Amina Malik – Shahab Ud Din – Khuram Shafi
– Babar Zaheer Butt – Haroon Aziz

Earning Management and the Likelihood of Financial Distress in Banks

Evidence from Pakistani Commercial Banks

Summary: This research studies the relationship between financial distress (FD) and usage of discretion by employing earning management practices in twenty commercial banks of Pakistan, listed at Pakistan Stock Exchange (PSX). The study utilizes the data spread over from the year 2010 to 2015. Altman Z-Score has been employed to assess financial distress. Further, the value of Z-score has been used for the classification of banks into distressed and non-distressed banks. Moreover, earning management has also been categorized into non-discretionary (NDA) and discretionary accruals (DA). The logistic approach has been used to study the relationship among variables. The findings reveal that banks use non-discretionary and discretionary accruals to manage their financial distress. This research study provides useful insights for investors, auditors and regulators as it identifies usage of specific provisions by management despite strict regulations.

Keywords: Earning Management, Financial distress, Discretionary accruals, Z-Score
JEL codes: C33, G21

The emergence of the financial crisis has further stimulated interests of investors, regulators and practitioners in the manipulation of bank accounts. Banks use loan loss provisions (*LLPs*) for manipulation of earnings, by setting aside a major chunk to handle expected losses on riskier loans (Elnahass, Izzeldin, & Abdelsalam, 2014). Further, the bankruptcy of major banks like Citigroup New York, Lehman Brothers and Anglo Irish Bank triggered the attention of researchers (Simić, Kovačević, & Simić, 2011). Earnings management *(EM)* happens when managers mislead stakeholders by showing healthy financial statements and hide the actual position (Wahlen, 1994). However, earning management can be cured through the implementation of rules and regulations by the regulatory bodies as well as proper audit (Omurgonulsen & Omurgonulsen, 2009).

E-mail address: amina_malik_2000@yahoo.com, shahab@ciitwah.edu.pk, shafikhuram@yahoo.com, babarzb@gmail.com, haroonpvma@gmail.com

Discretion is used by banks in anticipation of loan loss provisions (*LLPs*) (Lobo, & Yang, 2004; Bushman, 2014). The literature further reveals that smoothing practices are on the higher side as compared to signalling (Beatty & Liao, 2014).

Banks plays a role of backbone in financing as well as in economic growth of Pakistan (Husain, 2004). Credit risk in banks increases systemic risk, which affects the functioning of the economy (Macey & O'hara, 2003). Pakistani commercial banks play the pivotal role in the economy. In Pakistan, there are commercial, specialized and foreign banks, but this study has focused on commercial banks due to their significant and competitive role through provisions of a wide range of services.[1] Pakistani banking sector witnessed an increase in profit before and after tax by Rs. 71.22 billion and Rs. 28.80 billion in 2015. This paper not only extends but also complements existing literature and study the relationship between financial distress *(FD)* and usage of discretion by employing earning management practices in twenty commercial banks listed at Pakistan Stock Exchange (PSX). This study utilizes the data spread over from the year 2010 to 2015. Altman *Z*-Score has been employed to assess financial distress. Further, the value of *Z*-score has been used for the classification of banks into distressed and non-distressed banks. Moreover, earning management has been categorized into non-discretionary *(NDA)* and discretionary accruals *(DA)*. The finding shows that banks use non-discretionary and discretionary accruals in financial distress. This shows that Pakistani banks identify and handle credit problems early, especially in good times by building up loan loss reserves and also to achieve management objectives like signalling, smoothening and capital management.

This paper has made significant contributions to the literature and differs from earlier works. Firstly, this research study is amongst the few which utilizes Altman *Z*-score for the calculation of financial distress *(FD)* in Pakistani commercial banks. Secondly, earlier literature devoted attention on the relationship between financial distress *(FD)* and earning management *(EM)* in the non-financial sector, whereas limited evidence exists on financial distress and earning management in banking sector especially in emerging economies (Macey & O'hara, 2003). Thirdly, this paper has categorized earning management specifically into non-discretionary *(NDA)* and discretionary accruals *(DA)*, which provides specific results. This study helps standard setters, regulators and auditors in the specific identification of earnings management, i.e., discretionary and non-discretionary practices used in the Pakistani banking sector, rather than consolidated earning management, which can help them making customized and stringent regulations to reduce earning management. The study also gives awareness to investors of the ground realities, so that they can make optimal investment decisions. The paper is structured as follows. The second part discusses the literature review and formulates the hypotheses. The 3rd part describes the model specification, estimation strategy and variables. The fourth part elaborates empirical analysis and the results. The final part includes conclusion and discussion, limitations and recommendations for future research.

LITERATURE REVIEW

Earning management is a painting of financial reports in such a manner to hide actual figures, with the intention to mislead stakeholders (Leuz, Nanda, & Wysocki, 2003). Earning management practices are also followed to gain benefits like bonuses, salaries increase and authority (Biurrun & Rudolf, 2010).

