# Temporal Analysis Of Loan Assets Of Indian Banks From 1997-98 To 2019-20-A Study

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### Abstract

The present study has made a comprehensive attempt to examine the assets and loans by their type and categories. The study has revealed blatantly the declining position of Public Sector Banks followed by capturing its position by Private Sector Banks in India. The performance of Private Sector Banks and All Scheduled Commercial Banks is of sporadic increase followed by uncertainty. Foreign Sector banks are performing consistently well, although their share is relatively less when compared with banks in India. There is a need to restructure the banking system toward more stability followed by growth with equity for the smooth transition of paradigm shift from the public to the private sector of the Indian banks.

Key Words – Loan Assets, Advances, Banks by type, Trend and ANOVA.

### PRELUDE

Banks in India are functioning under a legal framework and under stress in operational functioning. The Central Bank, Reserve Bank of India [RBI] has been regulating banks under Banking Regulations Act, 1949. The banks are under different nomenclature reflecting ownership and system transactions under several Acts in force. One area of concern is of loan assets of Indian Banks under transformational stress of the functioning of a developing economy which is now in a state of emergence under international linkages being established.

The crux of the problem of assets, which in the forms of credits, advances, and types of assets, is to examine how have been different types of banks functioning and what is the state of assets, in all its forms, across banks, post-liberalisation? The present study is an attempt to examine them across all types of banks.

### **OBJECTIVES**

The main objectives of the study are: a. to examine how have been different types of banks functioning and b. to evaluate the state of loan assets, in all its forms, across banks postliberalisation.

### **MATERIAL AND METHODS**

The temporal data sets related to loan assets of banks by type have been collected from different authentic secondary sources such as the RBI website, CMIE prowess database, and EPWRF India time series database. The study considers the time series data for the period of twenty-three years, i.e. from 1997-98 to 2019-20.

Analysis of Variance (ANOVA) Fixed effects model is used to assess the nature of the trend of selected loan assets of banks by type.

The following hypotheses have been floated for testification:

H0: There is no significant difference betweenLoan Assets of Banks by type in India over time.H2: There is a significant difference betweenLoan Assets of Banks by type in India over time.

## **RESULTS AND DISCUSSION**

### I. Standard Assets

A standard asset is not a Non-Performing Asset. Any standard asset classified by the Reserve Bank of India refers to an asset which does not disclose any risk nor has the potential of developing as a risk asset in the future. A standard asset is the least risky asset wherein the recovery will be smooth on time and will not create a situation of reclassification. The standard assets, as operationally defined by RBI, are applicable to all banks in India.

The Public Sector Banks [PSBs] and Foreign Banks [FBs] had a share of 79.28% and 9.61% in 1997-98, respectively. The share of standard assets drastically reduced to 59.23% and 4.25% for PSBs and FBs in 2019-20, respectively. This means the Private Sector Banks [Pvt\_SBs] increased their standard assets from 11.12% in 1997-98 to 35.62% in 2019-20. The asset position of Pvt\_SBs is getting consolidated, indicating the sound financial position of standard assets delivered as loans to the clients.

Table 1 shows strong evidence of characteristics of standard assets across all types of banks. The empirical classification of standard assets shows that it is practically correct in terms of high correlation and high power of predictability of the asset equation. The correlation and power of predictability are 0.972, 0.912, 0.979, 0.972 and 0.942, 0.823, 0.957 & 0.943 respectively for PSBs, Pvt\_SBs, FBs and All Scheduled Commercial Banks [ASCBs] respectively.

Table 1– Time trend analysis of Loan Assets – Standard Assets - ANOVA table during 1997-98 to 2019-20

SI No	Independent Variable: Time	- R	R	Adjusted	Std. Error	Durbin-	F	Sig
	Dependent Variable – Standard Assets		Square	K Square	Estimate	Watson	ľ	Sig.
1	PSBs Standard Assets	.972ª	0.944	0.942	516660.081	0.192	357.188	.000 <sup>b</sup>
2	Pvt_SBs Standard Assets	.912ª	0.831	0.823	447387.641	0.134	103.199	.000 <sup>b</sup>
3	FBs Standard Assets	.979ª	0.959	0.957	27548.409	0.433	491.179	.000 <sup>b</sup>
4	ASCBs Standard Assets	.972ª	0.945	0.943	785292.576	0.152	363.777	.000 <sup>b</sup>
a.	Dependent Variable: PSBs S ASCBs Standard Assets	tandard	Assets, P	vt_SBs Stan	dard Assets, FB	s Standard	Assets and	

b. Predictors: (Constant), Time

Note: Model 1: The data are analysed using ANOVA, Fixed Effects Model. Each observation is treated as having three components a. overall mean, b. Time effect and c. Error. Each of these effects is considered stable & repeated sample observations.

