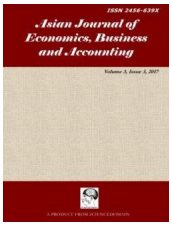

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Small Earnings Changes by Using Fair Value Measurement: Evidence from the Banking Industry of Sri Lanka

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Authors' contributions

This work was carried out in collaboration between both authors. Authors GKSEC designed the study, wrote the protocol, managed the analysis and wrote the first draft of the manuscript. Author LQ finalized the manuscript for publication. Both authors read and approved the final manuscript.

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ABSTRACT

One of the most serious concerns presently facing the accounting profession is the growing complexity, extension, and significance of issues adjoining fair value measurements. The fair value accounting is liable for enhancing financial destruction. This research study the samples of licensed commercial banks and the financial institution listed under Colombo stock exchange to examine the association between the fair value accounting and the small earnings increase reported by the banks attributable to earnings management. We used the statistical methodology follow by Beatty et al. [1] to test the banks reported fair value assets and liabilities associated with bank report small earnings increase. We use both the current year and one-year ahead data after controlling discretionary provision for loan loss, discretionary security gains and losses and other features of banks. We found evidence that; banks reported fair value assets and liabilities are positively

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associate with bank reported small earnings increase. We further use the fair value hierarchy; to identify which level of fair value assets and liabilities associated with bank reported small earnings increase and we found the evidence that the level 2 fair value assets and liabilities are a predominant determination for the association between banks reported fair value assets and liabilities associated with bank report small earnings increase. The assets available-sales report under fair value is the primary use of item earnings management and the level 2 fair value assets and liabilities to reporting smooth earnings over the periods. Therefore, consistent with past research and present us, banks use the fair value measurements to manage the earnings.

Keywords: Discretionary provision for loan loss; discretionary security gains and losses; earnings management; fair value measurements; level 2 fair value assets and liabilities; IFRS 13.

1. INTRODUCTION

One of the most serious concerns presently facing the accounting profession is the growing complexity, extension, and significance of issues adjoining fair value measurements. The Statement of Financial Accounting Concepts No. 8 (2010) of the Financial Accounting Standard Board (FASB) [2] defines relevance and faithful representation is the fundamental features of financial information quality. Ideally, financial information must have both relevance and faithful representation qualities. However, the trade-offs between them vitally discussed in academia. In the earlier, two or three decades, particularly as it relates to fair value measurements standard setting of the International Accounting Standard Board (IASB) [3] enthused toward relevance. This has created a difficult position for accountants, auditors, and users of financial statements. The line items of the financial statements have become more subjective and imperceptive, and standards of financial reporting in many situations are less accurate. The fast expansion of different kinds of fair value measurements techniques will rise complexity, volatility, increased sensitivity to economic fluctuations. The less objective data create the measurement uncertainty surrounding fair value creates a countless attack on materiality threshold of auditors. The continue of fair value measurements on assets and liabilities of financial statements, preparers are manufacture more subjective assumptions, auditors are pursuing sufficient assurance even though less objective verifiable evidence and users of the financial statements are frequently faced with rapid opaque financial statements. The purpose of this research is to investigate and seek further bright on these critical issues—from the perspective of an independent reviewer. This research study the samples of licensed commercial banks and the financial institution listed under Colombo stock exchange to examine the association between the fair value accounting and the small earnings increase reported by the banks attributable to earnings management.

According to the present reporting standards, fair value measurement with extreme valuation uncertainty reported on the face of the financial statements, without any clear warning regarding the uncertainty of valuation. Furthermore, the fair value reported in the face of financial statements exhausting only single point estimations with no apparent warning associate of the extent of uncertainty of estimation reported in the footnotes. This may results the preparer and auditors are deeply aware the high degree of inherent risk associated with these high ranges of measurement uncertainty and users of financial statements are looking likely inadequately educated about the inherent risk associated with this situation. After the introduction of the accounting standard for fair value measurement, many banking institutions have required to use the fair value for assets and liabilities reported in financial statements. However, the developing countries do not have available market data or suffer from the lack of market data compared to the developed countries. Due to this reason, the managers are frequently using a valuation method to estimate the fair value of assets and liabilities reported in the financial statements. This will lead to estimation errors and create the opportunity for managers to manipulate the fair value figures of assets and liabilities reported in the financial statements, which lead to earnings management. We assume that the application of fair value accounting system may have a significant impact on the earnings management on the transitional and developing economies in South Asia due to the numerous substantial facts.