HYPOTHESES DEVELOPMENT

The quantum of discretionary accruals *(DA)* is reliant on the intensity of financial distress *(FD)*. The trend of provisions used to portray accruals which show healthy income is on the higher side, especially when distress is less. On the other side, when companies are on the verge of failure, companies use income-decreasing earning management practices (Jaggi & Lee, 2002). In financial distress, companies use income-decreasing earnings management. Moreover, banks also customize their lending strategy in financial distress *(FD)*, so that they can achieve their ultimate goal of earning management. In view of the above, discretion in allowance and provisions pertaining to loan losses has an association with the financial distress of the bank. In view of the position explained above, it is hypothesized that;

H1: THERE IS A RELATIONSHIP BETWEEN FINANCIAL DISTRESS AND EARNING MANAGEMENT, I.E., DISCRETIONARY AND NON-DISCRETIONARY ACCRUALS.

Loan loss provisions present a healthy picture of the companies (Leventis, Dimitropoulos, & Anandarajan, 2011). The literature shows that loan loss provisions (*LLPs*) are the composition of two main rudiments non-discretionary accruals *(NDA)* and discretionary accruals *(DA)*. The first rudiment is non-discretionary accruals *(NDA)*, which deals with bad loans (Beaver & Engel, 1996; Laeven & Majnoni, 2003; Bikker & Metzemakers, 2005; Iftekhar Hasan & Wall, 2004). Whereas, the second rudiment is discretionary accruals *(DA)*, in which managers use their discretion for smoothing of earnings, capital management and signalling (DeFond, Jiambalvo, & Subramanyam, 1998, Frankel, Johnson, & Nelson, 2002). Loan loss provisions are reduced when earnings of the banks are on the lower side. Whereas, when earnings of the banks are on the higher side, banks use discretionary accruals. Further, loan loss provisions are kept on the higher side in expansion and growth time period and reduce during a slump phase (Collins, Shackelford, & Wahlen, 1995,Ahmed, Takeda, & Thomas, 1999; Bouvatier & Lepetit, 2012, Kanagaretnam et al., 2004). The regulators of the federal bank also express that provisions cannot be assessed fully and there is always room for imprecision. Therefore, the gap for imprecision is exploited by banks (Anandarajan, Hasan, & McCarthy, 2007). In view of the above, it is hypothesized;

H2: THERE IS A RELATIONSHIP BETWEEN FINANCIAL DISTRESS *(FD)* AND DISCRETIONARY ACCRUALS *(DA)*

Timely identification of financial distress can help in taking remedial measures (Telmoudi, El Ghourabi, & Limam, 2011). As per the report of Federal Deposit Insurance Corporation, (2015), 486 banks resulted in bankruptcy in the United States over the period from 2009 to 2015, which cost $74,777.8 billion. *Z*-score is the renowned, accurate and reliable tool used to measure financial distress in the banks (Strobel, 2011). The main underlying reason for non-discretionary accruals *(NDA)* is macroeconomic factors which include the business environment, which is beyond the scope of management of banks. Further, there is a positive association between non-discretionary accruals *(NDA)* and Loan loss provisions (*LLPs*). Increase in bad loans increases the credit risk, which ultimately increases loan loss provisions (*LLPs*) to deal with the losses (Shawtari, Saiti, Razak, & Ariff, 2015). Moreover, the study of Albanian banks, over the period from 2004 to 2014, also reveals that a major chunk of loan loss provisions (*LLPs*) are driven by non-discretionary accruals *NDA* (Dushku, 2016). Thus, in view of the above, it is hypothesized;

H3: THERE IS A RELATIONSHIP BETWEEN FINANCIAL DISTRESS *(FD)* AND NON-DISCRETIONARY ACCRUALS *(NDA)*

Loan loss provisions (*LLPs*) is an important apparatus for earning management which reveal mixed results (Collins et al., 1995). On the other side, some studies also revealed that Loan loss provisions (*LLPs*) had not been used for earning management (Ahmed et al., 1999). The reasons for diverse results include a diversity of models (Ahmed et al., 1999). Some banks use discretionary earning management practices by using allowances for loan losses, with the aim to show the competence of the organization rather than for an opportunistic purpose. They build up a reserve with the objective to handle credit risk and forecasted losses rather than managing earnings (Jin, Kanagaretnam, & Lobo, 2016). On the other side, some managers use non-discretionary earning management practices (Fonseca & Gonzalez, 2008; Kilic, Lobo, Ranasinghe, & Sivaramakrishnan, 2012).

RESEARCH DESIGN AND SAMPLE SELECTION

Sample selection and Data: In order to investigate all of the hypotheses of this study, a sample of 20 conventional Pakistani banks listed on Pakistan Stock exchange (PSX)[2] have been selected from the year 2010 to 2015 through random sampling. Moreover, the sample excludes Islamic and development banks due to different operational and regulatory frameworks. The total numbers of bank-year observations are 100. Data has been extracted from the SBP various publications, i.e., financial statements analysis of the financial sector for the year 2010 to 2014 and 2011 to 2015. Further, bank variables data has also been extracted from bank annual reports. Financial statements analysis of financial sector issued by State Bank of Pakistan is a comprehensive document which provides consolidated information on bank-related variables. Further, data has been further organized and compiled after its extraction. Data has been carefully reviewed in order to avoid double counting of the banks.

