




# Earnings Management, Capital Management and Signalling Behaviour of Indian Banks

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## Abstract

The study aims at analysing whether the earnings are managed in the banking industry in India considering the provisioning standards issued by the RBI. The study also examines the presence of capital management and signalling practices by Indian Banks through the usage of Provision for Non-Performing Assets (PNPA). The study comprises of 84 banks in India which includes nationalised banks, private banks and foreign banks focusing on financial data from FY 2005–2016. The study uses panel data regression model for exploring the presence of earnings management, capital management and signalling. The dependent variable considered is PNPA and the independent variables are lag of dependent variable, return on assets, capital adequacy ratio, and change in operating profit. We have also included certain control variables viz. credit deposit ratio, total assets, closing gross NPA, GDP, real interest rates. The results of our study indicates income smoothing practices by Indian Banks. However, the results do not prove the presence of capital management or signalling practices by Indian Banks through the usage of provision for NPA.

**Keywords** Banking industry · Earnings management · Capital management · Signalling · India

## 1 Introduction

Reserve Bank of India (RBI) in its fourth bi-monthly monetary policy statement, 2015–2016, dated 29th September 2015 mentioned that it had observed material divergences between banks and the supervisor (i.e., RBI) with respect to asset classification and provisioning. This causes many a banks' financial statements not reflecting true and fair view of their financial position and performance. To ensure greater transparency and better discipline RBI issued a circular dated 18th April

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2017 in this regard. Vide this circular, RBI mandates all the banks to report such divergences in their notes to accounts if they exceed the threshold limit of 15%.

RBI has been revising the guidelines pertaining to loan loss provisions year-on-year in light of the regulator's emphasis on safety and soundness of Indian banks. Higher level of loan loss reserves shall aid the bankers in absorbing higher unexpected losses without failing. Loan loss provision is an item of utmost importance in the bank's financial statements. It is under close supervision of regulators and at the same time the managers have been using it for their discretionary purposes. Large number of empirical studies have shown usage of loan loss provisions by managers for earnings management, capital management and signalling purposes. The last study, in Indian context, in this regard was done by Ghosh (2007) using data of Indian banks for the period 1997–2005. There have been major changes in the prudential norms for asset classification and provisioning since 2005. Our study period is 2005–2016. The purpose of our study is to empirically explore the findings of Ghosh (2007) in the post 2005 period on account of stricter norms and guidelines prevailing since then.

The rest of the paper is organised into five major sections: Brief note on Earnings management, capital management and signalling; Literature review; Data and model specification; Empirical results and discussion and Conclusion.

## 2 Earnings Management, Capital Management and Signalling

Earnings management refers to usage of such accounting practices which produce the desirable financial statements reflecting the financial position and financial performance of a healthy organisation. A healthy financial statement portrays a picture of the organisation's stability and consistency. All the organisation, and more so listed companies, have compelling reasons to be perceived as a financially sound organisation. The external stakeholders of the organisation, like bankers, investors, suppliers and customers need continuous assurance about the financial strength of the organisation they are transacting with. Earnings management is not only about portraying a better financial picture during the periods of not-so-good performance; it also is about ploughing back some earnings (by creating hidden reserves) in the periods of extraordinary high profits and portraying a less-than-what-is picture of financial performance. Such hidden reserves may then be utilised for showing rosier picture in the years of not-so-good-performance. Thus, it is about having income smoothing effect in reported earnings of the organisation (Healy and Wahlen 1999). Income smoothing is done by managers for the reasons, such as, portraying the organisation as a low risk organisation; minimising taxation; showing positive signal about future earnings; increasing the remuneration of the key personnel of the organisation; etc.

Earnings management practices in banking industry has been mainly studied with the help of loan loss provisions as banks financial statements' have a major component of loan loss provision through which earnings management is possible as it is an accrual based item, it does not involves any cash flows. Many prior studies have depicted the usage of loan loss provisions for earnings management by bankers

(Ahmed et al. 1999; Collins et al. 1995; Greenawalt and Sinkey 1988; Kim and Kross 1998; Zoubi and Al-Khazali 2007 and many more). In India, RBI has been regulating this item through IRAC (Income Recognition Asset Classification and Provisioning Norms) guidelines since years as it is a very crucial item.

Capital management is about maintaining appropriate ratio of assets and liabilities in a business organisation. Cost of capital and rate of return are critical dimensions of effective capital management.

