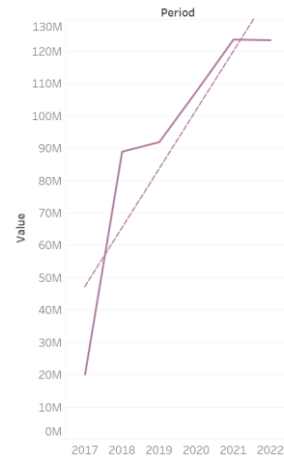
Credit Deposit Ratio(in crores)



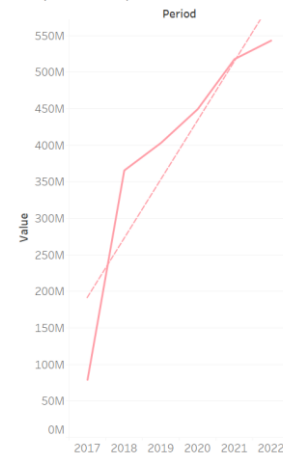
Food Credit(in crores)



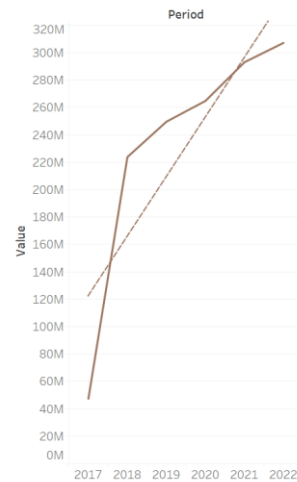
Investment in India(in crores)



M3(in crores)



Non Food Credit



Analysis:

Due to the increasing demands of the people and increasing population the arises the need for the above factors

From 2017 to 2022 the factors got multiplied by 6 times(approx).

Factors	Percentage change(2017-2022)
Aggregate Deposits	649.64%
Non Food Credit	649.48%
Investment In India	614.09%
Aggregate Desposits	649.64%
Bank Credit	646.76%
Food Credit	315.59%
Cash Deposit Ratio (%)	473.04%
Credit Deposit Ratio (%)	432.5%
M3	687.38%
Certificates of Deposit (Amount Outstanding)	739.64%

Highest Change: M3(687.38%)

Reason for change:

The M3 money supply is a measure of the total amount of money in circulation in an economy. Changes in M3 can be caused by several macroeconomic factors, including:

- Monetary policy
Central banks can change the money supply through open market operations, reserve requirements, and interest rates.
- Economic growth

An expanding economy leads to increased demand for money, which can cause an increase in M3.

- Inflation
Rising prices can reduce the real value of money, leading to an increase in M3.
- Financial innovation
The introduction of new financial products and technologies can increase the money supply.
- Exchange rate movements
Changes in the exchange rate can affect the amount of money in circulation.

It's important to note that changes in M3 do not necessarily indicate a change in economic conditions, but rather the response of the central bank and the economy to those conditions.

Lowest Change : Food Credit(315.59%)

Reason for change:

Food credit refers to the amount of credit extended by financial institutions to support the food industry, including agricultural production, processing, and distribution. Changes in food credit can be influenced by several macroeconomic factors, including:

- Agricultural production
Changes in agricultural output can impact the demand for food credit.
- Interest rates
Higher interest rates can make borrowing more expensive, reducing the demand for food credit.
- Economic growth

An expanding economy can increase the demand for food credit as businesses in the food industry seek to expand their operations.

- Government policies

Policies related to agriculture, food security, and rural development can affect the availability and cost of food credit.

- Inflation

Rising prices can increase the cost of food production, leading to a higher demand for food credit.

It's important to note that changes in food credit are just one of many factors that can influence the food industry and food prices. Other factors, such as weather, natural disasters, and trade policies, can also play a significant role.