2. RELATED LITERATURE AND METHODOLOGY

We review the empirical accounting literature that focuses on banking, which is a relatively large industry-specific literature. Potential explanations for the prominence of banks in accounting research include the prevalence of financial assets and liabilities in banks, the use of recognized accounting numbers in the prudential regulation of banks, and easier isolation and modelling of banks. Also, the link between accounting changes and the banking crisis, such as the introduction of fair value accounting. There are several reasons why the banking industry has been a primary focus of the fair value literature. First, banks use financial instruments, which are subject to fair value accounting, much more than industrial companies. Second, the use of fair value accounting can have implications for bank regulatory capital. Regulatory capital rules use prudential filters to reduce the impact of fair value accounting. Third, the use of fair value accounting has evolved around banking crises including the great depression, the S&L crisis, and the most recent financial crisis. The majority of accounting research in the banking arena focuses on how bank managers use their reporting discretion. Bank managers have flexibility when preparing financial statements. Therefore, how they use that flexibility, and particularly whether they manipulate financial reporting, is deserving of study. Beatty *et al.*, 2002 examine banks' earnings management incentives by comparing the use of discretionary provisions to avoid earnings decreases for publicly traded versus privately held banks [1]. They find that public banks use more discretion in the provision for loan loss to achieve earnings targets than private banks. If the ability to use provisions for loan losses, losses to manage earnings are limited, then we should find evidence of lower earnings management. Unlike studies on the use of reporting discretion in by non-banking firms, research in the banking sector generally focuses on a single accrual, provision for loan loss. The provision for loan loss is by far the largest and most important accrual for banks. Bank managers estimate provision for loan loss to reflect changes in expected future loan losses, a process that allows them wide latitude for discretion in the provision for loan loss estimation [2]. Adoption of IFRS has significantly changed earnings management behavior (i.e., earnings management is relatively lower in the post-IFRS period). Engaged in relatively greater earnings management when compared to the less risky. The focus on bank fair values arises primarily due to the greater extent of fair value accounting requirements for banks relative to nonfinancial firms and due to the evolution of fair value accounting around banking crises. There is a rich literature based on financial accounting choices of bank holding companies and earnings manipulation practices. Previous research studies elaborate on that banks are motivated to meet regulatory capital requirements and earnings targets and to decrease the taxes. Financial reporting standards require that bank managers estimate provisions for loan loss to reflect changes in expected future loan losses. This process allows them wide latitude for discretion in the estimation of provisions for loan loss. How managers use that discretion and the underlying motivations for their behavior are questions that have received much attention from academics. The objectives can be accomplished by dealing accruals such as provisions for loan losses, losses or adjusting investment strategies, loan charge-offs, security gains [1,3-6]. The Bank managers' use provision for loan loss to meet or beat performance benchmarks, increase reported income or enhance job security [7]. The researchers found that, during the 1989–1996 period, surplus regulatory capital plays a significantly positive role in the lending decisions of banks. They also find that banks used realized securities gains and loan loss to smooth income, and capital-constrained banks, in particular, used earnings management to replenish regulatory capital during this period of financial duress. The researchers then argue that banks use discretionary accounting practices to increase their regulatory capital levels without reducing the risk of insolvency—a concept known as regulatory-capital arbitrage. Though the earnings management inducement occurs in the entire banking industry, there is deviation among different types of banks. Research studies discover that public banks have greater motivation to manipulate earnings and involve in more earnings management. Beatty and Harris, (1999) discover that public banks involve in more earnings manipulation through security gains and losses than private banks [6]. The authors discuss that banks accomplish earnings not only in response to regulatory requirements but also to decrease agency costs and information asymmetry. Beatty et al. deliver evidence that public banks report more small earnings growths than private banks [1]. The authors display that public banks are possible to use loan loss

provisions and security gains and losses to overcome earnings decreases than private banks. Recent accounting research captures cross-bank variation in accounting policy choices by exploiting differences in the discretionary application of provision for loan loss accounting rules across U.S. commercial banks and across countries to estimate the extent to which banks delay expected provision for loan loss recognition in current provisions [5,8-10]. When a bank delays recognition of an expected provision for loan loss, it creates an overhang of unrecognized expected losses that carry forward to the future. Loss overhangs can increase capital inadequacy concerns during economic downturns by compromising the ability of loan loss reserves to cover both unexpected recessionary loan losses and loss overhangs from previous periods. Thus, delays recognition of an expected provision for loan loss can have a direct impact on a bank's ability to meet regulatory thresholds. Otherwise, existing research studies demonstrate that public banks request higher-level verifiable accounting information so that they can distinguish losses than gains. Dechow, Ge and Schrand, (2010) display that managers have a compensation incentive to employ securitization improvements under SFAS 140 [11]. The research based on financial reporting in the banking industry, some research studies exactly observe flexible choice on loan loss provisions that significant accrual of bank holding companies. The research studies discover that loan loss provisions can be decomposed into a component that might be predicted and another component, which is subject to managerial discretion. The market prices these two components differently [12]. Wahlen, (1994) discovers a positive association between discretionary loan loss provisions and future cash flow increases after controlling for the unexpected change in non-performing loans, and unexpected loan charge offs [13]. He also provides evidence that bank managers tend to raise discretionary provisions for loan loss and discretionary security gains in periods of high operating earnings in order to lower volatility of reported earnings. These findings supported by many studies focusing on banks [3,12,14]. All these studies concluded that, in the discretionary provisions for loan loss and discretionary security gains used by banks as a mechanism for aggressive earnings management, mainly for stock market purposes. The similar conclusions arrive by the [15] on their research.

