

# Discretionary Loan Loss Provisions, Earnings Management and Capital Management in Banks

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*Abstract:* The two past decades have been marked by a multitude of financial scandals (the Enron failure, WorldCom. etc.) mainly caused by the practices of earning management that have challenged the financial reporting quality disclosed. The purpose of this research is to study the determinants of discretionary loan loss provisions in banks. To achieve this objective, we selected a sample of the main Tunisian banks over the period from 2001 to 2014. The estimation results shows that the banks are opting for earnings management practices through the discretionary loan loss provisions in order to align with international standards, in particular with respect to regulatory capital. In opposition, we found a non-significant relationship between earnings before taxes and provisions and discretionary provisions.

*Key words:* Discretionary loan loss provisions, earnings management, capital management,  
JEL Codes: G14, M4, M41

## 1 Introduction

The banking sector is characterized by the complexity of information asymmetry, strong regulation and the accentuation of agency problems and conflicts of interest between multiple stakeholders, which constitutes more favorable to earnings management than any other company. In fact, bank managers, who are the most knowledgeable about their situation, have the opportunity to use the manipulation or management of accounting figures to achieve the desired objectives. Such earnings management practices would allow executives to signal misleading prospects for future returns.

Otherwise, a thorough review of the financial literature on earnings management shows that there are two streams of research. The first trend is that earnings management could take accounting form. The accounting earnings management is first done either by choosing the accounting methods or by applying these methods (Holthausen, 1981; Cheng & Coulombe, 1993). It is then turned around the estimate of accruals that groups all the adjustments and can be calculated by the difference between the net profit and the cash flow. On the other hand, the second current supports the idea that the earnings management could take, rather, the real form. The real earnings management is based on the decisions made by the executive having a direct influence on the cash flows (Shayan-Nia et al., 2017). According to Schipper (1989), this decision is often difficult to detect because of the difficulty of distinguishing

between the desire to manipulate the accounting figures and the optimal management decision.

Attacking the banking sector, some studies including those of Beatty et al. (1995), Beatty et al. (2002) and Cornett et al. (2009) showed that earnings management in banks is done through the realization of securities gains. However, Zhou and Chen (2004), Ahmed et al. (1999), Kanagaretnam (2004), Taktak and Mbarki (2014) and Ben Othmen and Mersni (2016), Zgarni et al. (2018) argue that managers generally use loan loss provisions as the main tool for earnings management. In fact, several factors can influence the recording of these loan loss provisions, including: the level of earnings before taxes and provisions and the level of regulatory capital. Taktak et al. (2010a) and Ben Othmen and Mersni (2014), among others, have emphasized these two factors as important incentives for managing loan loss provisions in banks.

However, the literature review on this subject shows a lack of consensus on the relationship between loan loss provisions and the earnings management in banks. Indeed, some authors have shown that this relationship is positive including Niswander and Swanson (2000), Shrieves and Dahl (2003), Dantas and al. (2012), Olson and Zoubi (2014) and Sheng et al. (2016). While some other studies, particularly those of Ahmed et al (1999) and Fernando and Ekanayake (2015), have denied this relationship. Similarly, studies of the effect of capital management on discretionary loan loss provisions show divergences. Indeed, Ahmed et al (1999), Anandarajan et al. (2007) and Abu El Sood,

(2012), have demonstrated the negative effect of capital management on discretionary provisions. In addition, Collins and al. (1995) and Anandarajan and al. (2011) denied the use of discretionary provisions as a capital management tool in banks.

These arguments have prompted us to question the nature of discretionary practices in Tunisian banks, especially following the IMF report (2015) which ensures the publication of a poor quality of financial reporting by these banks.

The purpose of this paper is to study the discretionary behavior of Tunisian commercial banks in the earnings and capital management. Thus, the contributions of this work are therefore double. On the theoretical level, this work constitutes a contribution to the literature on earnings management in Tunisian banks. From an empirical point of view, we hope that our results can be of considerable interest to the various stakeholders, in particular the regulatory and standardization bodies as well as the financial market authorities. Indeed, our results provide an opportunity to question and review the regulatory requirements for banks' provisioning policies.