PREDICTIONS : CONCLUSION

Period	Forecast(Non Food Credit (? Crore))	Forecast(Investment In India (? Crore))	Forecast(Aggregate Deposits (? Crore))	Forecast(Bank Credit (? Crore))	Forecast(Food Credit (? Crore))	Forecast(Forecast(Forecast(M3 (? Crore))	Forecast(Certificates of Deposit (Amount Outstanding) (? Crore))
1/13/2023	1381917.448	1381917.448	2794353613	2794353613	51061.67008	5.30214656	74.986948	21844392.66	293826.401
1/27/2023	1411163.697	1411163.697	2855449545	2855449545	47207.85115	5.30429313	74.953895	21951292.99	293669.712
2/10/2023	1440409.945	1440409.945	2916545476	2916545476	44817.58974	5.30643969	74.920843	22058193.32	293513.0231
2/24/2023	1469656.193	1469656.193	2977641408	2977641408	39503.80285	5.30858626	74.88779	22165093.65	293356.3341
3/10/2023	1498902.442	1498902.442	3038737340	3038737340	37203.90175	5.31073282	74.854738	22271993.98	293199.6451
3/24/2023	1528148.69	1528148.69	3099833271	3099833271	32349.75478	5.31287938	74.821685	22378894.31	293042.9561
4/7/2023	1557394.938	1557394.938	3160929203	3160929203	25916.12073	5.31502595	74.788633	22485794.64	292886.2671
4/21/2023	1586641.187	1586641.187	3222025134	3222025134	37589.54912	5.31717251	74.75558	22592694.97	292729.5781
5/5/2023	1615887.435	1615887.435	3283121066	3283121066	47197.2392	5.31931908	74.722528	22699595.3	292572.8892
5/19/2023	1645133.684	1645133.684	3344216998	3344216998	50318.22739	5.32146564	74.689475	22806495.63	292416.2002
6/2/2023	1674379.932	1674379.932	3405312929	3405312929	60386.25594	5.32361221	74.656423	22913395.96	292259.5112
6/16/2023	1703626.18	1703626.18	3466408861	3466408861	59683.62761	5.32575877	74.62337	23020296.29	292102.8222
6/30/2023	1732872.429	1732872.429	3527504792	3527504792	53788.24554	5.32790533	74.590318	23127196.62	291946.1332
7/14/2023	1762118.677	1762118.677	3588600724	3588600724	50877.49561	5.3300519	74.557265	23234096.95	291789.4442
7/28/2023	1791364.925	1791364.925	3649696656	3649696656	47023.67668	5.33219846	74.524213	23340997.28	291632.7553
8/11/2023	1820611.174	1820611.174	3710792587	3710792587	44633.41527	5.33434503	74.49116	23447897.61	291476.0663
8/25/2023	1849857.422	1849857.422	3771888519	3771888519	39319.62839	5.33649159	74.458108	23554797.94	291319.3773
9/8/2023	1879103.67	1879103.67	3832984451	3832984451	37019.72729	5.33863815	74.425055	23661698.27	291162.6883
9/22/2023	1908349.919	1908349.919	3894080382	3894080382	32165.58032	5.34078472	74.392003	23768598.6	291005.9993
10/6/2023	1937596.167	1937596.167	3955176314	3955176314	25731.94627	5.34293128	74.35895	23875498.93	290849.3103
10/20/2023	1966842.415	1966842.415	4016272245	4016272245	37405.37465	5.34507785	74.325898	23982399.26	290692.6214
11/3/2023	1996088.664	1996088.664	4077368177	4077368177	47013.06474	5.34722441	74.292845	24089299.59	290535.9324
11/17/2023	2025334.912	2025334.912	4138464109	4138464109	50134.05293	5.34937097	74.259793	24196199.92	290379.2434
12/1/2023	2054581.16	2054581.16	4199560040	4199560040	60202.08148	5.35151754	74.22674	24303100.25	290222.5544
12/15/2023	2083827.409	2083827.409	4260655972	4260655972	59499.45314	5.3536641	74.193688	24410000.58	290065.8654
12/29/2023	2113073.657	2113073.657	4321751903	4321751903	53604.07107	5.35581067	74.160635	24516900.91	289909.1764
1/12/2024	2142319.905	2142319.905	4382847835	4382847835	50693.32115	5.35795723	74.127583	24623801.24	289752.4875
1/26/2024	2171566.154	2171566.154	4443943767	4443943767	46839.50222	5.3601038	74.09453	24730701.57	289595.7985
2/9/2024	2200812.402	2200812.402	4505039698	4505039698	44449.24081	5.36225036	74.061478	24837601.9	289439.1095
2/23/2024	2230058.651	2230058.651	4566135630	4566135630	39135.45392	5.36439692	74.028425	24944502.23	289282.4205
3/8/2024	2259304.899	2259304.899	4627231562	4627231562	36835.55283	5.36654349	73.995373	25051402.56	289125.7315
3/22/2024	2288551.147	2288551.147	4688327493	4688327493	31981.40586	5.36869005	73.96232	25158302.89	288969.0425
4/5/2024	2317797.396	2317797.396	4749423425	4749423425	25547.77181	5.37083662	73.929268	25265203.22	288812.3536
4/19/2024	2347043.644	2347043.644	4810519356	4810519356	37221.20019	5.37298318	73.896215	25372103.55	288655.6646
5/3/2024	2376289.892	2376289.892	4871615288	4871615288	46828.89028	5.37512974	73.863163	25479003.88	288498.9756