Banking industry is a regulated industry. Its capital requirements are regulated by RBI in India by specifying Capital Adequacy Ratio. As per RBI norms, Indian scheduled commercial banks are required to maintain CAR of 9% and Indian public sector banks are required to maintain CAR of 12%. Empirical studies in the area of capital management can be categorised into pre BASEL and post BASEL periods. During pre-BASEL period loan loss provisions were part of numerator of capital adequacy formula. Hence, many studies prove association between LLPs and capital adequacy ratio (Scholes et al. 1990; Moyer 1990). In post BASEL period, loan loss provisions are not part of capital adequacy ratio, hence no association is expected. Some empirical studies have depicted this (Kim and Kross 1998; Ahmed et al. 1999).

Signalling in the area of finance is quite common. Companies make many announcements to signal their investors about bright future prospects. The financial reported and published by the companies also signal some information to the market.

Some prior studies have tried to capture the use of LLPs for signalling purposes (Liu et al. 1997; Beaver and Engel 1996; Ahmed et al. 1999). Increase in LLPs may convey higher level of accounting conservatism and signal higher level of confidence in management. It may also indicate increase in future earnings.

### 3 Literature Review

Previous empirical studies have shown the usage of loan loss provisions for earnings management, capital management and signalling for future earnings. The use of loan loss provisions for earnings management, capital management and signalling behaviour studied by different researchers has been thoroughly discussed below.

#### 3.1 Use of Loan Loss Provisions for Earnings Management

Prior studies in this domain have reported conflicting findings; while some reported that bankers use loan loss provisions for earnings management, and others reported no association between loan loss provisions and earnings of the banks.

In Indian context, first such study was done by Ghosh (2007). He not only explored the association between loan loss provisions and earnings of Indian banks, rather also tried to examine the consequences of such earnings management practices of banks. His study proved presence of income smoothing practices in Indian banks using loan loss provisions. He also concluded in his study

that banks which are listed in stock exchange use LLP more extensively than the unlisted ones for earnings management. Based on his study, he recommended that the regulators and policy makers should prescribe the provisioning norms which are future oriented, which set aside more resources during good economic times. Desta (2017) proved the significant relationship between loan loss provisions and earnings management in the African Banks. He found that to reduce risk of variability of earnings, African banks use Discretionary Loan Loss Provisions (DLLP) to manage its earnings. He found that when the earnings before tax and provisions are high (low) and loan to deposit ratio decreases (increases), the banks decreases (increases) DLLP. Yeh (2010) and Alali et al. (2011) found that the estimation of loan loss provisions is dependent upon the amount of default loan assets and risky loan assets. Their results also indicated that banks with higher earnings in a year create smaller LLP to write off default loans. The default loan assets and risky assets, bank size and non- interest expenses shows a positive and significant relationship with LLP. However, such earnings management practices using LLPs for manipulation were found to be lower in intensity for larger banks vis-à-vis smaller banks of Taiwan (Yeh 2010). Kanagaretnam et al. (2003) argued that there exists inverse relationship between current saving and future income. He found that the good (poor) current and expected good (poor) future performance indicates the earnings in loan loss provisions during good and times and borrow earnings through loan loss provisions in bad times. Anandaraman et al. (2007) portrayed that listed commercial Australian banks engages LLP more aggressively in earnings management than unlisted commercial Australian banks and earnings management behaviour is more pronounced in the post-Basel period. Dantas et al. (2013) have taken only macroeconomic variable and loan portfolio to determine earning management in Brazilian Banks. They found that higher the concentration of loan, higher the use of LLP. The interest rate, the level of economic activity, the types of loans, the geographical location of debtors, the degree of concentration of the portfolio and the maturity of loans shows the positive and significant relationship with the LLP. Only GDP shows negative and significant relationship with the LLP. Das et al. (2012) supports the fact that if a bank reports higher profit in the period  $t - 1$ , the probability of loss provision is quite high in period  $t$ , suggesting income smoothing. Nabar and Eng (2007), found that there is positive and significant relationship between LLP and future cash flow of the company which improves provisioning prospects in Asian Banks. Azzali et al. (2014) reported that the use of loan loss provisions by managers cannot be reduced, despite the changes in the financial system regulation and economic cycle. Only IFRS reduces the use of loan loss provision as it requires high level of transparency. During the financial crisis, the use of loan loss provision is more as the earnings decline. Kwak et al. (2009) depicted that Japanese bank managers reported high (income-decreasing) DLLPs when their demand for external financing was high, simultaneously with realized gains on securities sales, and when prior year income taxes were high. However, managers reported low (income increasing) DLLPs pre-managed earnings were high.

There are studies which report no association between LLPs and earnings management (Beatty et al. 1995; Wetmore and Brick 1994; Elleuch and Taktak 2015).