Source: Author

The Standard Error of Estimate shows relatively low for FBs (SEE = 27,548 crores) and very high for ASCBs (SEE = 7,85,293). The PSBs and Pvt\_SBs show Standard Errors of Estimates of Rs. 5,16,660 crores and Rs. 4,47,388 crores, respectively. The magnitude of Standard Error in absolute terms is high. This means that the standard asset is a volatile asset in terms of the size of the delivery. It further acquires the least risk. The high value of the standard error of the estimate is an indication of the size of asset disposition to clients. The F statistic further indicates a very high level of significance for FBs (F =491.179), followed by ASCBs (F =363.777) and PSBs (F = 357.188). The Pvt\_SBs have a significant F Statistic F = 103.199. All types of banks have a high level of performance, and their strength is in holding and managing standard

assets. Further, all the standard assets' performance is highly statistically significant at p=0.000. The strength of the Indian banking system is in the classification and maintenance of standard assets with the client institutions.

#### 2. Substandard Assets

A sub-standard asset is a weak asset in the sense of recovery efforts. It is defined as an asset which has remained a NPA for a period of less than or equal to 12 months (with effect from March 31, 2005, as declared by RBI).

The classification of substandard assets by inbuilt definition exhibits a tendency of no recovery or not realisable. There are clearly fluctuating trends for Pvt\_SBs and FBs during the last two decades.

The Pvt SBs had 10.13% of substandard assets in 1997-98, which rose to 29.71% in 2019-20. The years in-between show a lot of fluctuations in the share of substandard assets for Pvt\_SBs. FBs showed a minimum share of 6.87% in 1997-98 to 1.63% in 2019-20. The reduction in substandard assets demonstrates the efforts of the FBs in mitigating the share over the years. PSBs, which had a share of 82.99% in 1997-98, reduced it to 68.15% in 2019-20. The years in-between do not show the same level of reduction. The nonrealisable substandard loan assets is a critical issue for PSBs, which can neither be written off nor recoverable. This is an issue to be taken up at the highest policy level at RBI for solving the issue of substandard loan assets.

Table 2 – Time trend analysis of Loan Assets – Sub-Standard Assets - ANOVA table during 1997-98 to 2019-20

Sl No	Independent Variable: Time	R	R Square	Adjusted R Square	Std. Error of	Durbin- Watson	F	Sig.		
	Dependent Variable – Sub-Standard Assets				the Estimate					
1	PSBs Sub-Standard Assets	.839ª	0.705	0.691	37134.773	0.623	50.110	.000 <sup>b</sup>		
2	Pvt_SBs Sub-Standard Assets	.766ª	0.586	0.566	10041.686	0.255	29.748	.000 <sup>b</sup>		
3	FBs Sub-Standard Assets	.675ª	0.456	0.430	1280.891	1.572	17.586	.000 <sup>b</sup>		
4	ASCBs Sub-Standard Assets	.862ª	0.743	0.731	41557.044	0.497	60.699	.000 <sup>b</sup>		
a.	Dependent Variable: PSBs S	ub-Stan	dard Asse	ts, Pvt_SBs	Sub-Standard	l Assets, FI	Bs Sub-			
	Standard Assets and ASCBs Sub-Standard Assets.									
b.	Predictors: (Constant), Time									

Note: Model 1: The data are analysed using ANOVA, fixed effects model. Each observation is treated as having three components a. overall mean, b. Time effect and c. Error. Each of these effects is considered stable & repeated sample observations.