This work will be organized as follows: in a second section we will present the theoretical framework of earnings management in banks. In the third section, we will unveil the methodological framework of the research. The fourth section is devoted to analyzing and discussing the results. The conclusion, which is the subject of the fifth section, will take away the main lessons from the empirical study that has gone out in this paper.

## 2 Literature Review and Hypothesis Development

The literature review shows that loan loss provisions and the realization of securities gains are considered among the most commonly used techniques of earnings management in banks (Ben Othmen and Mersni 2014, 2016, Cornett and al 2009, Taktak and Elleuch., 2010). Nevertheless, the review of the literature has allowed us to remember that bank managers most often use accruals accounting (specific accruals) to convey the information that best meet their objectives (Kanagaretnam (2004), Anandarajan et al (2007), Kwak et al (2009), Taktak et al (2010b), Taktak and Mbarki (2014), Ben Othmen and Mersni (2016), Fekri et al, (2015) ). Several factors can influence the calculation of loan loss provisions, which is considered as the specific accruals in banks, namely: accounting standardization, external financing and

the bank's economic visibility. However, two factors that have been unanimously supported by most research and empirical investigations: the level of the earnings and the level of regulatory capital. Zhou and Chen, (2004) provided empirical evidence for the importance of these two incentives in managing loan loss provisions in US banks. By the same, and on various samples, other authors like Ben Othmen and Mersni (2014, 2016) as well as Taktak and Mbarki (2014) prove the primacy of these two factors in the incentive to the earnings management of banks.

### 2.1 Earnings Management and Loan Loss Provisions

A careful scan of the literature suggests that loan loss provisions are an earnings management technique that bank managers rely heavily on. Cornett et al. (2006) found that bank managers appear to use discretionary provisions to increase revenues and, subsequently, their own personal wealth. This assumption is, by the same, certified by Bhat (1996) which confirms that banks tend to manipulate their earnings in case of a low market value of their assets and / or equity; a loan / deposit ratio or a high debt ratio or a low growth opportunity.

Thus, Collins and al. (1995), Kanagaratnam (2004), Anandarajan et al. (2007), Misman and Ahmed (2011), Ben Othman and Mersni (2014), Taktak and Mbarki (2014) and Ahmad et al. (2014), among others, have shown the positive relationship between loan loss provisions and bank earnings. Indeed, the low level of earnings encourages the managers to record a lower level of loan loss provisions in order to increase their earnings. However, Kwak et al. (2009) proved rather a negative and significant association between discretionary provisions and earnings before taxes and provisions. For their part, Fernando and Ekanayake (2015) found, on a sample of commercial banks in Sri Lanka, that earnings before taxes and provisions do not have a significant effect on provisions.

In our study, we will test, in the manner of these authors, the effect of earnings before taxes and provisions on discretionary loan loss provisions. Referring to the existing literature, we expect, like Ben Othman and Mersni (2014) that managers underestimate discretionary loan loss provisions if earnings before taxes and provisions are low and overestimate them if this earnings are high. We then propose the existence of a positive relationship between earnings before taxes and provisions and discretionary loan loss provisions.

Thus, we emit our first hypothesis (H1):

H1: earnings before taxes and provisions have a positive effect on discretionary provisions in Tunisian commercial banks.

## 2.2 Capital Management and Loan Loss Provisions

An in-depth review of the literature suggests that banking regulations that require a minimum level of capital adequacy ratio can lead some bank managers to opt for capital management practices. Indeed, when banks fail to meet this regulatory ratio, managers manage their capital through the handling of accruals, in order to escape the costs they can bear. Banks give a false image of its ability to cope with potential deficits. In fact, the capital adequacy ratio, expressed in terms of the accounting ratio, is a possible way for managers to manipulate the accounting part of this ratio in order to reach the required threshold. Severe penalties may be incurred as a result of non-compliance with this regulatory rate, thus constituting, according to Ahmed and al. (1999), a strong constraint for managers to manipulate their earnings for capital management purposes.