Forecasted value for year : 2023 & 2024

Original Value

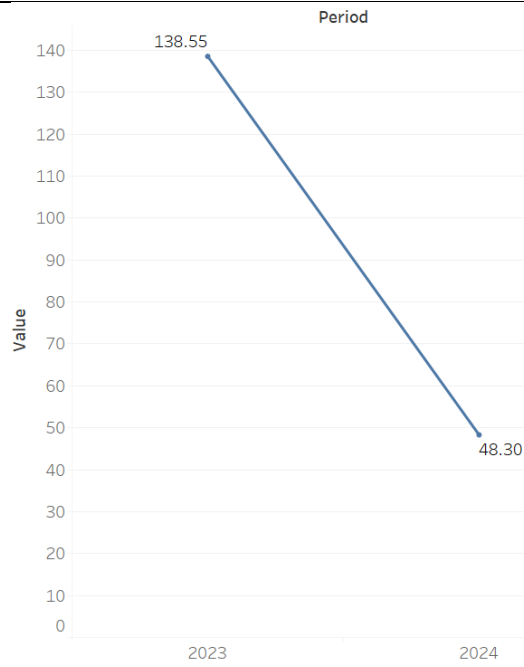
Period	Non Food Credit (? Crore)	Investment In India (? Crore)	Aggregate Deposits (? Crore)	Bank Credit (? Crore)	Food Credit (? Crore)	Cash Deposits	Credit Deficit	M3 (? Crore)	Certificate of Deposit (Amount Outstanding) (? Crore)
10/13/2017	7815444	3351692	10825794	7864022	48577.26	4.69	72.55	13127718	116803.2
10/27/2017	7822420	3330252	10797552	7884645	62225.05	4.75	72.92	13115316	128621.7
11/10/2017	7862846	3378759	10835726	7931081	68234.77	4.67	73.1	13183234	121648.9
11/24/2017	7860339	3348844	10794826	7934715	74375.39	4.66	73.41	13147309	121891
12/8/2017	7929415	3357544	10837668	7998188	68773.74	4.61	73.63	13214984	119659.3
12/22/2017	8001821	3333513	10820874	8068267	66445.91	4.77	74.38	13208681	126981
1/5/2018	8095278	3388125	10948922	8152767	57489.77	4.65	74.64	13354527	152553
1/19/2018	8083400	3363586	10927442	8142006	58606.39	4.7	74.42	13363234	168976.6
2/2/2018	8181094	3410220	11057590	8233473	52379.08	4.54	74.37	13496389	171178.4
2/16/2018	8175656	3402805	11002274	8223208	47552.36	4.63	74.65	13478992	177981.8
3/2/2018	8273397	3409075	11137046	8319032	45635.44	4.69	74.61	13627757	194581
3/16/2018	8304581	3334889	11111628	8346747	42166.76	4.63	75.02	13635044	188776.3
3/30/2018	8583436	3318454	11426049	8625425	41989.31	5.11	75.39	13966008	185732.4
4/13/2018	8414049	3382307	11329115	8446023	31974.02	4.47	74.49	13914187	203557.5
4/27/2018	8465590	3360808	11381422	8517625	52035.47	4.89	74.66	13981647	206807
5/11/2018	8462620	3390163	11342752	8520645	58024.8	4.58	75.03	13974411	204056.5
5/25/2018	8484745	3373884	11352822	8537655	52910.52	4.74	75.36	13984478	205222.4
6/8/2018	8528172	3445736	11408349	8593845	65673.77	4.55	75.33	14056195	186152.6
6/22/2018	8551880	3396564	11352983	8614419	62538.19	4.9	75.88	14003227	174499.1
7/6/2018	8597476	3471827	11488307	8656613	59136.78	4.76	75.35	14128810	168842.3
7/20/2018	8559091	3467346	11437139	8609734	50642.47	4.82	75.28	14072866	163850.7
8/3/2018	8623615	3498702	11577090	8672844	49228.23	4.69	74.94	14201117	166650.5
8/17/2018	8619005	3509160	11511168	8673163	54157.9	4.6	75.35	14155067	158662.6
8/31/2018	8731899	3504696	11646516	8780753	48854.17	4.69	75.39	14271408	163975
9/14/2018	8748623	3488564	11563681	8798112	49489.27	4.77	76.08	14215171	157277.3
9/28/2018	8934000	3447987	11799855	8981664	47663.74	4.9	76.12	14422908	151012.8
10/12/2018	8947579	3494919	11786166	8993106	45526.75	4.62	76.3	14441475	158917.1
10/26/2018	8978940	3435857	11771255	9033975	55034.75	4.68	76.75	14426380	154067.8
11/9/2018	9050879	3443125	11825768	9111427	60547.82	4.68	77.05	14544755	131196.7