### Source: Author

The results in Table 2 indicate an inconvenience and distorted correlation with reference to FBs and Pvt\_SBs (R = 0.675 and R = 0.766, respectively). The power of predictability is Adjusted R<sup>2</sup> = 0.430 and 0.566 for FBs and Pvt\_SBs, respectively. There is a reasonably high correlation with reference to ASCBs and PSBs (Adjusted R<sup>2</sup> = 0.731 and Adjusted R<sup>2</sup> = 0.691, respectively). A substandard asset is risky because of its recovery problems, and all such assets may not be insurable. In spite of the relatively low power of correlation across all types of banks, FBs experience the least Standard Error at Rs. 1,281 crores, followed by Pvt\_SBs at Rs. 10,042 crores. There is more problem of recovery with respect to ASCBs (SEE = Rs. 41,557 crores) followed by PSBs (SEE = Rs. 37,135 crores). The data on substandard assets of FBs surprisingly experience the least autocorrelation (DW = 1.572). In spite of this, the

suggest that all types of banks are making gigantic efforts in managing substandard assets. Systematic efforts are essential in managing substandard assets by evolving best practices to minimise the risk of recovery. The results indicate that the FBs have in their hold such a practice which will minimise the risk of recovery. The Standard Error of Estimate [SEE] with reference to FBs point toward such an effort and practice in their day-to-day functioning in India.

# 3. Doubtful Assets

Any asset which is substandard for 12 months or more is classified as doubtful assets (with effect from March 31, 2005, as declared by RBI). This classification which is in vogue is the one transmitted from substandard assets. When there is least possibility of recovery or not in a position to realise the asset value, then that asset is under doubtful of recouping to maintain the strength of the Balance Sheet.

A doubtful asset is a further category of loan assets where it is most unlikely to be recovered. The least share of doubtful assets is with FBs, which is about 1% of the total doubtful assets over the last two decades. Pvt\_SBs has about 20% of the total doubtful assets, which fluctuates from as low as 3.97% in 1997-98 to as high as 23.43% in 2010-11. The figures of doubtful assets for 2019-20 is 19.92%. PSBs still have about 79% of the total doubtful assets in its hold in 2019-20, which got reduced from 95.11% in 1997-98. The doubtful assets are another major issue for all banks for final settlement to be written off from the Balance Sheet.

Table 3 – Time trend analysis of Loan Assets – Doubtful Assets - ANOVA table during 1997-98 to 2019-20

SI No	Independent Variable: Time Dependent Variable – Doubtful Assets	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin- Watson	F	Sig.	
1	PSBs Doubtful Assets	.765ª	0.585	0.565	126791.466	0.270	29.547	.000 <sup>b</sup>	
2	Pvt_SBs Doubtful Assets	.730ª	0.533	0.511	24929.178	0.253	24.003	.000 <sup>b</sup>	
3	FBs Doubtful Assets	.861ª	0.741	0.729	1427.726	0.336	60.095	.000 <sup>b</sup>	
4	ASCBs Doubtful Assets	.770 <sup>a</sup>	0.593	0.573	148812.400	0.236	30.571	.000 <sup>b</sup>	
a.	. Dependent Variable: PSBs Doubtful Assets, Pvt_SBs Doubtful Assets, FBs Doubtful Assets and								

ASCBs Doubtful Assets.b. Predictors: (Constant), Time

Note: Model 1: The data are analysed using ANOVA, Fixed Effects Model. Each observation is treated as having three components a. overall mean, b. Time effect and c. Error. Each of these effects is considered stable & repeated sample observations.

Source: Author

The results in Table 3 suggest very clearly that doubtful assets cannot be easily explained by the time factor. The time partially explains the characteristics of the asset and enforces the institution to make continuous efforts for recovery. The table very clearly suggests a reasonably high correlation over time with R = 0.765, 0.730, 0.861 and 0.770 for PSBs, Pvt\_SBs,

FBs and ASCBs, respectively. The power of predictability of the equation across all types of banks are 0.565, 0.511, 0.729 and 0.573 for PSBs, Pvt\_SBs, FBs and ASCBs, respectively. Amongst the four types of banks under study, although efforts of all the types of banks in recovering the assets failed, the best in the sense of success appears to be FBs. PSBs, Pvt\_SBs and

ASCBs are partially successful mainly because of extraneous pressure groups operating on them and the friction that is set forth by the local leaders. Interestingly, the efforts of all banks have succeeded partially, with FBs claiming their efficiency in reducing doubtful assets. A thorough, in-depth investigative study is needed to formulate mechanisms for PSBs, Pvt\_SBs and ASCBs to enable them to firm up their machinery for minimising doubtful assets (Insurance to realise, which is one option, recovery is not possible in the Indian context as the insurance companies have not been able to develop insurance products for claiming the value of doubtful assets).