The use of loan loss provisions for capital management purposes has been proven by many authors including Kim and Kross, (1998), Collins, Shackelford and Wahlen, (1995), Moyer (1990) and Anandarajan (2007). In this regard, Anandarajan et al. (2005) and Lobo and Yang (2001) have shown that managers tend to increase provisions where the capital ratio is low, thus increasing the tier II capital. In fact, the literature review in this area shows the existence of two groups of research: research carried out before the Basel agreement and research carried out after the Basel agreement. In this context, Moyer (1990), Scholes et al. (1990) and Beatty et al. (1995) proved the use of loan loss provisions by banks to manage their capital before the Basel Accord (1988), where loan loss provisions are a component of the numerator of the capital ratio, which encourages banks to act on provisions to improve their capital. However, after the Basel agreement, banks act directly on the earnings, which is a major component of equity. In fact following this agreement, only a maximum of 1.25% of provisions, is required at the level of own funds. This eliminated the costs associated with earnings management through loan loss provisions for the banks. This leads to the assumption that, under the Basel Accord, banks remain more aggressive in earnings management through discretionary provisions.

However, Ahmed et al. (1999) did not find a strong relationship between loan loss provisions and earnings management in US banks following the 1990 reforms. In addition, they concluded that these banks use discretionary provisions to manage their capital even after the reforms of 1990. In the same vein, Kim and Kross (1998) showed in their study on a sample of American banks, that following the Basel agreement (1988), the management of loan loss provisions allows banks to deceive their regulatory capital. They proved that the banks that handle their provisions have low levels of capital. All in all, studies of the relationship between loan loss provisions and capital management have mixed results. In this work, and in the same vein as Ahmed et al. (1999), Kanagaretnam (2004), Ben Othman and Mersni (2014) as well as Fekri et al. (2015), we estimate the existence of a negative relationship between the capital ratio and the discretionary loan loss provisions.

Thus, we emit second hypothesis H2:

H2: The capital ratio has a negative effect on discretionary provisions in Tunisian commercial banks.

## 3 Research Methodology

### 3.1 Presentation of the Sample

The sample of our study is made up of ten Tunisian commercial banks that are listed on Tunis Stock Exchange. These banks hold the vast majority of assets of Tunisian banks, more than 80% of total assets of commercial banks. Also, they participate in 88% of the total credits granted.

### 3.2 Regression Models

Loan loss provisions are used as the main tool for earnings management (Ahmed et al., 1999; Kanagaretnam, 2004; Taktak and Mbarki, 2014; Ben Othmen and Mersni, 2016; Zgarni et al, 2018). These provisions are broken down into two parts: a non-discretionary and a discretionary portion. Thus, in order to examine the determinants of discretionary provisions, we followed the Kanagaretnam (2004) approach, which is manifested in two stages. In the first step, we will estimate the total provisions by identifying the normal component of the provisions (non-discretionary provisions). The second step is to determine the discretionary portion of total provisions by calculating the difference between total and non-discretionary provisions (the residue of the first estimate).

**Total Provisions (LLP) = Non-Discretionary Provisions (LLPND) + Discretionary Provisions (LLPD)**

Our first model is as follows:

First model:

$$LLP_{it} = \alpha_0 + \alpha_1 NPL_{it} + \alpha_2 \Delta NPL_{it} + \alpha_3 \Delta LOAN_{it} + \varepsilon_{it} \quad (1)$$

With:

$LLP_{it}$ : Bank loan loss provisions at year t normalized by total loans of year t-1

$NPL_{i,t-1}$ : The opening balance of non-performing loans of bank i at the date t-1 divided by the total loans of year t-1;

$\Delta NPL_{it}$ : The change in non-performing loans from bank i to year t divided by the total loans in year t-1;

$\Delta LOAN_{it}$ : The change in loans from bank i to year t divided by the total loans in year t-1;

$\varepsilon_{it}$ : The residue of the equation that represents the discretionary part of the provisions of bank i to year t.

