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AN EMPIRICAL INTER SECTORAL COMPARISON OF NON-PERFORMING ASSETS IN THE INDIAN BANKING SYSTEM

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Abstract

Banking system is the backbone of an economy and the quality of assets held by the banks is a critical indicator of the health of the financial system. As on March 31, 2016, total distressed assets of banks were Rs.611607 crore which is 5.39% of the total GDP of India at constant prices for that year. NPAs are value destroyers of the economy. In this study we have compared and analysed the proportion of NPAs in public sector, private sector and foreign banks and analysed the interrelation between NPAs and profitability of banks of all the three sectors. Overall in the Indian Banking System, the private sector banks have managed to keep NPA at low levels as compared with the Public Sector Banks.

Key words: Banking Sector, Correlation and Non Performing Assets.

Introduction

An asset, including a leased asset, becomes non-performing when it ceases to generate income for the bank. The Indian banking sector is plagued by burgeoning NPAs due to combination of various factors as discussed:

Internal factors: Poor credit appraisal system, Diversion of funds, lack of post credit supervision, project cost and time overruns, wilful defaults, siphoning of funds, frauds, disputes, misappropriation, etc., Non-compliance to lending norms. *External factors:* Economic slowdown, Input shortage, power shortage, unanticipated price escalations, accidents and natural calamities, changes in government policies relating to excise duties and import duties, sluggish legal system, business failures due to inefficient management system, strained labour relations, inappropriate technology, product obsolescence etc.

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Gross NPA: Gross NPAs are the sum total of all loan assets that are classified as NPAs as per RBI guidelines as on Balance Sheet date. Gross NPA reflects the quality of the loans made by banks. It consists of all the non-standard assets like as sub-standard, doubtful, and loss assets.
Net NPA: Net NPAs are those type of NPAs in which the bank has deducted the provision regarding NPAs. Net NPA shows the actual burden of banks. Since in India, bank balance sheets contain a huge amount of NPAs and the process of recovery and write off of loans is very time consuming, the provisions the banks have to make against the NPAs according to the central bank guidelines, are quite significant. That is why the difference between gross and net NPA is quite high.

Literature Review
B.Selvarajan and G. Vadivalagan (2012), concluded that Non Performing Assets add cost to the credit Management. The fear of Non Performing Assets permeates the psychology of bank managers in entertaining new projects for credit expansion. Apart from internal and external complexities, increases in NPAs directly affects banks' profitability sometimes even their existence. Chandan Chatterjee, Jeet Mukherjee and Ratan Das (2012) concluded that proper identification of the guarantor should be checked by the bank including scrutiny of his/her wealth and that the NPAs have a negative influence on the achievement of capital adequacy level, funds mobilization and deployment policy, banking system credibility, productivity and overall economy. C.S.Balasubramaniam (2012) concluded that the Indian Banks have overall demonstrated a trend of continued good performance and profitability despite rising interest rates, increase in operating costs and the spill over effects of recent global financial crisis. B.Selvarajan and G. Vadivalagan (2013), analysed in detail the Priority sector advances under three major heads: Agriculture, Small Scale Industries and Other Priority Sector with data related to Indian Bank and Public sector banks for the past 10 years. The study concluded that the growth of Indian Bank's lending to Priority sector is more than that of the Public Sector Banks as a whole. In case of NPA management, the performance of Indian Bank is better than that of Public Sector Banksias a whole. Ghose(2016), concluded that there is a significant relation between the profitability and NPAs of various Private and Public Sector Banks.

Objectives of Study
1. To compare and analyse the proportion of NPAs in public sector, private sector and foreign banks i.e. inter sector comparison.
2. To analyse the interrelation between NPAs and profitability of banks of all the three sectors.

Research Methodology
This research is empirical in nature and is based on secondary data collected from authentic websites and journals from 2006 to 2016. Random Sampling Technique has been applied to select the banks. Statistical technique like Karl Pearson's Product Moment Correlation Coefficient (5% Level of Significance) has been used through SPSS 19. Ratios are analysed to compare overall effect. Statistical tools like graphs, charts, and ratios have been calculated, created and analysed.