We intend to use the following regression models from Beatty et al. [1] to estimate the discretionary provisions for loan loss and discretionary security gains and losses.

$$PLL_{i,t} = \alpha + \beta_1 \, log\, log\, (TA)_{i,t} + \beta_2 \Delta NPL_{i,t} + \beta_3 RLL_{i,t} + \beta_4 RELOAN_{i,t} + \beta_5 CLOAN_{i,t} + \beta_6 DILOAN_{i,t} + \beta_7 AGLOAN_{i,t} + \beta_8 HLOAN_{i,t} + \beta_9 OLOAN_{i,t} + YEARDUMMY_{i,,t} + \varepsilon_{i,t} \quad (1)$$

$$SGLR_{i,t} = \alpha + \beta_1 \, log\, log\, (TA)_{i,t} + \beta_2 TSGL_{i,t} + YEARDUMMY_{i,,t} + \varepsilon_{i,t} \quad (2)$$

PLL	Provision for loan loss divided by the average total loans ((beginning + End)/2)
Log(TA)	Natural log of total assets
ΔNPL	change in nonperforming loans, divided by the average total loans
RLL	Reserve loan loss balance at the start of the year divided by the total loans at the end of the year
RELOAN	loans to the real estate divided by total loans
CLOAN	commercial loans divided by total loans
DILOAN	loans to depository institution loans divided by total loans
AGLOAN	loans to agricultural productions divided by total loans
HLOAN	loans to households and individuals divided by total loans
OLOAN	Other loans, divided by total loans
SGLR	security gains and losses realized the end of year divided by total assets at the starting of the year
TSGL	total security gains and losses, (security gains and losses realized plus unrealized security gains and losses) divided by total assets at the starting of the year

According to prior research, we have identified the provisions for loan loss is change with changes of nonperforming loans [1-3,12,16,17]. Also, provisions for loan loss are increasing with increasing bank size [1] Further, provisions for loan loss are fluctuate based on loan size [1,12,13]. Subsequently, past research found that the security gains and losses realized are enhancing with the total security gains and losses [1,6]. We estimate the discretionary provisions for loan loss and the discretionary security gain and losses by using residual estimation from equation (1) and equation (2) respectively. These residuals further used for the logistic regression analysis.

We employed the following two logistic regression models to assess the relationship between the fair value measurements on the probability of small increases in return on assets reported in the financial statement of the bank including financial institutions.

$$\begin{aligned}\Delta ROAID_{i,t} = {} & \alpha + \beta_1 COM + \beta_2 FV_{i,t} + \beta_3 log(TA)_{i,t} + \beta_4 \Delta TA_{i,t} + \beta_5 \Delta CF_{i,t} \\ & + \beta_6 \Delta NPL_{i,t} + \beta_7 RELOAN_{i,t} + \beta_8 CLOAN_{i,t} + \beta_9 DILOAN_{i,t} \\ & + \beta_{10} AGLOAN_{i,t} + \beta_{11} HLOAN_{i,t} + \beta_{12} OLOAN_{i,t} + \beta_{13} DPLL_{i,t} \\ & + \beta_{14} DSGLR_{i,t} + YEARDUMMY_{i,t} + \varepsilon_{i,t}\end{aligned} \tag{3}$$

$$\begin{aligned}\Delta ROAID_{i,t} = {} & \alpha + \beta_1 COM + \beta_2 FVL1_{i,t} + \beta_3 FVL2_{i,t} + \beta_4 FVL3_{i,t} \\ & + \beta_5 log(TA)_{i,t} + \beta_6 \Delta TA_{i,t} + \beta_7 \Delta CF_{i,t} + \beta_8 \Delta NPL_{i,t} \\ & + \beta_9 RELOAN_{i,t} + \beta_{10} CLOAN_{i,t} + \beta_{11} DILOAN_{i,t} + \beta_{12} AGLOAN_{i,t} \\ & + \beta_{13} HLOAN_{i,t} + \beta_{14} OLOAN_{i,t} + \beta_{15} DPLL_{i,t} + \beta_{16} DSGLR_{i,t} \\ & + YEARDUMMY_{i,t} + \varepsilon_{i,t}\end{aligned} \tag{4}$$