MODEL SPECIFICATIONS AND ESTIMATION STRATEGY

Model Specification

To study the connection between *EM* and the likelihood of financial distress in banks, we have specified the following econometric models.

$$FD_{it}=\beta_0+\beta_1 NDA_{it}+\beta_2 SIZE_{it}+\beta_3 PROF_{it} +\beta_4 LEVG_{it}+\beta_5 LIQ_{it}+\beta_6 AQ_{it}+\varepsilon_{it} \quad (1)$$

$$FD_{it}=\beta_0+\beta_1 DA_{it}+\beta_2 SIZE_{it}+\beta_3 PROF_{it} +\beta_4 LEVG_{it}+\beta_5 LIQ_{it}+\beta_6 AQ_{it}+\varepsilon_{it} \quad (2)$$

Whereas:
FD_{it} : Dummy variable 1 and 0, which denotes1 for financial distress and 0 for financial healthy banks.
NDA_{it} : Non-discretionary accruals.
DA_{it} : Discretionary Accruals.
Size of the bank ($SIZE_{it}$), Profitability ($PROF_{it}$), Leverage ($LEVG_{it}$), Liquidity (LIQ_{it}) and Asset Quality (AQ_{it}) are employed as control variables.

Estimation Strategy: The logistic approach is used to study the discretion used by managers by employing earning management practices and its relationship with financial distress in twenty commercial banks of Pakistan, listed at Pakistan Stock Exchange (PSX). This approach is used when the dependent variable is binary and the independent variables are interval or ratio scale.It is preferred when the de-

pendent variable is a dummy, which is either 0 or 1 because it triumphs over the constraints of Ordinary Least Squares (OLS) model. Moreover, logistic regression is also widely used and accurate to predict bankruptcies (Al-Saleh & Al-Kandari, 2012; Valahzaghard & Bahrami, 2013, Zaghdoudi, 2013).

Measurement of discretionary accruals *(DA)* and non-discretionary accruals *(NDA)* of Loan loss provisions (*LLPs*): Earning management has been estimated by using models of *Kanagaretnam, Lobo* & Yang (2005), *Cornett, McNutt & Tehranian,* (2009); *van Oosterbosch* (2010) and *Leventis et al.,* (2011).

Step1: Estimation of the Regression Parameters
The NDA accruals are estimated for a bank in year *t,* by using the following equation.

$$LLP_{it}=\alpha_0+\alpha_1 LCO_{it}+\alpha_2 LLA_{it-1} +\alpha_3 \Delta NPL_{it}+\alpha_4 EBTP_{it}+\varepsilon_{it} \quad (3)$$

Whereas:
Loan loss provision for year $t(LLP_{it})$ is the dependent variable. Independent variable include:
LCO_t : Net loan charge-offs for year *t,*
LLA_{it-1} : Loan loss allowance or reserve at the end of year *t*–1,
ΔNPL_{it} : Change in non-performing loans during year t measured by the non-performing loans for year t minus the non-performing loans for the year i_{t-1}
$EBTP_{it}$: Earnings before tax and loan loss provisions for year *t.*

Step 2: Estimation of the non-discretionary loan loss provisions (NDLLPs)
The coefficients of *Eq(3)* α_0, α_1, α_2 *and* α_3, have been used to estimate non-discretionary loan loss provisions *(NDLLPs).*

$$LLP_{it}=\alpha_0+\alpha_1 LCO_{it}+\alpha_2 LLA_{it-1} +\alpha_3 \Delta NPL_{it}+\alpha_4 EBTP_{it} \quad (4)$$

Step 3: Estimation of the discretionary loan loss provisions (DLLPs)
Discretionary loan loss provisions *(DLLPs)* are estimated by taking the absolute value of the negative residuals from *Eq*. (4). The same has been calculated by using models of Lo, (2008), Kanagaretnam, Lim, & Lobo (2010) and Kanagaretnam, Lim, & Lobo (2014). Loan losses are estimated on the basis of bad loans/ non-performing loans in the previous year and in the current year (ΔNPL_t) and loan charge-offs (LCO_t), which are considered as losses on bad loans in the current year. Kanagaretnam et al. (2005) also mentioned that loan loss provisions *(LLPs)* are dependent on the trend of non-performing loans *d(NPL)* and charge-offs). Hence, the predicted signs of the α_1 and α_3 are positive.

Loan Loss Allowance ($LLA_{t-1)}$ is taken as a control variable, to cater for variations in loan loss provisions (Anandarajan et al., 2007). Bank creates a lower cushion when LLA_{t-1} are high. Therefore, the expected sign α_2 is negative. The coefficient α_4 is used for $EBTP_t$ (Earnings before tax and provisions). The expected sign is positive and significant. Earlier literature reveals that earning management techniques are used, while earnings are on the higher side (Hamdi & Zarai, 2012, Pinho & Martins, 2009).