11/23/2018	9060338	3426161	11813574	9132627	72288.05	4.68	77.31	14518775	148505.6
12/7/2018	9126807	3451859	11884632	9206253	79445.91	4.6	77.46	14598654	155670
12/21/2018	9210294	3347911	11816273	9287636	77341.76	4.67	78.6	14549695	180664
1/4/2019	9265106	3386117	12033760	9337447	72341.03	4.57	77.59	14771348	182138
1/18/2019	9261606	3363431	11985974	9332555	70948.9	4.76	77.86	14758783	190078.6
2/1/2019	9361799	3358125	12122700	9429528	67729.57	4.67	77.78	14894534	177275.5
2/15/2019	9378626	3354855	12119466	9440366	61740.17	4.61	77.89	14939818	200250.8
3/1/2019	9464808	3409141	12230652	9520452	55644.72	4.62	77.84	15054023	208866.8
3/15/2019	9503567	3394144	12227455	9556242	52674.28	5.14	78.14	15087088	220455.5
3/29/2019	9730112	3381056	12573772	9771722	41610.33	5.1	77.7	15443594	272260.4
4/12/2019	9608856	3441240	12530163	9644786	35930.63	4.66	76.97	15420576	261725.8
4/26/2019	9577784	3455511	12483869	9620945	43161.73	4.82	77.07	15378604	225478.5
5/10/2019	9563057	3511056	12517393	9624757	61699.64	4.65	76.9	15439816	249482.5
5/24/2019	9555822	3521900	12499557	9621545	65722.59	4.61	76.98	15421077	227147
6/7/2019	9574299	3493155	12540260	9651903	77603.81	4.68	76.97	15478177	218665.8
6/21/2019	9577349	3466646	12492467	9648768	71419.48	4.66	77.25	15416104	215944
7/5/2019	9626665	3545636	12675270	9697434	70768.78	4.64	76.51	15602934	231054
7/19/2019	9592376	3492737	12650591	9658378	66001.53	4.84	76.35	15567781	224039
8/2/2019	9666254	3557063	12744583	9729002	62747.37	4.67	76.34	15641418	198141
8/16/2019	9619341	3560152	12680041	9684562	65220.46	4.84	76.36	15599167	178635
8/30/2019	9617761	3581075	12780197	9680153	62392	4.87	75.74	15677090	179455
9/13/2019	9648921	3605281	12722857	9713658	64736.3	4.75	76.33	15648406	168671
9/27/2019	9708769	3692753	12906461	9768854	60085.07	4.8	75.67	15814167	188101
10/11/2019	9729090	3705292	12937922	9789381	60290.13	4.74	75.66	15886565	181011
10/25/2019	9770784	3683493	12978084	9840562	69778.61	4.88	75.82	15955362	171396
11/8/2019	9766327	3757950	12997979	9846375	80048.18	4.7	75.75	15989604	171696
11/22/2019	9768999	3719568	12958473	9860303	91304.09	4.65	76.09	15945749	162443
12/6/2019	9810020	3760878	13106052	9934684	124664	4.73	75.8	16164772	163198
12/20/2019	9862301	3724228	13008881	9947444	85143.04	4.95	76.47	16062978	160669
1/3/2020	9952590	3779746	13210365	10036092	83502.17	4.71	75.97	16266158	178432
1/17/2020	9921541	3713695	13126595	10003642	82101.25	4.77	76.21	16217604	181344
1/31/2020	10026276	3735514	13324001	10105176	78899.97	4.75	75.84	16418625	181309
2/14/2020	9969259	3789557	13226295	10042583	73324.08	4.8	75.93	16360364	186042
2/28/2020	10039270	3778287	13326268	10104866	65596.37	4.75	75.83	16459027	185932