### 3.2 Use of Loan Loss Provisions in Capital Management

Prior studies in this regard have reported conflicting findings; while some reported that bankers use loan loss provisions for capital management, and others reported no association between loan loss provisions and capital ratios of the banks.

In Indian context, first such study was done by Ghosh (2007). Ghosh (2007) confirmed the significant relationship between capital adequacy ratio and loan loss provision indicating usage of loan loss provisions by Indian banks for capital management purposes. Some studies by Tsai Lien (2009), Das et al. (2012), Ghosh (2007) found that Capital Adequacy Ratio shows negative and significant relationship with the LLP.

Anandarajan et al. (2007) found no evidence for the use of LLP for capital management after the change in Basel accord. Desta (2017) also could not prove through their study on African commercial banks, presence of capital management practices using DLLP. Yeh (2010) in their study of Taiwanese banks, found insignificant association between capital adequacy and LLPs efficiency. Alali et al. (2011) portrayed that SFAS 114 has no moderating impact in managing capital ratio. Bank size and high risky asset portfolio shows positive relationship to manage capital ratios. However, they found no evidence on the use of LLP in managing capital during financial crisis. On the contrary, Azzali et al. (2014) found in their study of Italian Banks that during financial crisis usage of LLP increases for managing capital adequacy ratio.

### 3.3 Use of Loan Loss Provisions in Signalling

Prior studies in this regard have reported conflicting findings; while some reported that bankers use loan loss provisions for signalling, and others reported no association between loan loss provisions and signalling the banks.

In Indian context, first such study was done by Ghosh (2007). Ghosh (2007) depicted the use of LLPs by Indian banks for signalling future positive changes in the earnings. Docking et al. (2000) found that LLR announcements resulted in a negative stock-market additional influence on the share prices of money-center banks and regional banks in Netherland. Announcements by money-center banks are apt to engender positive or negative contagion effects on the share prices of non-announcing money-center banks. On contrary, Scott Gibson et al. (2000) argued upon the use of signalling by the Japanese banks through the disclosure of loan loss provision. He found that the credibility of loan portfolio is signalled using write-offs i.e., higher the write-offs, lower is the capital ratio and book values. He found that loan loss provision announcement positively impacted the stock price with weak capital position of banks. Robert M. Hull et al. (1994) examined the bank debt reduction and its signalling effect. He found that there exists negative relationship between stock return and bank debt. Higher the negative return with the reduction in bank debts, higher is the negative image cited about the capital structure. This negative effect is used to signal the risk portfolio. Kwak et al. (2009) argued upon the usage of DLLP in Japanese banks. They reported that during

recession, huge bad debt/loan increases the use of DLLP, which signalled the need of external financing along with securities gain to maximise equity capital and earning.

Anandarajan et al. (2007) found that LLP is not used for signalling to the investors for future in Australian Banks. Similar findings were reported by Ahmed et al. (1999) in their study on US banks. Kwak et al. (2009) argued upon the usage of DLLP in Japanese banks. They found that due to different economic environment, the use of DLLP is changes. They also that during recession, huge bad debt/loan increases the use of DLLP, which signalled the need of external financing along with securities gain to maximise equity capital and earning.

#### 4 Data and Model Specification

The data for the purpose of our study is taken from the Database on Indian Economy compiled by the Reserve Bank of India, the central bank of the country. Total 84 banks (including foreign, nationalised and private sector banks) are taken for the purpose of our study. The time period covered is FY 2005 to FY 2016. The final sample of our study comprised of 681 bank-year observations. The description of the variables used in our study is mentioned in Table 1.

We use the following pooled data regression model to examine whether loan loss provisions are used by banks in India for earnings management, capital management and signalling. The model is tested for autocorrelation and heteroscedasticity. The model is based on the empirical models used in prior studies for testing earnings management, capital management and signalling in banking industry (Ahmed et al. 1999; Kim and Kross 1998; Liu and Ryan 1995; Anandarajan et al. 2007)

$$\begin{aligned}
 PNPA_{it} = & \alpha_0 + \beta_1 PNPA_{it-1} + \beta_2 ROA_{it} + \beta_3 CAR_{it} \\
 & + \beta_4 \Delta EBTP_{it} + \beta_5 CDR_{it} + \beta_6 \ln(TA)_{it} \\
 & + \beta_7 NPA_{it} + \beta_8 \Delta GDP_{it} + \beta_9 Intt_{it} + \epsilon_{it}
 \end{aligned}$$