Measuring Financial Distress: Altman *Z* Score model used by non-manufacturers to forecast failures in developing countries (Altman, Hartzell, & Peck, 1995), is as under:

$$Z\text{–}Score=6{,}5X_1+3{,}26X_2+6{,}72X_3+1{,}05X_4 \quad (5)$$

Whereas:
X_1 = Working Capital/Total Assets
X_2 = Retained Earnings/Total Assets
X_3 = EBIT/Total Assets
X_4 = Book Value of Equity/ Total liabilities (Hartzell et al., 1995)

When the value of *Z*-score exceeds 2.6, it

is safe. Whereas, when the value of *Z*-score is less than 1.1, it is distress time period. Further, when the value of *Z*-score is between 1.1 and 2.6, this shows a grey zone. Therefore, lower values of *Z*-score shows higher financial distress.

Control variables: The first control variable employed in this study is leverage (LEVG). It is the capital ratio, i.e., total equity to total assets. *Abdullah & Ansar* (2013) used leverage as control variable and revealed that higher leverage increases financial distress *(FD)* in the banks. The second control variable used in this study is liquidity *(LIQ)*, which is measured by cash and cash equivalents to total assets. Logistic regression was used by *Chiaramonte & Casu* (2016) who also revealed that increase in liquidity causes a decrease in financial distress *(FD)*. The third control variable is size *LOG* (*TA*), which is calculated by taking the log of total assets. *Boyd & Runkle* (1993) found an inverse relationship between bank size and *Z*-score and performance. This negative relationship is also supported by *Kosmidou, Pasiouras & Tsaklanganos* (2007), *Sufian & Habibullah* (2009) and *Cole & White* (2012). The fourth control variable used in this study is profitability *(PROF)*. High profitability promotes stability, which in turn strengthens the capital base (Flamini, Schumacher, & McDonald, 2009). The last control variable used in this study is asset quality *(AQ),* which is estimated by dividing non-performing loans (NPL) with gross advances. The study of *Karim, Chan & Hassan* (2010) revealed that a higher ratio of bad loans affects cost-efficiency. Further, *Ozili* (2017) also supported that non-performing loans *(NPL)* negatively affects efficiency.

EMPIRICAL ANALYSIS AND RESULTS

The descriptive statistics, correlations, empirical analysis and results of this research paper are as under:

Descriptive statistics: *Table 1* shows the descriptive statistics of independent and control variables including size, profitability, leverage, liquidity, and asset quality. The size of Pakistani banks, i.e., total assets *(TA)* ranges from Rs.30 million to Rs.4722 million, which means that the sample is catering small to larger banks. Likewise, the

Table 1

DESCRIPTIVE ANALYSIS

Variables	Mean	Median	Maximum	Minimum	Std. Dev.	Obs
NDA	165.531	119.36	711.078	2.814	156.732	100
DA	42.777	30.029	487.398	0.483	52.812	100
TA	516.919	348.257	4.722.38	30.511	597.479	100
PROF	18.068	10.261	136.746	0.129	20.76	100
LEVG	0.101	0.076	0.519	–0.031	0.088	100
LIQ	0.082	0.076	0.158	0.044	0.027	100
AQ	0.143	0.127	0.516	0.021	0.092	100

Note: NDA: Non-discretionary Accrual, *DA*: Discretionary Accrual, *TA*: Total Assets, *PROF*: Profitability, *LEVG*: Leverage, *LIQ*: (Cash & Cash equivalent to total assets), *AQ*: (Non-performing loans to gross advances)

Source: own edited

profitability *(PROF)* of the banks also ranges from a minimum of 12.9% to 13.6%, with an average of 18 %. Further, leverage *(LEVG)* of banks ranges from –3 % to 51.9%, which means that the sample also includes both high and low leveraged banks. The mean liquidity *(LIQ)* of banks is 8.2 %, which shows banks' ability to meet short term obligation ranges from minimum 4.4 % to maximum 15.8 %. Lastly, the mean ratio of asset quality *(AQ)* in terms of its non-performing loans *(NPL)* to gross advances is 14.3 %. Moreover, the range of asset quality *(AQ)* is 2.1% to 51.6%, which means that the sample includes banks with less and high non-performing loans *(NPL)*.

Correlation Matrix: Correlation matrix of the explanatory variables is shown in *Table 2*. There is a positive correlation between Size *(TA)* and *NDA* (non-discretionary accruals) i.e., r = 0.67, at the 10% level, which is significant. There is also a positive correlation between *PROF* (profitability) and *NDA* (non-discretionary accruals) (r = 0.74, at the 10% level), *LIQ* (liquidity) (r = 0.50, at the 5% level) and non-discretionary accrual *(NDA)*. *LEVG* (leverage) and *AQ* (asset quality) has negative correlation with non-discretionary accrual *(NDA)* i.e. r = (0.21) and r= (0.16) at the 5% level. There is positive correlation between *TA* (size) and *DA* (Discretionary accruals), (r = 0.38, at the 5% level), which is significant. There is a positive correlation of *PROF* (profitability) and (r = 0.45, at the 5% level), *LIQ1* (liquidity) (r = 0.19, at the 5% level) and *DA* (discretionary accrual). Further, *LEVG* (leverage) and *AQ* (asset quality) has negative correlation i.e. r = (0.13) and r = (0.07) at the 10% level and 5% level.