3/13/2020	10080080	3795013	13339149	10140473	60392.85	4.73	76.02	16528590	173941
3/27/2020	10319097	3747349	13567492	10370861	51763.97	4.37	76.44	16791629	172996
4/10/2020	10283831	3959154	13714590	10337904	54073.23	3.56	75.38	16989549	180116
4/24/2020	10220772	3969646	13723182	10273416	52643.42	3.73	74.86	17034133	180891
5/8/2020	10182598	4028214	13850368	10251833	69234.69	3.68	74.02	17209847	171180
5/22/2020	10143337	4054371	13829915	10222753	79416.24	3.77	73.92	17230908	160455
6/5/2020	10168887	4152697	13955523	10254570	85682.92	3.8	73.48	173494405	140165
6/19/2020	10156388	4142392	13867127	10245677	89288.99	3.85	73.9	17315246	121465
7/3/2020	10218316	4218381	14077081	10304203	85886.44	3.73	73.2	17538911	112425
7/17/2020	10132756	4187319	14020616	10219112	86355.44	3.71	72.89	17490781	112455
7/31/2020	10202769	4293409	14161269	10282057	79287.5	3.68	72.61	17625803	104705
8/14/2020	10146420	4315166	14080510	10219502	73082.15	3.72	72.58	17561514	94813
8/28/2020	10150217	4361222	14176793	10216158	65941.47	3.71	72.06	17647972	85855.2
9/11/2020	10163076	4401545	14247285	10226930	63854.49	3.65	71.78	17738365	83242.66
9/25/2020	10205154	4439092	14262403	10271581	66426.85	3.63	72.02	17739765	71904.21
10/9/2020	10280102	4461110	14301947	10343495	63393.08	3.65	72.32	17806236	70775.51
10/23/2020	10272209	4440234	14291512	10338868	66659.01	3.65	72.34	17803739	74214.4
11/6/2020	10335640	4476662	14403312	10419271	83631.04	3.72	72.34	17934854	72326.21
11/20/2020	10345924	4425325	14370435	10434880	88956.29	3.88	72.61	17937939	64068.52
12/4/2020	10401774	4489009	14583087	10497687	95912.73	3.86	71.99	18153286	66533.31
12/18/2020	10453884	4413605	14478961	10547037	93152.4	3.96	72.84	18055372	67960.05
1/1/2021	10610052	4480826	14726749	10702596	92544.7	3.8	72.68	18300410	71871.98
1/15/2021	10555943	4422032	14625390	10642893	86950.18	3.88	72.77	18239731	65249.16
1/29/2021	10616642	4436632	14802765	10703752	87109.66	3.82	72.34	18406666	62026.32
2/12/2021	10628254	4469578	14781346	10703541	75287.31	3.72	72.41	18420102	56464.51
2/26/2021	10699536	4461323	14933580	10774742	75205.98	3.71	72.15	18563764	54917.99
3/12/2021	10726626	4515011	14955805	10795818	69192.4	3.7	72.18	18613815	58304.34
3/26/2021	10888255	4462526	15113512	10949509	61254.38	4.19	72.45	18849451	80621.98
4/9/2021	10838767	4549310	15211463	10888466	49699.22	4.09	71.58	18980415	88675.73
4/23/2021	10802150	4478813	15134307	10860485	58334.89	4.27	71.76	18919037	85792.41
5/7/2021	10784912	4571715	15216968	10870006	85094.17	4.26	71.43	19040068	87177.58
5/21/2021	10740559	4535489	15167184	10831221	90662.91	4.58	71.41	19012126	90349.28