ΔROAID	The *ΔROAID* is the dependent variable, which is equal to 1 if the change of return on assets *(ΔROA)* of the banks comes between 0 to 0.001 or otherwise zero
COM	if a bank is a licensed commercial bank, a dichotomous variable equal to one, or otherwise zero
FV	The sum of assets and liabilities measured at fair value divided by the total assets at the starting of the year
FVL1	The sum of level 1 assets and liabilities measured by fair value divided by the total assets at the starting of the year
FVL2	The sum of level 2 assets and liabilities measured by fair value divided by the total assets at the starting of the year
FVL3	The sum of level 3 assets and liabilities measured by fair value divided by the total assets at the starting of the year
Log(TA)	Natural log of total assets
ΔTA	change in total assets
ΔCF	change in cash flows, divided by total assets at the starting of the year
ΔNPL	change in nonperforming loans, divided by the average total loans
RLL	Reserve loan loss balance at the start of the year divided by the total loans at the end of the year
RELOAN	loans to the real estate divided by total loans
CLOAN	commercial loans divided by total loans
DILOAN	loans to depository institution loans divided by total loans
AGLOAN	loans to agricultural productions divided by total loans
HLOAN	loans to households and individuals divided by total loans
OLOAN	Other loans, divided by total loans
DPLL	discretionary provision for loan loss estimated from equation (1)
DSGLR	discretionary security gains and losses realized estimated from equation (2)

The above two logistic regression models are derived from the variation model used by [1] We add few fair value measurements variable to original logistic regression models to estimate the impact of fair value changes on small increases in return on assets reported in the financial statement of the bank including financial institutions. The impact of overall total fair value changes on small increases in return on assets is tested by equation (3). Further, we test equation (3) with swapping *FV* with a dichotomous variable of *FVD.* In equation (4), we further study the fair value changes in the fair value hierarchy by replacing *FV* with *FVL1*, *FVL2*, and *FVL3*. Further, we elaborate the equation (4), by swapping *FVL1*, *FVL2*, and *FVL3* with a dichotomous variable of *FVDL1*, *FVDL2,* and *FVDL3*. We anticipate that the coefficient of *FV* or *FVD* is positive and significant. If the coefficient of *FV* or *FVD* is positive and significant, provide us the evidence of fair value measurements more likely enhance the small increases in return on assets reported in the financial statement of the bank including financial institutions.

Equation 4 assess the influence of the three fair value levels independently. By referring to the fair value hierarchy, the level 1 fair value assets and liabilities are directly observable inputs from the active markets, indicating that managers have no or minimal discretion when measuring the level 1 fair value assets and liabilities. Therefore, we do not expect that the level 1 fair value assets and liabilities are significantly influencing the earnings management. Hence we do not expect the coefficient of *FVL1 or FVDL1* is significant. However, the manager can use indirectly observable from inactive market inputs or use internal measurement models base on judgment and assumptions, when it comes to level 2 and level 3 fair value assets and liabilities. This situation implies that managers can have more discretion over level 2 and level 3 fair value assets and liabilities measurements. However, the manager has more discretion over the level 3 fair value assets and liabilities, banks manager apparently, do not able to manipulate the earnings due to a few reasons. The initial, bank required to report more details disclosure when it comes to the level 3 fair value assets and liabilities under the IFRS 13 and central banks regulations. This reflects that many banks reported that few items of level 3 fair value assets and liabilities compared to level 1 and level 2. According to the bank's financial statements, many banks reported level 3 fair value assets and liabilities is Freehold land and buildings and the fair value changes in freehold land and building directly credited to the equity rather than earning other than freehold land buildings reported under the investment properties. Hence, the bank managers have a small room of earning discretion over the level 3 fair value assets and liabilities. Therefore, we do not expect to coefficient on level 3 fair value assets and liabilities are significant. Finally, we expect that the level 2 fair value assets and liabilities do more room of manipulation compare to the other two levels due to use indirectly observable from inactive market inputs and less disclosure requirement compare to level 3 fair value assets and liabilities under the IFRS 13. Therefore, we expect that the coefficient of *FVL2* or *FVDL2* is positive and significant.

In order to beat the prior year earnings targets, banks are manipulating the earnings are more likely to undercharge the provisions for loan loss. Consequently, we expect that there is a negative relationship between the discretionary provisions for loan loss on the probability of small increases in return on assets reported in the financial statement of the bank. In order to get better estimation from the equations we control the change in bank size, changes in nonperforming loans, bank types, and changes in cash flows subsequent to the Beatty et al. [1].