Loan Loss Provisions (*LLPs*): The results of loan loss provisions (*LLPs*) are shown in *Table 3*. In accordance with literature and as expected, the coefficients of loan charge offs (LCO_t) and Change in non-performing loans (ΔNPL_t), are positive. Whereas, the coefficient of loan loss allowance (LLA_t) is positive, which is contrary to expectations, i.e., negative, which means that banks have made large building in the current year. Whereas the coefficient of Earning before tax and provisions ($EBTP_t$) is positive and significant, this means that banks use earning management through loan loss provisions (*LLPs*). The results show

Table 2

CORRELATION MATRIX

Var.	NDA	DA	TA	PROF	LEVG	LIQ	AQ
NDA	1.00						
DA	0.29	1.00					
TA	0.67	0.38	1.00				
PROF	0.74	0.45	0.55	1.00			
LEVG	–0.21	–0.15	–0.13	–0.18	1.00		
LIQ	0.50	0.19	0.24	0.48	–0.27	1.00	
AQ	–0.16	–0.02	–0.07	–0.29	0.17	–0.19	1.00

Note: NDA: Non-discretionary Accrual, *DA*: Discretionary Accrual, *TA*: Total Assets, *PROF*: Profitability, *LEVG*: Leverage, *LIQ*: (Cash & Cash equivalent to total assets), *AQ*: (Non-performing loans to gross advances)

Source: own edited

Table 3

COEFFICIENTS ANALYSIS OF LOAN LOSS PROVISIONS

Variable	Coefficient	Std. Error	*t*-Statistic	Prob.
Constant	30300882	10988477	2.758	0.007
LCO	12.038***	2.967	4.058	0.000
LLA(-1)	0.431**	0.224	1.925	0.057
NPL-NPL(-1)	1.065	1.303	0.817	0.416
EBTP	4.425***	0.314	14.103	0.000
R-square	0.840501			
Adj R-square	0.833785			
F-stat.	125.1535			
Prob.(F-stat.)	0.0000			

*** = Coefficient is significant at 1% level,

** = Coefficient is significant at 5% level

Source: own edited

that management uses discretion in the allowance for loan losses to portray the efficiency and to achieve management objectives.

The R^2 for Loan loss provisions(*LLPs*) is 84% and the adjusted R^2 is 83%, which shows that the variables used in this model, shows a better explanation. F-statistic is 125.1535 and probability of F-statistic is significant at 1% significance level. Moreover, the results reveal that the model is consistent; therefore the results are also reliable.

Empirical Results: The results of logit regression, for the Eq (1) and (2) are shown in *Table 4*. Equation has been estimated to study relationship between financial distress and earning management practices, including non-discretionary accruals *(NDA)* and discretionary accruals *(DA)* along with control variables including size, profitability, leverage, liquidity and asset quality in the Pakistani commercial banks listed on Pakistan Stock Exchange (PSX), over the period from the year 2010–2015.

The results of Model 1 (Eq 1) pertain to the linkage between non-discretionary *(NDA)* and financial distress *(FD)* are shown in Table 4. In this study, odd ratios have been used and coefficients are indirectly interpreted. It reveals that there is an inverse but the insignificant linkage between the likelihood of financial distress and non-discretionary accruals *(NDA)* as distress decreases with increase in non-discretionary accruals *(NDA)*. Therefore, Pakistani banks use non-discretionary practices to reduce their distress level. The study of *Dushku* (2016) supported the provisions are manipulated through a non-discretionary component. The odd ratio of size is 4.20, which is greater than one, which means that the increase in bank size raises the financial distress of the bank. The study of *Hoffmann* (2011) and *Köhler* (2015), also maintained that increase in banks size contributes towards financial distress of the bank. Similarly, the odd ratio of profitability is 1, which shows that it is neutral and has no impact on the financial distress of the bank.