Visualization : Actual vs Forecasted

Aggregate Deposits

Categories	Forecasted(2023,2024)	Actual(2017-2022)
Aggregate Deposits		
Bank Credit		

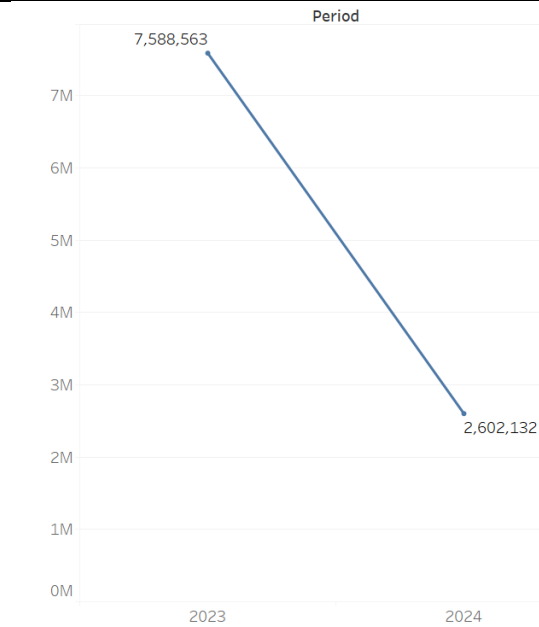
Cash Deposit Ratio



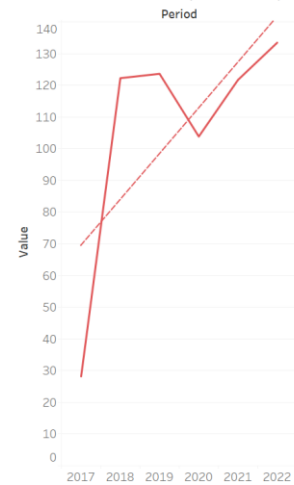
Cash Deposit Ratio(in crores)



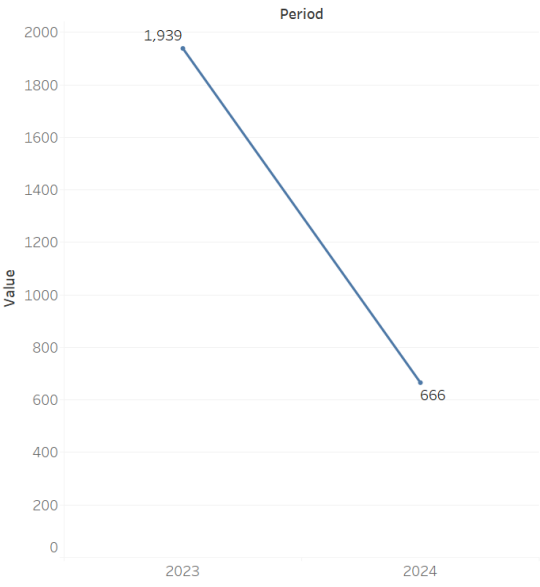
Certificates of Deposits



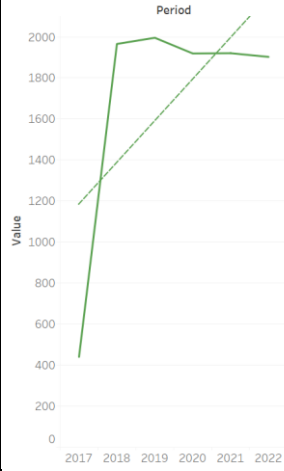
Cash Deposit Ratio(in crores)



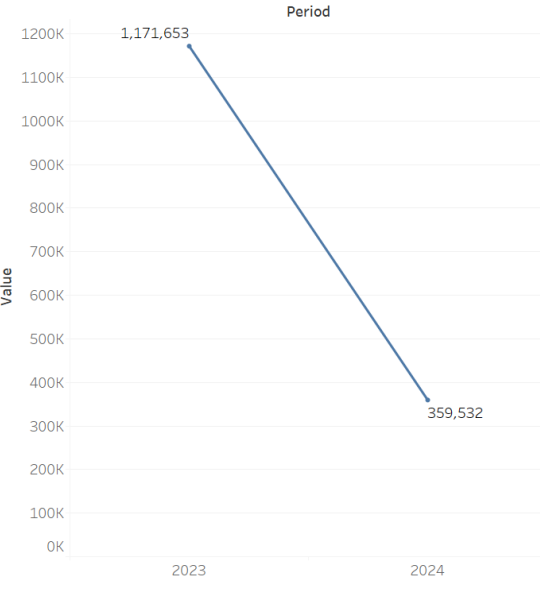
Credit Deposit Ratio



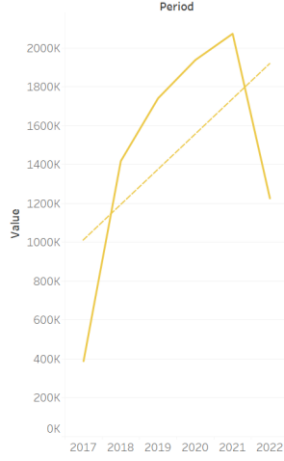
Credit Deposit Ratio(in crores)