The change in total assets controls for growth, and the natural log of the total assets controls for bank size. If more extensive and higher- growth banks are increasingly more profitable or more likely to manage earnings to avoid reporting a decline in earnings, then the coefficients on the change in total assets (*ΔTA)* and natural log of the total assets (*Log(TA))* should be positive. The change in cash flow controls for changes in profitability. We expect banks with more positive changes in cash flows to be more likely to report small increases in earnings rather than small decreases; therefore, we expect the coefficient on the change in cash flow (*ΔCF)* to be positive. The change in nonperforming loans *ΔNPL* controls for the effect of changes in the quality of the loan portfolio on nondiscretionary changes in earnings. The change in nonperforming loans (*ΔNPL*) is an essential predictor of the loan loss provision, which is a significant component of earnings. We use the change in nonperforming loans because our dependent variable is the

change in earnings. An increase in nonperforming loans should lead to an increase in the loan loss provision and a decrease in earnings; therefore, we predict a negative coefficient on *ΔNPL*. In additional estimations, we control security gains, and losses realized to test the charging of available-for-sale assets partially due to the security gains and losses realized on available-for-sale assets. In addition to that, to minimize the time fixed effects, we control year dichotomous variables. Further, when we estimate standard errors, use the firm level clustering.

3. RESULTS AND DISCUSSION

Table 1 panel A; present the sample selection procedure. The initial sample includes 62 banking, financial and insurance companies which all the listed in the Colombo Stock Exchange of the period of 2013 to 2017. We reduce the 09 insurance companies that not cover our research scope and initial sample includes 265 bank-year observations for 53 sole banks. From the initial bank-year sample of 265, we reduce banks with missing data and the missing data on fair value assets and liabilities. Therefore, the final sample includes 220 bank-years observations for 44 sole banks.

Fig. 1 shows the composition of fair value assets and liabilities in each level of the fair value hierarchy. The level 2 fair value assets and liabilities account for around 54% of total fair value assets and liabilities measurements, and the level 2 assets and liabilities is the most significant component of the fair value measurements. The level 1 fair value assets and liabilities account for around 32% of total fair value assets and liabilities measurements, and the level 1 assets and liabilities is the second most prominent component of the fair value measurements. The level 3 fair value assets and liabilities account for around 14% of total fair value assets and liabilities measurements the level 3 assets and liabilities is the lowest component of the fair value measurements.

Table 1. Panel A: Sample selection

	Bank-years	Unique Banks
Listed companies		299
Bank, financial and insurance sector	310	62
Less: Insurance companies	(45)	(09)
Banking institution including financial companies	265	53
Less: Banks with missing years data	(15)	(03)
Less: Observations with missing data on fair value assets and liabilities	(30)	(06)
Final sample	220	44

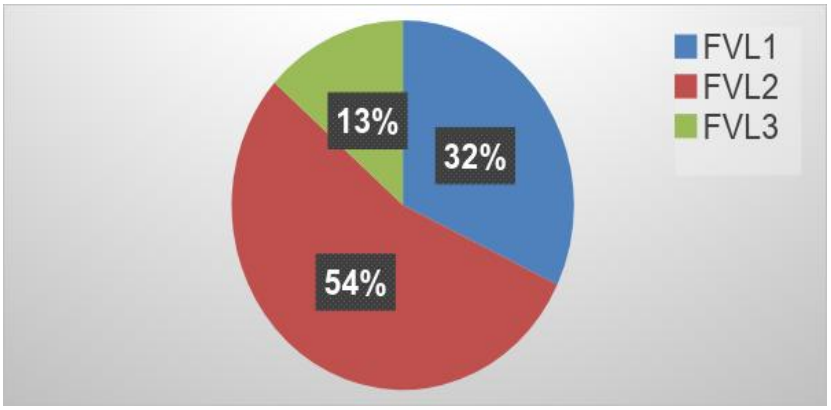

Fig. 1. Composition of fair value assets and liabilities on a fair value hierarchy

3.1 Discretionary Provisions for Loan Loss and Discretionary Security Gains and Losses

The statistical out of the discretionary provisions for loan loss and discretionary security gains and losses presented in Tables 2 and 3. Table 2 shows the estimation result of the discretionary provisions for loan loss. The adjusted R-Squire equal to 39.8%. The variable of *Log(TA), ΔNPL,* significant at 1% level. This implies that the large reserve for loan loss at the starting of the year and increasing the nonperforming loan during the year will report the more substantial provision for loan loss. In addition to that the bank size also positively and significant association with Provisions for loan loss and all other significant variables are negatively associated with Provisions for loan loss. Table 3 shows the estimation results of discretionary security gains and losses. The adjusted R-squire estimate to 25.3%. The variable *TSGL* estimate to 0.151 at 1% significant level. Which mean total security gains and loss is positive and significantly associated with the discretionary security gains and losses. Overall, the estimated results are consistent with prior research [1,6,12] of discretionary loan loss provision models and discretionary security gains and losses models.

3.2 The Association between Fair Value Measurements and the Small Earnings Increases

Table 4 presents the statistical results for logistic regression models of the probability of change in small earnings on the total fair value of assets and liabilities. The result shows us 0.772 and 0.011 as the coefficient of *FV* and significant at 5% level. Therefore, the fair value of this logistic regression model is positive and significant. This implies that a high fair value measurement report in the financial statements is more likely to report small earnings increases. This finding is consistent with our first hypothesis.