**Table 1** Descriptive statistics

	N	Minimum	Maximum	Mean	SD
PNPA	681	-.03	.09	.0045	.00741
PNPAL	681	-.03	.09	.0037	.00731
ROA	681	-.06	.14	.0248	.01603
CAR	681	.99	277.45	17.5349	15.36220
ChEBTP	681	-.07	.07	.0026	.00983
CDR	681	.91	10994.26	106.8110	427.39153
LnTA	681	5.71	16.93	12.6838	2.04448
NPA	681	.00	.39	.0211	.02815
GDP	681	.04	.10	.0770	.01869
RIR	681	-.01	.08	.0450	.02504
Valid N (listwise)	681				

where  $i$  indicates bank,  $t$  indicates year, PNPA indicates Provision for Non-performing Assets/Total Assets, ROA indicates Return on Assets (which is calculated as EBTP/TA), CAR indicates Capital Adequacy Ratio, EBTP indicates Earnings before taxes and provisions,  $\Delta$ EBTP indicates (Increase/Decrease in EBTP year on year)/Total Assets, CDR indicates Credit-Deposit Ratio,  $\ln(TA)$  indicates Natural log of Total Assets, NPA indicates Non-Performing Assets/Total Assets, GDP indicates Growth rate of GDP of India,  $Intt.$  indicates Real rate of interest.

The first independent variable is lag of dependent variable, i.e., previous year figure of PNPA. The regulatory changes in Prudential Norms of Asset Classification and Provisioning Norms over the years suggest close correlation between PNPA across the years. The regulations have become stringent year on year. Further provisioning requirements increase in terms of quantum as a non performing account ages. The second independent variable is included to capture the earnings management. Higher the earnings, higher is the expected figure of PNPA if bank is into earning management practices. The third independent variable is included to capture the capital management. Higher the capital adequacy ratio, lower is the expected figure of PNPA, bank is involved in capital management practices. CAR measures the bank's capital which ultimately protect the interest of the depositors. The fourth independent variable is included to capture the signalling. Higher the change in EBTP, higher is the expected figure of PNPA, if bank is signalling increase in earnings via PNPA. The fifth, sixth and seventh independent variables are included in the model as bank specific control variables. The fifth independent variable is credit deposit ratio. Higher the credit deposit ratio, higher is the risk profile of the bank. Further, the bank with high credit deposit ratio will be needing more of external funds. To reduce the risk perception in the eyes of bank financiers, bank will create lower PNPA. This will also positively affect its cost of funding. Thus an inverse relation is expected between CDR and PNPA. The sixth independent variable is  $\ln(TA)$  of Total Assets. This is included to capture size effect. Larger banks are expected to involve more in income smoothing practices and create larger PNPA. Further, total asset conveys the size so it should have the positive coefficient because as the total asset increases, the lending by bank will also increase which will increase the use of PNPA. Thus positive relationship is expected between  $\ln(TA)$  and PNPA. The seventh independent variable is Non Performing Loans divided by total assets. Higher the non-performing loans, higher the provision of NPAs is required. Thus a positive relation is expected between the two variables. The eighth and ninth variables are macro level control variables. As banking sector is closely associated with economic condition of India, GDP growth rate and Real Interest Rate are included in the model. On both the variable positive coefficient is expected.

To capture the heterogeneity across banks, then we have used fixed effects model using the same variables.

## 5 Empirical Results and Discussion

Table 2 below presents the correlation matrix of independent variables used in our model for study.

**Table 2** Correlation matrix of independent variables

	PNPA <sub>t-1</sub>	ROA	CAR	Δ EBTP	CDR	LN(TA)	NPA	ΔGDP	Intt
PNPA <sub>t-1</sub>	1.000								
ROA	-0.073	1.000							
CAR	0.099	0.227	1.000						
Δ EBTP	-0.061	0.520	-0.043	1.000					
CDR	0.159	-0.063	0.244	-0.266	1.000				
LN(TA)	-0.044	-0.234	-0.496	-0.028	-0.147	1.000			
NPA	0.324	-0.164	0.109	-0.141	0.224	-0.170	1.000		
ΔGDP	0.040	-0.084	-0.024	-0.083	0.002	-0.102	0.047	1.000	
Intt	0.081	-0.049	-0.023	0.055	0.019	0.030	0.150	-0.278	1.000

The OLS regression results are presented in Table 3 below. Durbin-Watson test statistics are within the acceptable range of 1.5–2.5. Thus autocorrelation does not exist in the sample of our study. Adjusted R square is approximately 26%, which indicates that 26% of the variation in dependent variable is explained by the independent variables and the remaining is explained by the other factors. The coefficient for lag of dependent variable is positive and significant at 1% significance level. This indicates high tenacity in the figures of PNPA year-on-year basis. The coefficient for ROA is positive and significant at 1% significance level. It indicates that 1 unit change in Return on Assets causes 0.05 unit change in PNPA. This indicates earnings management being practised by managers of Indian banks during the period of study. The results of Indian banking industry are in agreement with the results of US banking industry (Greenawalt and Sinkey 1988; Kanagaretnam et al. 2003), Australian banking industry (Anandaraman et al. 2007), African banking industry (Desta 2017). The coefficient for CAR is negative and insignificant which indicates Indian banks are not into capital