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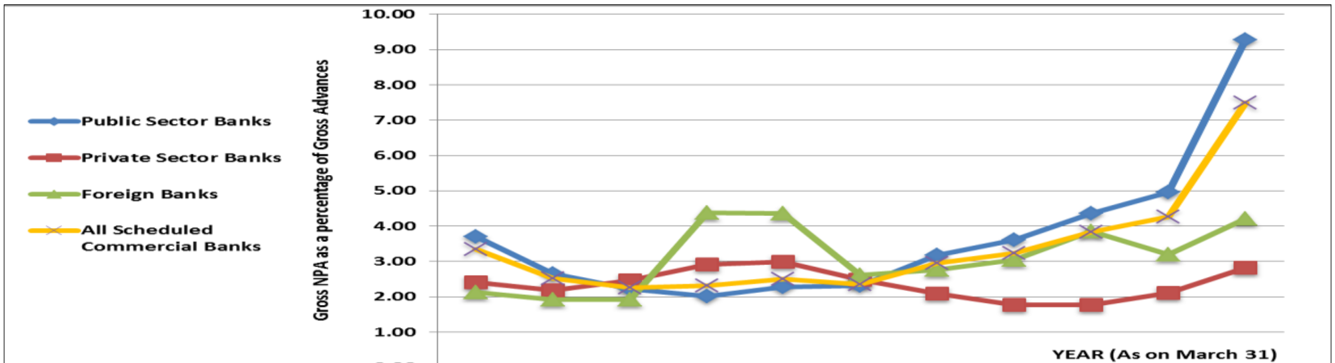
Analysis and Inferences

Analysis 1: Inter Sector Comparison

FIGURE 1: INTER SECTOR COMPARISON OF GROSS NPA RATIO

Compiled from: *Appendices A, B, C and D*

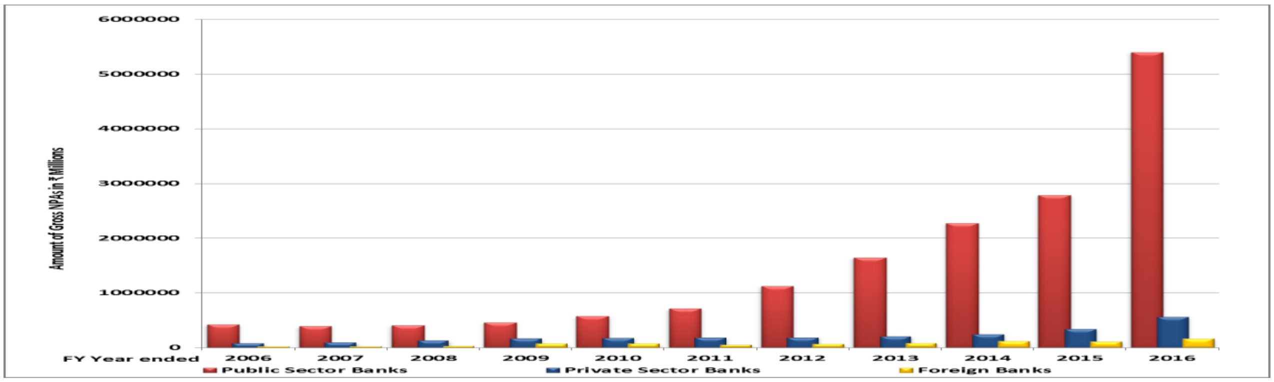


	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Public Sector Banks	3.71	2.66	2.23	2.01	2.27	2.31	3.17	3.61	4.36	4.96	9.28
Private Sector Banks	2.41	2.19	2.47	2.92	2.99	2.48	2.09	1.77	1.78	2.1	2.83
Foreign Banks	2.12	1.92	1.92	4.37	4.36	2.61	2.76	3.04	3.86	3.2	4.2
All Scheduled Commercial Banks	3.35	2.52	2.26	2.31	2.51	2.35	2.95	3.23	3.83	4.27	7.49