Table 2. Estimating discretionary provisions for loan loss using Beatty et al. [1] approach

$$PLL_{i,t} = \alpha + \beta_1 log\ log\ (TA)_{i,t} + \beta_2 \Delta NPL_{i,t} + \beta_3 RLL_{i,t} + \beta_4 RELOAN_{i,t} + \beta_5 CLOAN_{i,t} + \beta_6 DILOAN_{i,t} + \beta_7 AGLOAN_{i,t} + \beta_8 HLOAN_{i,t} + \beta_9 OLOAN_{i,t} + YEARDUMMY_{i,,t} + \varepsilon_{i,t}$$

Variables	Coefficient Estimate	p-value
INTERCEPT	- 0.021	<.005 ***
Log(TA)	0.002	<.005 ***
ΔNPL	-0.219	<.005
RLL	0.821	<.005 ***
RELOAN	- 0.014	0.143
CLOAN	- 0.018	(0.024) **
DILOAN	0.005	0.902
AGLOAN	- 0.028	<.005 ***
HLOAN	- 0.013	<.005 ***
OLOAN	- 0.032	<.005 ***
N	220	
Adj R-sq	0.398	
Year variables	Yes	

, **, * indicate significance at 10%, 5%, 1% level, (two-tailed), respectively.*

Table 3. Estimating discretionary provisions for loan loss using Beatty et al. [1] approach

$$SGLR_{i,t} = \alpha + \beta_1 log\ log\ (TA)_{i,t} + \beta_2 TSGL_{i,t} + YEARDUMMY_{i,,t} + \varepsilon_{i,t}$$

Variables	Coefficient Estimate	p-value
INTERCEPT	0.001	(0.364)
Log(TA)	0.002	0.537
TSGL	0.151	<.005 ***
N	220	
Adj R-sq	0.253	
Year variables	Yes	

, **, * indicate significance at 10%, 5%, 1% level, (two-tailed), respectively*

Table 4. Logistic regressions of fair value assets and liabilities on small earnings increases after controlling discretionary security gains and losses

$$\Delta ROAID_{i,t} = \alpha + \beta_1 COM + \beta_2 FV_{i,t} + \beta_3 log(TA)_{i,t} + \beta_4 \Delta TA_{i,t} + \beta_5 \Delta CF_{i,t} + \beta_6 \Delta NPL_{i,t} + \beta_7 RELOAN_{i,t} + \beta_8 CLOAN_{i,t} + \beta_9 DILOAN_{i,t} + \beta_{10} AGLOAN_{i,t} + \beta_{11} HLOAN_{i,t} + \beta_{12} OLOAN_{i,t} + \beta_{13} DPLL_{i,t} + \beta_{14} DSGLR_{i,t} + YEARDUMMY_{i,t} + \varepsilon_{i,t}$$

Variables	Coefficient	p-value
INTERCEPT	- 0.612	0.559
COM	- 0.039	0.836
FV	0.772	(0.011) **
Log(TA)	- 0.156	0.471
ΔTA	1.542	(0.071) *
ΔCF	1.823	0.434
ΔNPL	- 12.107	<.005 ***
ΔRELOAN	5.785	<.005 ***
ΔCLOAN	0.276	0.807
ΔDILOAN	- 0.326	0.593
ΔAGLOAN	4.302	0.367
ΔHLOAN	- 2.441	0.562
ΔOLOAN	5.415	0.250
DPLL	- 15.47	<.005 ***
DSGLR	- 16.038	0.329
d.v.=1	43	
d.v.=0	177	
N	220	
Pseudo-R-sq	0.064	

, **, * indicate significance at 10%, 5%, 1% level, (two-tailed), respectively*

The variable of *ΔTA and ΔNPL* are significant 10% and 1% level respectively. The change in total assets controls for growth If larger and higher- growth banks are increasingly more profitable or more likely to manage earnings to avoid reporting a decline in earnings, then the coefficients on the change in total assets (*ΔTA)* should be positive and we got the positive coefficient. The change in nonperforming loans *⊗NPL* controls for the effect of changes in the quality of the loan portfolio on nondiscretionary changes in earnings. The change in nonperforming loans (*ΔNPL*) is an essential predictor of the loan loss provision, which is a significant component of earnings. We use the change in nonperforming loans because our dependent variable is the change in earnings. An increase in nonperforming loans should lead to an increase in the loan loss provision and a decrease in earnings; therefore, we predict a negative coefficient on *ΔNPL,* and we got the negative coefficient. The variables coefficient of *DPLL* is negative and significant at 1% level. This may be implied that the bank reported with low of the nonperforming loan are more likely to report small earnings increases and the bank reported with low of provisions for loan loss are more likely to report small earnings increases. Therefore, we agree with [1] express the notion of banks will manage the earnings upward to evade the earnings fall by debiting lower discretionary provisions for loan loss.