#### 4. Loss Assets

Any asset which is declared as a loss asset, which is non-recoverable, not collectable, not realisable and that which has been identified by audit or by an investigative agency as that which is impossible to realise. Further, any loss asset is considered to be a residual asset of limited or little value, as perceived by bank authorities. The context of loss assets as a classified asset is essential in the Indian context wherein public pressure groups operate for a bank to realise mainly because of the pressure exercised by the public group.

The loss assets show a similar trend of about 0.74% for FBs, which was at 8.46% in 1997-98. FBs are safe when compared to PSBs and Pvt\_SBs in India. Pvt\_SBs will have to look into 25% of the loss assets in 2019-20 from 5.5% in 1997-98. PSBs had a reduction in share from 86.05% in 1997-98 to 74.42% in 2019-20. There is no other way but to declare these assets as lost. Yet the banks in India need to bear these losses.

Sl No	Independent Variable: Time Dependent Variable – Loss Assets	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin- Watson	F	Sig.
1	PSBs Loss Assets	.623ª	0.388	0.359	22086.522	0.281	13.332	.001 <sup>b</sup>
2	Pvt_SBs Loss Assets	.618ª	0.382	0.353	6479.662	0.910	12.994	.002 <sup>b</sup>
3	FBs Loss Assets	.566ª	0.320	0.288	766.665	0.574	9.887	.005 <sup>b</sup>
4	ASCBs Loss Assets	.646 <sup>a</sup>	0.417	0.389	27465.117	0.364	15.016	.001 <sup>b</sup>
a.	. Dependent Variable: PSBs Loss Assets, Pvt SBs Banks Loss Assets, FBs Loss Assets and ASCBs							

Table 4 – Time trend analysis of Loan Assets – Loss Assets - ANOVA table during 1997-98 to 2019-20

b. Predictors: (Constant), Time

Loss Assets.

Note: Model 1: The data are analysed using ANOVA, Fixed Effects Model. Each observation is treated as having three components a. overall mean, b. Time effect and c. Error. Each of these effects is considered stable & repeated sample observations.

#### Source: Author

Table 4 clearly demonstrates that irrespective of bank type, there is a partial correlation with respect to time. Any loss asset is more a non-time factor which will diminish the asset value of the banking institution. The p values show different levels of significance across all types of banks. The p values are 0.001, 0.002, 0.005 and 0.001 for PSBs, Pvt\_SBs, FBs and ASCBs respectively. Again, FBs show less risk in terms of making up loan assets, while Pvt\_SBs show more risk. PSBs and ASCBs have the same risk level, p = 0.001, indicating that these two types of banks are incurring loss assets at high risk. There is however strong significance with respect FBs (F = 9.887) followed by Pvt\_SBs (F = 12.994). PSBs and ASCBs have F values of 13.332 and 15.016, further confirming that they are at high risk. The levels of correlation R = 0.556 for FBs, followed by R = 0.618 for Pvt\_SBs, R = 0.623 for PSBs and R = 0.646 for ASCBs show a significant relationship statistically. The values of Adjusted R<sup>2</sup> are 0.288 for FBs followed by Pvt\_SBs, PSBs and ASCBs are at Adjusted R<sup>2</sup> = 0.353, Adjusted R<sup>2</sup> = 0.359 and Adjusted R<sup>2</sup> = 0.389 respectively. There is an urgent need to further evolve a mechanism for mitigating the loss assets. Insurance regulatory authorities may be advised to examine recouping loss assets at costs for the banks. There is also a need to further earmark budgetary provisions either at the institution level or for meeting the costs of loss assets.