INFERENCE 1: The Gross NPA Ratio has increased at a staggering Simple Annual Growth Rate (SAGR) of 12.36%, with public sector banks driving the high growth of the ratio at 15.01% SAGR during the 11 year period of study. However, the private sector proved to be the most efficient and effective sector with SAGR of a modest 1.74% whereas the foreign banks were also inefficient in management of NPAs registering a SAGR of 9.81%. Due to high market share of public sector banks at 71.24% the overall commercial bank's Gross NPA Ratio has increased at such high rate. In the earlier part of the period, the Gross NPA Ratio has decreased till 2008 after which there is a marked increase in the ratio of foreign banks. This was due to the high exposure of foreign banks to the Global Financial Crisis of 2008. The Crisis also affected the domestic banks but on a lower magnitude. Thus the Global Financial Crisis was a major turnaround factor in the Gross NPA ratio as the ratio started increasing after 2008 at a steady pace for all the sectors. However as the economies revived and effects of the Crisis started to fade, in the year 2011 the ratio again fell by a few percentage points for the commercial banks with foreign banks experiencing the highest fall. After the period of revival, barring the private sector, there has been a massive increase in the ratio of all the banks. This may be due to expansion plans of the public sector after experiencing the recessionary trend of the Crisis which led to advancing subprime loans, ultimately leading to defaults in payment. The private sector again proved to be efficient and managed to reduce the Gross NPA Ratio against the industry being on a steady rise. The year 2016 proved to be a nightmare for the banks with the Asset Quality Review (AQR) in the 3rd and 4th quarter playing havoc with the banks' financial statements. In the AQR, the sample size of loan accounts inspected was much bigger than that under regular Annual Financial Inspection (AFI) and in fact, most of the large borrower accounts were inspected to check if classification was in line with prudential norms. Banks were given two quarters, October-December and January-March of 2016 to complete the asset classification, which led to the mammoth increase in the ratio over the previous year for the entire Banking System. Now,

trying to neutralise the special events during the period, comparing the Compound Annual Growth Rate (CAGR) of the sectors, we still get the same result with the public sector registering the highest at 9.60% while the private sector banks witnessed a meagre 1.62% growth. *Thus, the Public Sector Banks have been totally outperformed by its competitors in the Private and foreign sector. This is mainly because the public sector finances the government projects have time and cost overruns. The Private sector and foreign banks have been efficient mainly because of their advances towards strong and robust projects with proper credit appraisal promising healthy and regular returns.*

FIGURE 2: INTER SECTOR COMPARISON OF GROSS NPAs
Compiled from: *Appendices A, B, and C*



Inference 1:

Comparing the of Gross Non-Performing Assets of the three sectors, it has risen from ₹ 421172 million in 2006 to ₹ 5399564 in 2016 for the public sector at a CAGR of 29.06%, from ₹75988 million in 2006 to ₹ 558531 million in 2016 for the private sector banks at a CAGR of 22.08%. The CAGR of foreign banks was found to be 22.73% during the period with the Gross NPA rising from ₹20370 million in 2006 to ₹157980 million in 2016. For the entire commercial banks the CAGR was calculated out to be 28.01% or a 1081.78% increase in monetary terms. It may be argued that the Gross NPAs increased due to increase in the business of banks but comparing the same with CAGR of Gross Advances of the commercial banks we get 18.11%. This concludes that even though the business of banks increased at a rate of 18.11% the rise in bad loans has outpaced it with the rate of 28.01%. The extraordinary increase in 2016 is due to the surprise Asset Quality Review by the RBI which led to non-recognised bad loans in previous years to be recognised in 2016 under the review procedure which shows that along with recognised NPAs there were also huge amounts of disguised bad loans not recognised duly.

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ANALYSIS 2: INTERRELATION BETWEEN NPAS AND PROFITABILITY OF BANKS OF ALL THE THREE SECTORS.

Karl Pearson's product moment correlation has been administered at 5% level of significance.

NULL HYPOTHESIS (H_0): There is no statistically significant correlation between Gross NPA and Net Profit of Banks for the past 11 years.
ALTERNATIVE HYPOTHESIS (H_1): There is statistically significant correlation between Gross NPA and Net Profit of Banks for the past 11 years.