The odd ratio of the leverage is 0.044, which is less than one, which shows that an in-

Table 4

RESULTS LOGISTIC REGRESSION MODEL 1 AND MODEL 2

Variables	Model 1	Model 2	Odd Ratio 1	Odd Ratio 2
Constans	–15.40 (–1.642)	–8.127 (–0.73)	0	0
NDA	–0.543 (–1.121)	–	0.581	–
DA	–	–0.468 (–1.06)		0.626
MÉRET	1.436 (2.15)	0.96 (2.01)	4.20	2.611
PROF	–0.06 (–0.115)	–0.08 (–0.181)	1	1
LEVG	2.94 (0.649)	3.37 (0.64)	0.044	0.174
LIQ	–1.85 (0.902)	–1.084 –(0.07)	0.156	0.338
AQ	–1.37 (0.69)	–1.483 (–0.42)	1.25	0.227
McFad R-square	0.103	0.103	–	–
LR statistic	7.60193	7.85	–	–
Prob. LR statistic	0.026	0.027	–	–

Note: NDA: Non-discretionary Accrual, *DA*: Discretionary Accrual, *TA*: Total Assets, *PROF*: Profitability, *LEVG*: Leverage, *LIQ*: (Cash & Cash equivalent to total assets), *AQ*: (Non-performing loans to gross advances)

Source: own edited

creased level of bank leverage reduces financial distress. Abdullah & Ansar (2013) concluded that financial leverage has a positive outcome for financial distress. Moreover, the odd ratio of the liquidity is 0.156, which is less than one, which also means that it has an inverse relation with financial distress. It shows that the increase in liquidity results in a reduction in bank financial distress, as it strengthens banks to meet its short term obligations. Chiaramonte & Casu (2016) supported that financial distress decreases with increased liquidity holdings. Further, the odd ratio of the asset quality is 1.252, which is greater than 1,means it is positive. Therefore, asset quality contributes to the financial distress of the banks. This implies that distress increases as a result of an increase in non-performing *(NPL)* to gross advances. The results are in accordance with the research of Ozili (2017), which also confirms that *NPL* is negatively linked with stability and efficiency of the bank.

The results of Model 2 (Eq2), pertain to the linkage of financial distress *(FD)* with dis-

cretionary accruals *(DA)* are also shown in Table 4. The findings reveal that there is inverse but insignificant relationship between the likelihood of non-discretionary accruals *(NDA)* and financial distress *(FD)*, which means that discretionary accruals reduce financial distress in Pakistani Commercial banks. The odd ratio of size is 2.611, which is greater than one, which shows that the increase in bank size has a positive relationship with the financial distress of the bank. The same is substantiated by the literature like the studies of Hoffmann (2011) and Köhler (2015). Similarly, the odd ratio of profitability is 1, which implies that profitability does not have a significant relationship with the financial distress of the bank. The odd ratio of the leverage is 0.174 which is less than one, which implies that an increase in the bank leverage results in a decrease in the financial distress of the bank. The result of this study is in line with the research of Abdullah & Ansar (2013) which also showed that financial leverage has quite a positive impact on financial distress. Moreover, the odd ratio of the liquidity is 0.338, which is also less than one, which shows that it has a negative relation with financial distress. It shows that increase liquidity holdings decrease bank financial distress. The results of this study are in accordance with the research of Chiaramonte & Casu (2016) which also reveals that results of different versions of the logistic probability model indicate that the probability of financial distress decreases as a result of an increase in liquidity holdings. Whereas, the odd ratio of the asset quality is 1.227, which is greater than 1; it implies that it has a positive association with financial distress, which means that increase in *NPL* results in an increase in bank financial distress. The results are in accordance with the research of (Ozili, 2017), which also agreed that non-performing loans are negatively associated with the stability and efficiency of the banking system.

SUMMARY AND CONCLUSION

This paper examined the relationship between financial distress and usage of discretion by employing earning management in the commercial banks listed on Pakistan stock exchange during the year 2010–2015. Earning management has been further segregated into discretionary and non-discretionary accrual and their relationship with financial distress. The study hypothesized that there is a relationship between financial distress and non-discretionary accruals, in which management uses non-discretionary accruals to manage the unexpected risk of non-performing loans. The study also hypothesizes that there is a relationship between financial distress and discretionary accruals, in which management uses discretion for achieving management objectives. Panel data and logistic regression approaches have been used to study the relationship among variables.

The empirical evidence is consistent with the hypothesis that there is an association between financial distress *(FD)* and non-discretionary accruals *(NDA)* and banks create a reserve to manage the risk of unexpected losses from the portfolio. It is consistent with the findings of the *Wahlen* (1994) and *Iftekhar Hasan* & *Wall* (2004), which also shows that non-discretionary accruals *(NDA)* are used to manage credit risk and losses of non-performing loans (Bikker & Metzemakers, 2005). Further, a recent study of Albanian banks over the period from 2004 to 2014 also showed that bank Loan loss provisions (*LLPs*) are influenced by non-discretionary loan loss provisions (Dushku, 2016). Therefore, this empirical study concludes that Pakistani banks use non-discretionary practices to reduce their financial distress by creating reserves to handle the unexpected risk of non-performing loans. Further, the study also shows that control variables including banks size increase credit risk,

which in turn increases non-performing loans and these factors augment financial distress. Whereas, leverage and liquidity reduce financial distress. Profitability has no impact on the financial distress of banks.

Further, the empirical evidence of this study also supports the hypothesis that there is a significant association between financial distress and discretionary accruals. Therefore, Pakistani banks use discretionary accrual practices to reduce financial distress and also to achieve management objectives, which might include capital management and signalling. The control variable of bank size increases financial distress because of high exposure of loans, out of which, some become non-performing. Whereas, profitability does not affect financial distress. On the other side, leverage, liquidity and asset quality play a role in reducing financial distress of banks.