### 5. Gross Non-Performing Assets

A Non-Performing Asset is that for the bank, given in the form of credit, loans or advances for a definite, well-defined purpose as designed by the government and operationally manifested by the RBI. The Non-Performing Assets (NPAs) also include dues of funded interest term loan and appropriately parked in sundries account. The difference between interest capitalisation and restructured account form sundries account with respect to Non-Performing assets.

Gross NPAs mean all advances deviated from the purpose of utilisation for which the advances or credits are earmarked. A performing asset gets transmitted into an NPA if there is no process of redemption or repayment of a loan with interest and principal within 90 days of loan advancement. Operationally, this definition applies to all Non-Performing assets across all types of balance. There is a distinction for agricultural loans or advances where in the duration of repayment is fixed for two crop seasons for short-duration crops and one crop season for long-duration crops.

The trend in Gross NPAs is mainly the burden of PSBs, followed by Pvt\_SBs and FBS. The share of Gross NPAs was 89.84% in 1997-98, which is reduced to 75.70% in 2019-20. The Gross NPAs for Pvt SBs increased from 6.27% in 1997-98 to 22.97% in 2019-20. While the declining trend of GNPAs for the PSBs has been marginal over the years, it has been fluctuating for Pvt\_SBs during the last 23 years. The share of GNPAs for Pvt\_SBs shows an increasing trend mainly because of the increase in turnover of business during the last two and half decades. The number of PSBs has been marginal because of laxity on the part of the PSBs in recovering NPAs. There is a financial strain for PSBs because of NPAs. This will continue to haunt PSBs if the same trend is allowed to continue. The FBs have been able to successfully reduce their GNPAs from 3.89% in 1997-98 to 1.14% in 2019-20. The contrast in declining figures for PSBs and FBs indicates the concerted efforts made by FBs for reduction as against retention by PSBs. Any money stranded without business operations will lose its value, relevance and increases social cause. Given that these are the days of disinvestment in the industry by the government, banks have to play a critical role in their credit and investment policies. Businesses fail because of the influence of time and the operation of business cycles. More businesses lead to disaster if NPAs are made to accumulate by critical circumstances, whether designed or by nature. Governance is the key to reduce Gross NPAs.

Sl No	Independent Variable: Time Dependent Variable – Gross NPAs	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin- Watson	F	Sig.
1	PSBs Gross NPAs	.799ª	0.638	0.621	169838.863	0.256	36.975	.000 <sup>b</sup>
2	Pvt_SBs Gross NPAs	.750ª	0.562	0.541	38578.747	0.163	26.940	.000 <sup>b</sup>
3	FBs Gross NPAs	.884ª	0.782	0.771	2173.175	0.765	75.258	.000 <sup>b</sup>
4	ASCBs Gross NPAs	.805ª	0.648	0.631	201467.199	0.198	38.679	.000 <sup>b</sup>

Table 5 – Time trend analysis of Loan Assets – Gross NPAs - ANOVA table during 1997-98 to 2019-20

- Dependent Variable: PSBs Gross NPAs, Pvt\_SBs Gross NPAs, FBs Gross NPAs and ASCBs Gross NPAs.
- b. Predictors: (Constant), Time

Note: Model 1: The data are analysed using ANOVA, Fixed Effects Model. Each observation is treated as having three components a. overall mean, b. Time effect and c. Error. Each of these effects is considered stable & repeated sample observations.

### Source: Author

The results reveal that the correlation of Gross NPAs with time is relatively high, with R =0.799, 0.750, 0.884 and 0.805 for PSBs, Pvt SBs, FBs and ASCBs, respectively. The power of determination is least for Pvt\_SBs with Adjusted  $R^2$  at 0.541, followed by PSBs (Adjusted  $R^2 = 0.621$ ) and ASCBs (Adjusted  $R^2$ = 0.631). The FBs show a better explanatory power with Adjusted  $R^2 = 0.771$ . The Standard Error is the least for FBs (Rs. 2,173 crores), indicating a low level of Gross NPAs and very high for ASCBs (SE=Rs.2,01,467 crores). The PSBs have a Standard Error of Rs = 1,69,839crores. The least among Indian banks is Pvt SBs with a Standard Error of Rs. 38,579 crores. All banks have statistically high levels of Gross NPAs, with FBs more efficient in terms of holding NPAs as compared to all other types of banks in India. The Gross NPAs during the last 23 years have posed critical problems to the respective banks. The banks, in turn, weigh for some definitive measures from the government. Such measures are not normally necessary for Pvt SBs.