TABLE 1: PUBLIC SECTOR BANKS (*Compiled from:* *Appendix A*)

PUBLIC SECTOR BANKS	*GROSS ADVANCES (₹ Million)*	*GROSS NPAs (in ₹ Million)*	*GROSS NPA RATIO (in %)*	*NET PROFIT (in ₹ Million)*
GROSS ADVANCES (in ₹ Million)	1			
GROSS NPAs (in ₹ Million)	0.852005494	1		
GROSS NPA RATIO (in %)	0.710401818	0.964021709	1	
NET PROFIT (in ₹ Million)	-0.067337015	-0.570066867	-0.71571902	1

TABLE 2: PRIVATE SECTOR BANKS (*Compiled from:* *Appendix B*)

PRIVATE SECTOR BANKS	*GROSS ADVANCES (in ₹ Million)*	*GROSS NPAs (in ₹ Million)*	*GROSS NPA RATIO (in %)*	*NET PROFIT (in ₹ Million)*
GROSS ADVANCES (in ₹ Million)	1			
GROSS NPAs (in ₹ Million)	0.931110535	1		
GROSS NPA RATIO (in %)	-0.211076298	0.13461263	1	
NET PROFIT (in ₹ Million)	0.981777636	0.8599754	-0.325749	1

TABLE 3: FOREIGN BANKS (*Compiled from:* *Appendix C*)

FOREIGN BANKS	*GROSS ADVANCES (in ₹ Million)*	*GROSS NPAs (in ₹ Million)*	*GROSS NPA RATIO (in %)*	*NET PROFIT (in ₹ Million)*
GROSS ADVANCES (in ₹ Million)	1			

GROSS NPAs (in ₹ Million)	0.930079192	1		
GROSS NPA RATIO (in %)	0.4861235	0.744604349	1	
NET PROFIT (in ₹ Million)	0.90588732	0.754869965	0.346078841	1

Correction Analysis: Net profit of the banks includes interest income and other income. Interest income includes interest/discount earned on advances/bills, income on investments, interest on balances with RBI and other inter-bank funds and other interest income. Other income includes non-interest incomes like commission on exchange and brokerage, profit/loss on sale of investments, revaluation of investments, sale of land and other assets, exchange transactions and other miscellaneous income. However, the interest income has a major share in the total income.

Inference 2:

Null Hypothesis is rejected for all the three sectors as there is moderate negative correlation (-0.5701) for public sector banks, significant positive correlation (+0.8600) for private sector banks and significant positive correlation (+0.7549) for foreign banks between Gross NPAs and Net Profit for the past 11 years. The Public sector banks' negative correlation is a direct implication of the provisioning norms of RBI with respect to NPAs. As the non-performing assets increase in the banks' books, more provisions have to be made with respect to defaulting parties and higher provisions have to be made with respect to time (i.e. as the proportion to be written off increases with the period of NPAs) by the banks. It can be understood as, to improve the financial performance of public sector banks, the banks need to reduce their NPAs as they have a high dependency on interest income in their total income calculated at 89.26% (for 2016) (calculated from data from RBI website). The same data for private and foreign banks gives completely opposite results with strong positive correlation. This may be due to relatively lower dependency of private banks on interest income (83.31%) and a negative correlation (-0.2111) between Gross Advances and Gross NPA Ratio. Thus, as the business of private banks increase the proportion of NPAs starts declining, reflecting their gradual success in management and reduction of NPAs. The foreign banks also have lower dependency (80.70%) on interest income and a low positive correlation (+0.4861) between Gross Advances and Gross NPA Ratio which reflects their relative efficiency in expansion as a sector. The correlation between Gross Advances and Gross NPA Ratio of public sector banks is high and positive which means that along with increase in loan advanced, the proportion of NPAs also increases which is worrisome. Table 1 has statistically insignificant correlation (-0.0673) between Gross Advances and Net Profit of public sector banks for the past 11 years. This means that any incremental loan advanced by the public sector banks is relatively more vulnerable to become bad. Whereas the same cell of Table 2 and Table 3 give significant positive correlation (+0.9818) and (+0.9059) respectively. This reflects the efficiency and prudent expansionary policies of the private and foreign banks.