This research study also has some limitations. Firstly, the sample size is restricted to commercial banks. Further, future research may be extended to Islamic and Development banks. This research study provides useful insights for investors, auditors and regulators as it identifies usage of specific provisions by management despite strict regulations

Notes

[1] Statistics on Scheduled Banks in Pakistan. (2015, June). Retrieved May 01, 2019, from https://www.sbp.org.pk/publications/schedule_banks/Jun–2015/Title.pdf

[2] PSX (Pakistan stock exchange)

References

Abdullah, M., & Ansar, M. (2013). *A study on financial leverage and financial distress in the listed banks on Colombo stock exchange in Sri Lanka.* Faculty of Management and Commerce SEUSL

Ahmed, A. S., Takeda, C., & Thomas, S. (1999). Bank loan loss provisions: a reexamination of capital management, earnings management and signalling effects. *Journal of Accounting and Economics, 28*(1), pp. 1–25

Al-Saleh, M. A., & Al-Kandari, A. M. (2012). Prediction of financial distress for commercial banks in Kuwait. *World Review of Business Research, 2*(6), pp. 26–45

Altman, E., Hartzell, J., & Peck, M. (1995). Emerging Markets Corporate Bonds: A Scoring System. New York: Salomon Brothers. *Inc, NY.*

Anandarajan, A., Hasan, I., & McCarthy, C. (2007). Use of loan loss provisions for capital, earnings management and signalling by Australian banks. *Accounting & Finance, 47*(3), pp. 357–379

Beatty, A., & Liao, S. (2014). Financial accounting in the banking industry: A review of the empirical literature. *Journal of Accounting and Economics, 58*(2), pp. 339–383

Beaver, W. H., & Engel, E. E. (1996). Discre-

tionary behavior with respect to allowances for loan losses and the behavior of security prices. *Journal of Accounting and Economics, 22*(1), pp. 177–206

Bikker, J. A., & Metzemakers, P. A. (2005). Bank provisioning behaviour and procyclicality. *Journal of International Financial Markets, Institutions and Money, 15*(2), pp. 141–157

Biurrun, V., & Rudolf, M. (2010). Mitigating bank earnings management–The role of regulation and supervision.

Bouvatier, V., & Lepetit, L. (2012). Effects of loan loss provisions on growth in bank lending: some international comparisons. *International Economics, 132*, pp. 91–116

Boyd, J. H., & Runkle, D. E. (1993). Size and performance of banking firms: Testing the predictions of theory. *Journal of Monetary Economics, 31*(1), pp. 47–67

Bushman, R. M. (2014). Thoughts on financial accounting and the banking industry. *Journal of Accounting and Economics, 58*(2), pp. 384–395

Chiaramonte, L., & Casu, B. (2016). Capital and liquidity ratios and financial distress. Evidence from the European banking industry. *The British Accounting Review*.

Cole, R. A., & White, L. J. (2012). Déjà vu all over again: The causes of US commercial bank failures this time around. *Journal of Financial Services Research,* 42(1–2), pp. 5–29

Collins, J. H., Shackelford, D. A., & Wahlen, J. M. (1995). Bank differences in the coordination of regulatory capital, earnings, and taxes. *Journal of accounting research*, 263–291

Cornett, M. M., McNutt, J. J., & Tehranian, H. (2009). Corporate governance and earnings management at large US bank holding companies. *Journal of Corporate Finance, 15*(4), pp. 412–430

Dushku, E. (2016). Some Empirical Evidence of Loan Loss Provisions for Albanian Banks. *Journal of Central Banking Theory and Practice, 5*(2), pp. 157–173

Elnahass, M., Izzeldin, M., & Abdelsalam, O. (2014). Loan loss provisions, bank valuations and discretion: A comparative study between conventional and Islamic banks. *Journal of Economic Behavior & Organization, 103*, S160–S173

Flamini, V., Schumacher, M. L., & McDonald, M. C. A. (2009). *The determinants of commercial bank profitability in Sub-Saharan Africa*: International Monetary Fund

Fonseca, A. R., & Gonzalez, F. (2008). Cross-country determinants of bank income smoothing by managing loan-loss provisions. *Journal of Banking & Finance, 32*(2), pp. 217–228

Frankel, R. M., Johnson, M. F., & Nelson, K. K. (2002). The relation between auditors' fees for nonaudit services and earnings management. *The Accounting Review, 77*(s–1), pp. 71–105

Hamdi, F. M., & Zarai, M. A. (2012). Earnings management to avoid earnings decreases and losses: empirical evidence from Islamic banking industry. *Research Journal of Finance and Accounting, 3*(3), pp. 88–107

Hartzell, J., Peck, M., & Altman, E. (1995). Emerging Markets Corporate Bonds – A Scoring System. Salomon Brothers, Inc., New York, NY. 連結.