First, the total provisions are estimated.

$$LLPND_{it} = \alpha_0 + \alpha_1 NPL_{it} + \alpha_2 \Delta NPL_{it} + \alpha_3 \Delta LOAN_{it} \quad (2)$$

The second step is to calculate Discretionary Provisions (LLPD):

$$LLPD_{it} = LLP_{it} - [\alpha_0 + \alpha_1 NPL_{it} + \alpha_2 \Delta NPL_{it} + \alpha_3 \Delta LOAN_{it}] \quad (3)$$

With

$LLPND_{it}$ : non-discretionary loan loss provisions for bank i in year t;

$LLPD_{it}$ : discretionary loan loss provisions for bank i in year t;

Second model:

Like Ahmed et al (1999), in the second model of our study we will introduce two variables of interest that seem to affect the discretionary provisions namely earnings before taxes and provisions (EBTP) and the capital ratio. (CAR) and two control variables which are the return on assets (ROA) and the size of the bank (LASSET). The ultimate interest of this second model is to test our two

research hypotheses. We will thus check whether Tunisian banks use discretionary provisions for profit and capital management purposes. Taking inspiration from the work of Kanagranelman (2004), Kwak et al (2009), Taktak and Mbarki (2014), Ben Othman and Mersni (2014) and Fekri et al (2015), we propose to estimate the following model:

$$LLPD_{it} = \beta_0 + \beta_1 EBTP_{it} + \beta_2 CAR_{it} + \beta_3 \Delta LASSET_{it} + \beta_4 \Delta ROA_{it} + \varepsilon_{it} \quad (4)$$

With:

$LLPD_{it}$ : discretionary loan loss provisions for bank i in year t;

$EBTP_{it}$ : earnings before taxes and provisions of the bank reported to the total assets of bank i in year t;

$CAR_{it}$ : capital ratio of bank i to year t;

$ROA_{it}$ : return on assets of bank i in year t;

$LASSET_{it}$ : size of bank i in year t;

$\varepsilon_{it}$ : The error term of the equation.

## 4 Empirical Results

### 4.1 Statistical Descriptions

The table 1 below presents the descriptive statistics of our sample for all the variables used in our study.

Table 1. Descriptive Statistics of Variables

| Variable      | Mean      | MIN       | MAX      | S.D      | Observations |
|---------------|-----------|-----------|----------|----------|--------------|
| LLP           | .027186   | .0000167  | .1598903 | .0268898 | 140          |
| NPL           | .1732123  | .0000802  | .6460603 | .1497344 | 140          |
| $\Delta NPL$  | .013004   | -.1154509 | .1766946 | .0438628 | 140          |
| $\Delta LOAN$ | .0921152  | .0270438  | .3066719 | .0600232 | 140          |
| LLPD          | -6.96e-12 | -.0329875 | .1301552 | .0257245 | 140          |
| EBTP          | .0209971  | .0040253  | .0387311 | .0078695 | 140          |
| CAR           | .0969434  | -.0093675 | .3051355 | .0465889 | 140          |
| LASSET        | 14.98996  | 13.81444  | 15.99403 | .5575623 | 140          |
| ROA           | .0078196  | -.0882665 | .031     | .0112917 | 140          |

LLP: Loan Loss Provisions; NPL: opening balance of non-performing loans divided total loans;  $\Delta NPL$ : change in non-performing loans divided by total loans;  $\Delta LOAN$ : change in loans divided by total loans. LLPD : discretionary loan loss provision; EBTP: earnings before taxes and provisions ; CAR: capital ratio; LASSET : size of bank ; ROA : return on assets

Statistical results show that the ratio of loan loss provisions to total loans represents 2.7% on average with a maximum of 15.98%. Based on a standard deviation of 2.68%, we advance no differences between banks in loan losses provisioning practices.