**Table 3** Regression results of base model using OLS

Variables	Coefficient
Lag of PNPA	0.255**
ROA	0.049**
CAR	-1.9E-005
Δ EBTP	-0.138**
CDR	1.01E-006*
Ln(TA)	0.001**
NPA	0.082**
ΔGDP	-0.024*
Intt	0.008
Adj R square	0.257
D-W stat	1.889

\*\*Significant at 1% level

\*Significant at 10% level



management practices. Although earlier study by Ghosh (2007) covering the time period of 1997–2005 indicated that Indian banks are using PNPA for capital management purposes. Thus, RBI has been able to monitor the capital adequacy requirements of Indian banks efficiently. The coefficient for change in operating profit is negative and significant and it is significant at 1% significance level. It indicates decline of 0.14 unit in PNPA in response to 1 unit increase in change in operating profit. Thus, signalling hypotheses is not proved. Indian banks are not using PNPA to signal growth in earnings as the study reflects inverse relationship between PNPA and Change in EBTP in contrast to positive relationship to prove the signalling hypothesis. The Credit deposit ratio coefficient is positive and significant at 10% significance level which explains  $1E-06$  unit increase in PNPA is due to 1 unit increase in Credit deposit ratio. The coefficient of Ln (Total asset) is positive and significant at 1% significance level which indicates 0.001% increase in PNPA is due to 1% increase in Ln (total asset). The coefficient of NPA is positive and significant at 1% significance level means 0.08 unit increase in PNPA is due to 1 unit increase in NPA. Coefficient for growth rate of GDP is negative and significant at 10% significance level while coefficient for real interest rate is positive and insignificant. This indicates that if the economy is flourishing, provisioning for NPA is on the lower side and vice versa (Table 3).

Thus the regression results prove that Indian banks are involved in earnings management but not in capital management, using Provision for Non-performing Assets. The post Basel regulations relating to Capital Adequacy Regulations are stringent and bankers are not able to circumvent them. Further, provision for non-performing assets has not been used by Indian bankers for signalling purposes.

On conducting Levene's test for heteroscedasticity, the  $P$  value  $< 0.05$  was obtained indicating presence of heteroscedasticity. Hence, we ran the above model using fixed effect (the results are given in Table 4). The explanatory power of the model drastically improved. Adjusted R-square increased from 26 to 46%. Earnings management using provision for non-performing assets is prevalent

**Table 4** Regression results of base model using fixed effect

Variables	Coefficient
Lag of PNPA	-0.022
ROA	0.097**
CAR	-4.4E-005*
$\Delta$ EBTP	-0.141**
CDR	5.63E-006
Ln(TA)	0.001**
NPA	0.205**
$\Delta$ GDP	-0.010
Intt	-0.003
Adj R square	0.460

\*\*Significant at 1% level

\*Significant at 5% level

in Indian banks as per the results. However, capital management and signalling using non performing assets' provision is not prevailing as per the results of the model.

## 6 Conclusion

Earnings management, capital management, and signalling in the banking industry has been the topics of research interest since a long period now, not only for academicians but also for regulators. As banking industry is a highly regulated industry, our study is of pertinence in light of changes in regulations relating to Prudential Norms for Asset Classification and Provisioning in 2005. Also capital adequacy requirements are becoming stringent year by year as per the guidelines of RBI. Our study is based on data pertaining to 84 Indian banks for the period FY2005 to FY2016. The study was done to probe whether Indian banks were involved in using Provision for Non-Performing Assets for the purposes of earnings management, capital management and signalling during the period of study. The results of our study depict that Indian banks are engaged in earnings management practices using PNPA. However, they are not using PNPA for capital management and signalling better prospects. Our study brings forth a point that though we have strict guidelines of RBI relating to classification of NPAs and creation of adequate provisions for meeting likely losses that may arise on loans becoming bad since a long time period, Indian bankers have been involved in using discretion with regard to such classification of assets. In the last few years, as RBI has become stricter in terms of recognition of bad loans, the NPA ratio has been worsening year after year for banking industry. A latest study of IMF (conducted in 2017), reflects India as one of the worst amongst G-20 countries on the parameter of NPA ratio (Non-performing loans to Total loans). Indian banking industry had a NPA ratio of 9.73% as per this study.

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