Table 5 presents the statistical results for logistic regression models of the probability of change in small earnings on the fair value of assets and liabilities in more deeply by considering levels of fair values. In Table 8, we replace the *FV* with *FVL1, FVL2*, and *FVL3* to measure the impact of three levels of fair value hierarchy. The pseudo-R-square estimate to 8.1%. The coefficient on *FVL1* is positive but insignificant. This indicates that managers have no or minimal discretion when measuring the level 1 fair value assets and liabilities due to level 1 fair value assets and liabilities are directly observable inputs from the active markets. As we expect and consistent with our second hypothesis, the *FVL2* coefficient estimate to positive 2.868 and p-value estimate to 0.001 which is significantly influenced by small earnings increases. This provides evidence of banks report more level 2 fair value assets and liabilities in the financial statements are more likely to manage the earnings to avoid the earnings falls. The *FVL3* coefficient estimate to negative -2.382 and p-value estimate to -0.272 that is not significantly influenced by small earnings increases. Consequently, the positive relationship between total fair values assets & liabilities and small earnings increases more likely determined by the level 2 fair values assets and liabilities.

The table 6 present the statistical results for logistic regression models of the probability of

change in small earnings on the fair value of assets and liabilities by replacing the *FVL1, FVL2* and *FVL3* with three dichotomous variables *FVDL1, FVDL2* and *FVDL3.* The results are qualitatively unchanged and pseudo-R-square estimate to 8.7%. The coefficient on *FVDL1* is positive but insignificant. As we expect and consistent with our second hypothesis, the *FVDL2* coefficient estimate to positive 0.659 and p-value estimate to 0.002 which is significantly influenced by small earnings increases.

The *FVDL3* coefficient estimate to negative -0.954 and p-value estimate to 0.437 that is not significantly influenced by small earnings increases. Consequently, the positive relationship between total fair values assets & liabilities and small earnings increases more likely determined by the level 2 fair values assets and liabilities.

Table 7 presents the statistical results for logistic regression models of the probability of change in small earnings on variables of fair value measurements after controlling for discretionary provisions for loan loss, discretionary security gains and losses, and other bank-specific characteristics. The results are qualitatively unchanged and show us 1.961 as the coefficient of *FV* and significant at 5% level (0.023). Therefore, the fair value of this logistic regression model is positive and significant. Again, this finding is consistent with our first hypothesis.

Table 8 presents the statistical results for logistic regression models of the probability of change in small earnings on variables of fair value measurements after controlling for discretionary provisions for loan loss, discretionary security gains and losses, and other bank-specific characteristics. Moreover, like earlier, we replace the FV with FVL1, FVL2, and FVL3 to measure the impact of three levels of fair value hierarchy. The pseudo-R-square estimate to 7.5%. The coefficient on FVL1 is positive but insignificant. Once again, consistent with our second hypothesis, the FVL2 coefficient estimate to positive 1.578 and p-value estimate to 0.000 which is significantly influenced by small earnings increases. The FVL3 coefficient is estimate to negative -3.997 and p-value estimate to -0.235 that is not significantly influenced by small earnings increases. Consequently, the positive relationship between total fair values assets & liabilities and small earnings increases more likely determined by the level 2 fair values assets and liabilities.

Table 5. Logistic regressions of fair value assets and liabilities on small earnings increases using fair value hierarchy after controlling discretionary security gains and losses

$$\Delta ROAID_{i,t} = \alpha + \beta_1 COM + \beta_2 FVL1_{i,t} + \beta_3 FVL2_{i,t} + \beta_4 FVL3_{i,t} + \beta_5 log(TA)_{i,t} + \beta_6 \Delta TA_{i,t} + \beta_7 \Delta CF_{i,t} + \beta_8 \Delta NPL_{i,t} + \beta_9 RELOAN_{i,t} + \beta_{10} CLOAN_{i,t} + \beta_{11} DILOAN_{i,t} + \beta_{12} AGLOAN_{i,t} + \beta_{13} HLOAN_{i,t} + \beta_{14} OLOAN_{i,t} + \beta_{15} DPLL_{i,t} + \beta_{16} DSGLR_{i,t} + YEARDUMMY_{i,t} + \varepsilon_{i,t}$$