## 6. Total Advances

The trend analysis of total advances since 1997-98 for 23 years have been analysed. Total Advances refer to such advances which are provided by the banks to its client companies for meeting short-term requirements. The duration of repayment will be less than one year as determined by RBI as terms, conditions and norms. These standard advances are generally small in size and are treated as working capital by the client institutions.

The business effect of the total advances as loan assets reflects the strain of Pvt\_SBs, which are increasing their burden from 10.42% in 1997-98 to 34.58% in 2019-20. The FBs show a similar trend of lesser magnitude. The share of total advances of FBs was 8.78% in 1997-98, which got reduced to 3.99% in 2019-20. A similar trend is observed with PSBs who are owning 80.80% in total advances in 1997-98 got, reduced to 60.58% in 2019-20. More burden is still there with PSBs, and Pvt\_SBs have to emulate FBs in the reduction of advances as loan assets.

SI No	Independent Variable: Time	- R	R	Adjusted	Std. Error	Durbin-	F	Sig
	Dependent Variable – Total Advances		Square	Square	Estimate	Watson	•	5-8.
1	PSBs Total Advances	.972ª	0.945	0.942	568873.145	0.142	360.246	.000 <sup>b</sup>
2	Pvt_SBs Total Advances	.906ª	0.821	0.812	484218.947	0.135	96.031	.000 <sup>b</sup>
3	FBs Total Advances	.979 <sup>a</sup>	0.958	0.956	28762.413	0.413	478.843	.000 <sup>b</sup>
4	ASCBs Total Advances	.968ª	0.936	0.933	922386.654	0.112	309.639	.000 <sup>b</sup>
a.	Dependent Variable: PSBs T	'otal Ad	vances, Pr	vt_SBs Tota	Advances, FB	s Total Adv	ances and	
	ASCBs Total Advances.							
b.	Predictors: (Constant), Time							

Table 6 – Time trend analysis of Loan Assets – Total Advances - ANOVA table during 1997-98 to 2019-20

Note: Model 1: The data are analysed using ANOVA, Fixed Effects Model. Each observation is treated as having three components a. overall mean, b. Time effect and c. Error. Each of these effects is considered stable & repeated sample observations.

### Source: Author

Table 6 above presents a positive picture of advances lent by all types of banks over time. There is a strong correlation between total advances and time with R = 0.972, 0.906, 0.979and 0.968 for PSBs, Pvt\_SBs, FBs and ASCBs, respectively. The power of predictability is equally high for PSBs (Adjusted  $R^2 = 0.942$ ), FBs (Adjusted  $R^2 = 0.956$ ) and ASCBs (Adjusted  $R^2$ = 0.933). The Pvt\_SBs show a reasonably distorted picture with Adjusted  $R^2 = 0.812$ . The least Standard Error is for Pvt SBs with SEE = Rs. 28762 crores. ASCBs show very high Standard Error Rs = 9,22,387 crore followed by PSBs at Standard Error of Estimate = Rs. 5,68,873 crores. The Pvt\_SBs have Standard Error of Rs. 4,84,219 crores. The total advances have a highly statistically upper trend, all being significant at 0.000 level with F statistics = 478.843 for FBs, 360.246 for PSBs, F= 309.639 for ASCBs and F = 96.03 for Pvt\_SBs, respectively. The spree of advances is on the increasing trend and is efficiently capturing the needs of the customers.

# CONCLUSION

The data have unambiguously revealed that PSBs are in the process of decline in terms of credits and advances and accumulation of assets since 1997-98 in India. Pvt SBs have increased their share in transactions of credit and advances and assets. The parametric analysis leads us to believe that Pvt\_SBs are on improving their levels of operational efficiency. FBs are on the path of higher levels of efficiency within the parameters set in by RBI and the industry. There are higher levels of uncertainty being experienced by ASCBs along with Pvt\_SBs. The Gross NPAs during the last 23 years have posed critical problems to the respective banks by type and all the banks under each type. The banks, in turn, weigh for some definitive measures from the government. Such measures are very much

helpful in protecting the interest of all banks, PSBs in particular.

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