These results are similar to those found by Ozili (2015) who find an average value of loan loss provision equal to 2%. In addition, the mean of non-performing to total loans is 17.32% with a maximum of 64.60%. This table also show that the Average of the change in non-performing loans 1.3% with a maximum of 17.66%. Results show also that on average of change in the loan is 9. 21 % with a maximum of 30.66%

The discretionary provisions represent an average value of  $-6.96e-12$ , with a maximum value of 13.01% and a minimum value of (-3.29%). This result is comparable to that of Zhou and Chen (2004) who found an average value of 0.000 in their sample of US banks. Likewise, this result is close to that found by Kwak et al. (2009) on a sample of Japanese banks: with an average LLPD value of 0.0000, a minimum value of -0.0261 and a maximum value of 0.0688. The standard deviation is 2.57% indicating low volatility of the banks in our sample. These results allow us to deduce the existence of discretionary practices regarding provisions at Tunisian banks throughout our study period (2001-2014). These practices tend both upwards and downwards. The results of the descriptive statistics also show that the average of the earnings before taxes and provisions (EBTP) is 2.09%. This ratio varies between 0, 40% and 3. 87% with standard deviation of 0. 78%. This shows a low volatility of this variable in our sample. This result is similar to that of Fernando and Ekanayake (2015). The average capital ratio (CAR) is 9.69%, with a standard deviation of 4.65%, a maximum value of 30.51% and a minimum value of -0.936%. Taktak et al. (2010b) Which is 20.04% on average in a context of Islamic banks. Considering the size of the bank (LASSET), measured by the logarithm of the total assets, our results indicate that this variable represents an average value of 14. 98% which varies between 15.99% and 13.81% with a standard deviation of 55.75%. This proves that the bank sizes of our sample have been scattered.

For the accounting performance variable (ROA), the latter presents an average of 0.78% with a minimum value of -8.8% and a maximum value of 3.10%. The standard deviation is 1.12%, indicating a very low volatility. These values are similar to those found by Lepetit (2006) in a context of European banks, which found an average value of return on assets equal to 0.61% and a maximum value of 3.09%.

## 4.2 Results and discussions

The results of the estimation of our tow models by the GLS method (Panel-corrected) are presented in Table 2 and 3.

- Regression results of the first model: The determinants of loan loss provisions

By performing the Hausman test, the fixed effects model is most appropriate for our study. Moreover, the results of the estimation of the first model by the GLS method (corrected-panel) show, as expected, the significant positive effect of non-performing loans as well as the variation of loans on total provisions (table 2).

Table2. Results of the regression of the first model

| Variable             | Coefficient | Std. Err | z    | P> z     | [95% Conf. Interval] |          |
|----------------------|-------------|----------|------|----------|----------------------|----------|
| <i>NPL</i>           | .0396327    | .0146796 | 2.70 | 0.007*** | .0108611             | .0684043 |
| $\Delta$ <i>NPL</i>  | .050814     | .0501121 | 1.01 | 0.311    | -.0474039            | .149032  |
| $\Delta$ <i>LOAN</i> | .0711009    | .0362552 | 0    | 0.050 ** | .000042              | .1421597 |
| <i>Constante</i>     | .0131109    | .0047612 | 2.75 | 0.006    | .0037792             | .0224426 |

NPL: opening balance of non-performing loans divided total loans;  $\Delta$ NPL: change in non-performing loans divided by total loans;  $\Delta$ LOAN: change in loans divided by total loans.

\*\*\*Significant at 1%, \*\*Significant at 5% and \*Significant at 10%

- Relationship between income before taxes and provisions and discretionary provisions (Table 3)

Regarding the effect of earnings before taxes and provisions on discretionary provisions, we note that the results obtained reject our first H1 research hypothesis. Indeed, we found a non-significant positive relationship between earnings before taxes and provisions (EBTP) and discretionary provisions (LLPD). This indicates that earnings management does not seem to be a determining factor for discretionary provisions in Tunisian commercial banks.

Our findings agree with those found by Ahmed et al. (1999), which shows that banks do not use discretionary provisions for earnings management purposes in the period following the regulation of sufficient capital in 1990. Similarly, our results are similar to those of Fernando and Ekanayake (2015) who consider that the earnings before taxes and provisions do not have a significant effect on provisions of Sri Lankan public banks over the period from 2003 to 2012. However, our result was rejected by Kanagaretnam (2004), Taktak (2008), Kwak et al. (2009) Ben Othman and Mersni (2014) and Taktak and Mbarki (2014) who hold that

provisions are an essential ingredient of earnings management.