Hasan, I., & Wall, L. D. (2004). Determinants of the Loan Loss Allowance: Some Cross-Country Comparisons. *Financial review, 39*(1), pp. 129–152

Hoffmann, P. S. (2011). Determinants of the

Profitability of the US Banking Industry. *International Journal of Business and Social Science, 2*(22)

Husain, I. (2004). *Financial sector reforms in Pakistan.* Paper presented at the Itlay-Pakistan Trade and Investment Conference, Rome on September

Jaggi, B., & Lee, P. (2002). Earnings management response to debt covenant violations and debt restructuring. *Journal of Accounting, Auditing & Finance, 17*(4), pp. 295–324

Jin, J., Kanagaretnam, K., & Lobo, G. J. (2016). Discretion in bank loan loss allowance, risk-taking and earnings management. *Accounting & Finance*. Forthcoming.
HTTP://DX.DOI.ORG/10.1111/acfi.12210

Kanagaretnam, K., Lim, C. Y., & Lobo, G. J. (2010). Auditor reputation and earnings management: International evidence from the banking industry. *Journal of Banking & Finance, 34*(10), pp. 2318–2327

Kanagaretnam, K., Lim, C. Y., & Lobo, G. J. (2014). Effects of international institutional factors on earnings quality of banks. *Journal of Banking & Finance, 39*, pp. 87–106

Kanagaretnam, K., Lobo, G. J., & Yang, D. H. (2005). Determinants of signaling by banks through loan loss provisions. *Journal of Business Research, 58*(3), pp. 312–320

Kanagaretnam, K., Lobo, G. J., & Yang, D. H. (2004). Joint tests of signaling and income smoothing through bank loan loss provisions. *Contemporary Accounting Research, 21*(4), pp. 843–884

Karim, M. Z. A., Chan, S.-G., & Hassan, S. (2010). Bank efficiency and non-performing loans: Evidence from Malaysia and Singapore. *Prague Economic Papers, 2*(2010), pp. 118–132

Köhler, M. (2015). Which banks are more risky? The impact of business models on bank stability. *Journal of Financial Stability, 16*, pp. 195–212

Kosmidou, K., Pasiouras, F., & Tsaklanganos, A. (2007). Domestic and multinational determinants of foreign bank profits: The case of Greek banks operating abroad. *Journal of Multinational Financial Management, 17*(1), pp. 1–15

Laeven, L., & Majnoni, G. (2003). Loan loss provisioning and economic slowdowns: too much, too late? *Journal of financial intermediation, 12*(2), pp. 178–197

Leuz, C., Nanda, D., & Wysocki, P. D. (2003). Earnings management and investor protection: an international comparison. *Journal of financial economics, 69*(3), pp. 505–527

Leventis, S., Dimitropoulos, P. E., & Anandarajan, A. (2011). Loan loss provisions, earnings management and capital management under IFRS: The case of EU commercial banks. *Journal of Financial Services Research, 40*(1–2), pp. 103–122

Macey, J. R., & O'hara, M. (2003). The corporate governance of banks. *Economic Policy Review, 9*(1)

Omurgonulsen, M., & Omurgonulsen, U. (2009). Critical thinking about creative accounting in the face of a recent scandal in the Turkish banking sector. *Critical Perspectives on Accounting, 20*(5), pp. 651–673

van Oosterbosch, R. (2010). Earnings Management in the Banking Industry.

Ozili, P. K. (2017). Non-performing loans and Financial Development: New Evidence.

Pinho, P. S., & Martins, N. C. (2009). Determinants of Portuguese bank's provisioning poli-

cies: Discretionary behaviour of generic and specific allowances

Shawtari, F. A., Saiti, B., Razak, S. H. A., & Ariff, M. (2015). The impact of efficiency on discretionary loans/finance loss provision: A comparative study of Islamic and conventional banks. *Borsa Istanbul Review, 15*(4), pp. 272–282

Strobel, F. (2011). Bank insolvency risk and Z-score measures with unimodal returns. *Applied Economics Letters, 18*(17), pp. 1683–1685

Sufian, F., & Habibullah, M. S. (2009). Bank specific and macroeconomic determinants of bank profitability: Empirical evidence from the China banking sector. *Frontiers of Economics in China, 4*(2), pp. 274–291

Telmoudi, F., El Ghourabi, M., & Limam, M. (2011). RST–GCBR-Clustering-Based RGA–SVM Model for Corporate Failure Prediction. *Intelligent Systems in Accounting, Finance and Management, 18*(2–3), pp. 105–120

Valahzaghard, M., & Bahrami, M. (2013). Prediction of default probability in banking industry using CAMELS index: A case study of Iranian banks. *Management Science Letters, 3*(4), pp. 1113–1118

Wahlen, J. M. (1994). The nature of information in commercial bank loan loss disclosures. *Accounting Review*, pp. 455–478

Zaghdoudi, T. (2013). Bank failure prediction with logistic regression. *International Journal of Economics and Financial Issues, 3*(2), pp. 537