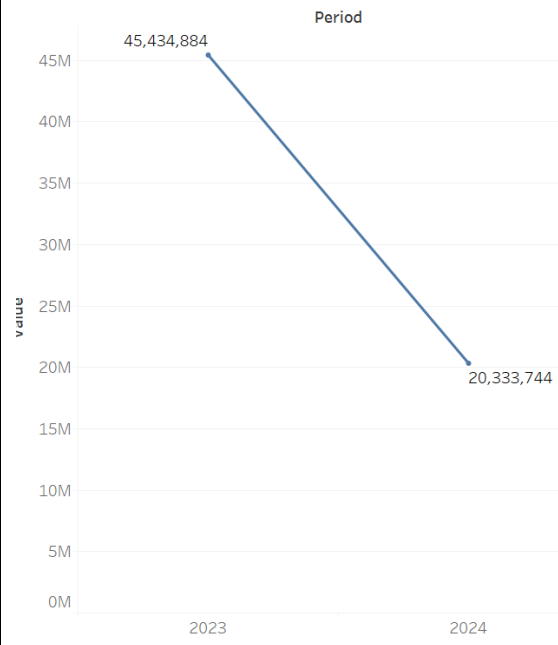
Food Credit



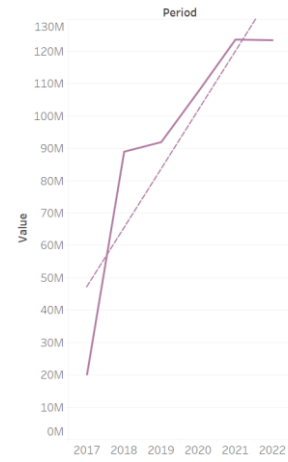
Food Credit(in crores)



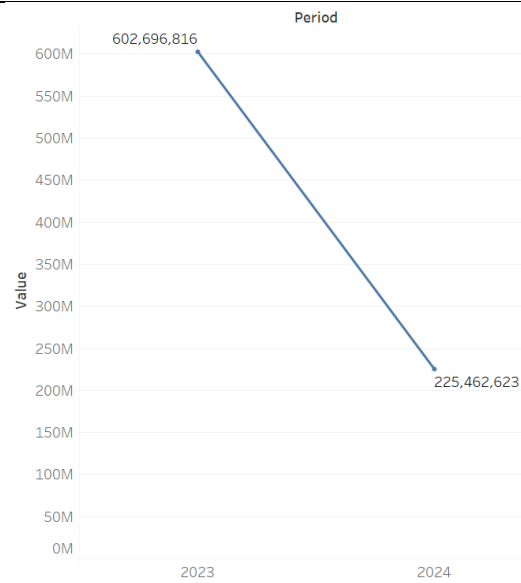
Investment in India



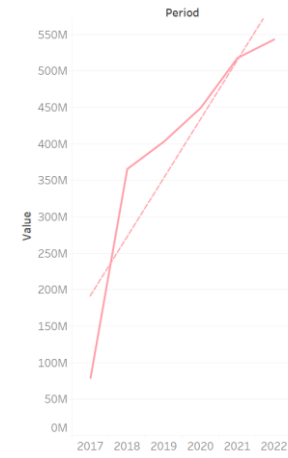
Investment in India(in crores)