- Relationship between regulatory capital and discretionary provisions:

Regarding the assumption of capital management, it turns out that our regression results are in line with our expectations (H2). Indeed, we are in compliance with our second research hypothesis, a negative and significant relationship at the 5% threshold between the Capital Ratio (CAR) and the Discretionary loan loss Provisions (LLPD). This indicates that at the moment when the Tunisian commercial banks reach the regulatory limit, the managers manipulate the discretionary provisions upwards in order to increase the total provisions which will improve the tier II of the capital and consequently improve the level of their capital regulatory. In other words, the weakness in the capital ratio pushes managers to adjust their balance sheet to the regulatory limit while engaging more and more in risky activities. On the other hand, banks with sufficient regulatory capital choose to engage in less risky activities.

Like Boudriga et al. (2009), El Sood, (2012) and Liu et al (2012), it seems to be accepted that the discretionary behavior of Tunisian banks is justified by the desire to reach the regulatory capital ratio. Taktak and Mbarki (2014) and Fernando and Ekanayake (2015) reinforce this idea. Indeed, at the end of their empirical study, they find that any increase in the capital ratio leads to a significant decrease in the loan loss provision. However, it is important to note that our results differ from those of Collins et al. (1995) and Anandarajan et al. (2011) who deny the use of discretionary provisions as a capital management tool in banks.

For the control variables, the results obtained testify par excellence the role that could play the size of the bank in determining the amount of provisions. Indeed, the size allows to mitigate the discretionary provisions and consequently the discretionary behavior of the Tunisian banker. Any increase in the size of the firm generates a significant drop in discretionary provisions. This can be attributed to the inverse relationship between information asymmetry and size. Thus, any increase in size generates a decrease in information asymmetry and consequently a decrease in discretionary provisions. For the second control variable, just as Baccouche et al. (2013) and Ittonenn et al. (2015), the results certify that the return on assets has no impact on discretionary provisions.

Table 3. Results of the regression of the second model

| Variable  | Coefficient. | Std. Err | z     | P> z     | [95% Conf. Interval] |           |
|-----------|--------------|----------|-------|----------|----------------------|-----------|
| EBTP      | .2990678     | .2826665 | 1.06  | 0.290    | -.2549484            | .853084   |
| CAR       | -.1328809    | .0521253 | -2.55 | 0.011**  | -.2350445            | -.0307172 |
| LASSET    | -.0247416    | .003577  | -6.92 | 0.000*** | -.0317523            | -.0177308 |
| ROA       | -.290105     | .1904788 | -1.52 | 0.128    | -.6634367            | .0832267  |
| Constante | .4642297     | .038464  | 12.07 | 0.000    | .3888416             | .5396178  |

EBTP: earnings before taxes and provisions; CAR: capital ratio; LASSET : size of bank; ROA : return on asset.  
\*\*\*Significant at 1%, \*\*Significant at 5% and \*Significant at 10%

## 5 Conclusion

This research is a contribution to debates on the determinants of earning management that have not yet resulted in a concordance by researchers. Thus, through this empirical observation, which can hurt shareholders tremendously, we have moved into a new direction to decipher the earning management, which has been measured by discretionary provisions. The empirical results obtained confirm that discretionary provisions depend solely on the banks' level of regulatory capital. When the bank reaches the limit of the regulatory capital ratio, the earning management practices tend to increase in order to improve the Class II capital, and thus to improve the ratio of regulatory capital. However, the earnings management of Tunisian banks proves independent of the level of earnings before taxes and provisions.

Nevertheless, despite the results achieved, some limitations of this research need to be raised. A first limit concerns the choice of the Tunisian banks to test our model which does not allow us to generalize the results. A comparative study between the Tunisian context and other developing countries may extend or reduce the scope of our results. In addition, this issue of the determinants of earning management can be addressed by integrating other explanatory factors, which can enrich our dissertation and increase the interest and validity of our results.

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