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Overall, the private sector banks have proved to be most efficient among the three sectors. The foreign banks are more efficient than the public sector but hold a very small share in the Indian Banking System at 4.2% and thus have minimal effect overall.

Conclusion

The world average of Gross Non-Performing Assets Ratio stood at just 3.9% in 2016 while that of India was reported at 7.5%. India's Gross NPA ratio is not only above world average but also higher than the average of lower middle income countries: the category in which it was classified by the World Bank in 2016. The Government of India and the Reserve Bank of India have taken some major steps towards the resolution of the issue including the Asset Quality Review (AQR) in 2016 and the enactment of the Insolvency and Bankruptcy Code (IBC) in May 2016. Overall in the Indian Banking System, the private sector banks have managed to keep NPA at low levels. It's the public sector banks which have high proportion of low quality advances and with the public sector holding 71.24% of the market share in Gross Advances has driven India's Gross NPA Ratio to a high level. A sector-wise approach with holistic remedial action is required to tackle the menace with preventive and curative measures both at the generation and recovery level.

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APPENDIX: A - PUBLIC SECTOR BANKS' VARIABLES

YEAR (As on March 31)	GROSS ADVANCES (in ₹ Million)	GROSS NPAs (in ₹ Million)	GROSS NPA RATIO (in %)	NET PROFIT (in ₹ Million)
2006	11347238	421172	3.71	165387
2007	14644950	389730	2.66	201521
2008	18190740	406000	2.23	265917
2009	22834734	459176	2.01	343726
2010	25193309	573009	2.27	392569

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2011	30798042	710474	2.31	449007
2012	35503892	1124892	3.17	495138
2013	45601686	1644616	3.61	505827
2014	52159197	2272639	4.36	370189
2015	56167175	2784679	4.96	375400
2016	58183484	5399564	9.28	-179930

APPENDIX: B - PRIVATE SECTOR BANKS' VARIABLES

YEAR (As on March 31)	GROSS ADVANCES (in ₹ Million)	GROSS NPAs (in ₹ Million)	GROSS NPA RATIO (in %)	NET PROFIT (in ₹ Million)
2006	3151011	75988	2.41	49745
2007	4182410	91450	2.19	64653
2008	5236990	129220	2.47	95219
2009	5751668	167874	2.92	108676
2010	5795349	173067	2.99	131114
2011	7232054	179049	2.48	177116
2012	8716413	182102	2.09	227180
2013	11512463	203817	1.77	289954
2014	13602528	241835	1.78	337541
2015	16073394	336904	2.1	387347
2016	19726588	558531	2.83	413137

APPENDIX: C - FOREIGN BANKS' VARIABLES

YEAR (As on March 31)	GROSS ADVANCES (in ₹ Million)	GROSS NPAs (in ₹ Million)	GROSS NPA RATIO (in %)	NET PROFIT (in ₹ Million)
2006	959052	20370	2.12	30686
2007	1246770	23990	1.92	45852
2008	1606580	30840	1.92	66122
2009	1660116	72487	4.37	75097
2010	1632130	71105	4.36	47409
2011	1929719	50445	2.61	77189
2012	2267773	62689	2.76	94264
2013	2604049	79256	3.04	115865
2014	2995755	115678	3.86	101397
2015	3366090	107578	3.2	128032
2016	3763373	157980	4.2	108275

APPENDIX: D - ALL SCHEDULED COMMERCIAL BANKS' VARIABLES

YEAR (As on March 31)	GROSS ADVANCES (in ₹ Million)	GROSS NPAs (in ₹ Million)	GROSS NPA RATIO (in %)	NET PROFIT (in ₹ Million)
2006	15457301	517531	3.35	245818

2007	20074130	505170	2.52	312026
2008	25034310	566060	2.26	427259
2009	30246518	699537	2.31	527499
2010	32620788	817181	2.51	571092
2011	39959815	939969	2.35	703313
2012	46488078	1369683	2.95	816583
2013	59718199	1927688	3.23	911647
2014	68757479	2630152	3.83	809127
2015	75606658	3229161	4.27	890778
2016	81673445	6116074	7.49	341482