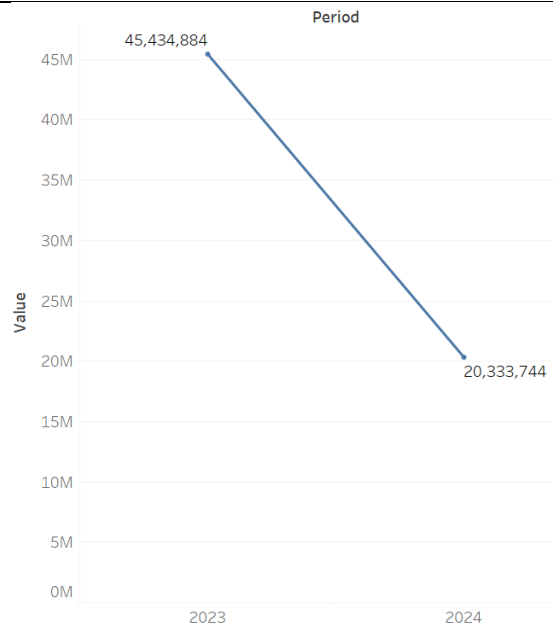
M3



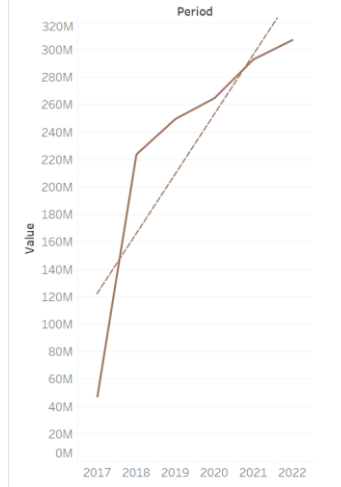
M3(in crores)



Non Food Credit



Non Food Credit



Created a dynamic Visualisation tool:

Method : Flask

Editor : Python

Type : Dynamic

```

import pandas as pd
1] ✓ 0.4s Python

data=pd.read_csv("C:\\Users\\Moh\\Desktop\\moh_csv_1.csv")
2] ✓ 0.2s Python

data1=pd.read_csv(r"C:\\Users\\Moh\\Desktop\\pred_moh.csv")
3] ✓ 0.3s Python

a=list(data.columns)
4] ✓ 0.3s Python

a
5] ✓ 0.4s Python Python

['Period',
 'Non Food Credit\\n (? Crore)',
 'Investment In India\\n (? Crore)',
 'Aggregate Desposits \\n(? Crore)',
 'Bank Credit \\n(? Crore)',
 'Food Credit \\n(? Crore)',
 'Cash Deposit Ratio (%)',
 'Credit Deposit Ratio (%)',
 'M3 \\n(? Crore)',
 'Certificates of Deposit (Amount Outstanding) \\n(? Crore)']

```

```

import dash_bootstrap_components as dbc
from dash import Dash, dcc, html, Input, Output
import plotly.express as px
✓ 0.5s

```

```

app = Dash(__name__, external_stylesheets=[dbc.themes.MORPH])

▼ app.layout = html.Div([
    html.H4('Macro-economic Factors'),
    dcc.Graph(id="time-series-chart"),
    html.P("Select Economic Factor:"),
    ▼ dcc.Dropdown(
        id="State",
        options=a,
        clearable=False,
        searchable=True,
    ),
])

▼ @app.callback(
    Output("time-series-chart", "figure"),
    Input("State", "value"))
▼ def display_time_series(State):
    df = data # replace with your own data source
    fig = px.line(df, x='Period', y=State)
    return fig

app.run_server(debug=False)
Q 3m 40.1s

```

Dash is running on <http://127.0.0.1:8050/>

```

* Serving Flask app '__main__'
* Debug mode: off

```

WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.

```
* Running on http://127.0.0.1:8050
```

Press CTRL+C to quit

```

127.0.0.1 - - [30/Jan/2023 23:59:55] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [30/Jan/2023 23:59:55] "GET /_dash-layout HTTP/1.1" 200 -
127.0.0.1 - - [30/Jan/2023 23:59:55] "GET /_dash-dependencies HTTP/1.1" 200 -
127.0.0.1 - - [30/Jan/2023 23:59:55] "GET /_dash-component-suites/dash/dcc/async-graph.js HTTP/1.1" 304 -
127.0.0.1 - - [30/Jan/2023 23:59:55] "GET /_dash-component-suites/dash/dcc/async-dropdown.js HTTP/1.1" 304 -
127.0.0.1 - - [30/Jan/2023 23:59:55] "GET /_dash-component-suites/dash/dcc/async-plotlyjs.js HTTP/1.1" 304 -
127.0.0.1 - - [30/Jan/2023 23:59:55] "GET /favicon.ico?v=2.7.0 HTTP/1.1" 200 -
127.0.0.1 - - [30/Jan/2023 23:59:56] "POST /_dash-update-component HTTP/1.1" 200 -
127.0.0.1 - - [30/Jan/2023 23:59:58] "POST /_dash-update-component HTTP/1.1" 200 -
127.0.0.1 - - [31/Jan/2023 00:00:00] "POST /_dash-update-component HTTP/1.1" 200 -
127.0.0.1 - - [31/Jan/2023 00:00:02] "POST /_dash-update-component HTTP/1.1" 200 -
127.0.0.1 - - [31/Jan/2023 00:00:06] "POST /_dash-update-component HTTP/1.1" 200 -

```

Output