Variables	Coefficient estimate	p-value
INTERCEPT	- 0.532	0.404
COM	- 0.179	0.848
FVL1	0.460	0.540
FVL2	2.868	<.005 ***
FVL3	- 2.382	0.272
Log(TA)	- 0.166	0.176
ΔTA	- 0.566	(0.049) **
ΔCF	1.638	0.475
ΔNPL	- 12.153	<.005 ***
ΔRELOAN	2.933	(0.004)***
ΔCLOAN	1.611	0.735
ΔDILOAN	- 0.170	0.641
ΔAGLOAN	4.726	0.323
ΔHLOAN	-2.683	0.493
ΔOLOAN	4.838	0.483
DPLL	- 15.849	<.005 ***
DSGLR	- 21.161	0.510
d.v.=1	43	
d.v.=0	177	
N	220	
Pseudo-R-sq	0.081	

, **, * indicate significance at 10%, 5%, 1% level, (two-tailed), respectively*

Table 6. Logistic regressions of three dichotomous variables FVDL1, FVDL2 and FVDL3 of fair value assets and liabilities on small earnings increases after controlling discretionary security gains and losses

$$\Delta ROAID_{i,t} = \alpha + \beta_1 COM + \beta_2 FVDL1_{i,t} + \beta_3 FVDL2_{i,t} + \beta_4 FVDL3_{i,t} + \beta_5 log(TA)_{i,t} + \beta_6 \Delta TA_{i,t} + \beta_7 \Delta CF_{i,t} + \beta_8 \Delta NPL_{i,t} + \beta_9 RELOAN_{i,t} + \beta_{10} CLOAN_{i,t} + \beta_{11} DILOAN_{i,t} + \beta_{12} AGLOAN_{i,t} + \beta_{13} HLOAN_{i,t} + \beta_{14} OLOAN_{i,t} + \beta_{15} DPLL_{i,t} + \beta_{16} DSGLR_{i,t} + YEARDUMMY_{i,t} + \varepsilon_{i,t}$$

Variables	Coefficient estimate	p-value
INTERCEPT	- 0.823	0.476
COM	- 0.087	0.956
FVDL1	- 0.437	0.875
FVDL2	0.659	<.005 ***
FVDL3	- 0.954	0.437
Log(TA)	- 0.347	0.385
ΔTA	- 1.649	(0.085) *
ΔCF	1.967	0.749
ΔNPL	- 16.756	<.005 ***
ΔRELOAN	5.756	<.005 ***
ΔCLOAN	0.845	0.754
ΔDILOAN	- 0.438	0.946
ΔAGLOAN	3.856	0.495
ΔHLOAN	- 6.856	0.749
ΔOLOAN	5.239	0.732
DPLL	- 12.324	<.005 ***
DSGLR	- 23.438	0.654
d.v.=1	43	
d.v.=0	177	
N	220	
Pseudo-R-sq	0.087	

, **, * indicate significance at 10%, 5%, 1% level, (two-tailed), respectively*

Table 7. Logistic regressions of fair value assets and liabilities on small earnings increases after controlling the realized security gains and losses

$$\Delta ROAID_{i,t} = \alpha + \beta_1 COM + \beta_2 FV_{i,t} + \beta_3 log(TA)_{i,t} + \beta_4 \Delta TA_{i,t} + \beta_5 \Delta CF_{i,t} + \beta_6 \Delta NPL_{i,t} + \beta_7 RELOAN_{i,t} + \beta_8 CLOAN_{i,t} + \beta_9 DILOAN_{i,t} + \beta_{10} AGLOAN_{i,t} + \beta_{11} HLOAN_{i,t} + \beta_{12} OLOAN_{i,t} + \beta_{13} DPLL_{i,t} + \beta_{14} SGLR_{i,t} + YEARDUMMY_{i,t} + \varepsilon_{i,t}$$

Variables	Coefficient estimate	p-value
INTERCEPT	- 0.654	0.619
COM	- 0.856	0.391
FV	1.961	(0.023) **
Log(TA)	- 0.436	0.378
ΔTA	- 2.126	(0.094) *
ΔCF	1.864	0.934
ΔNPL	-14.301	<.005 ***
ΔRELOAN	3.492	<.005 ***
ΔCLOAN	0.492	0.492
ΔDILOAN	- 0.148	0.932
ΔAGLOAN	2.391	0.483
ΔHLOAN	- 3.748	0.492
ΔOLOAN	5.371	0.314
DPLL	- 17.713	<.005 ***
SGLR	33.291	0.120
d.v.=1	43	
d.v.=0	177	
N	220	
Pseudo-R-sq	0.065	

, **, * indicate significance at 10%, 5%, 1% level, (two-tailed), respectively.*

Table 8. Logistic regressions of three levels of fair value assets and liabilities on small earnings increases after controlling the realized security gains and losses

$$\Delta ROAID_{i,t} = \alpha + \beta_1 COM + \beta_2 FVL1_{i,t} + \beta_3 FVL2_{i,t} + \beta_4 FVL3_{i,t} + \beta_5 log(TA)_{i,t} + \beta_6 \Delta TA_{i,t} + \beta_7 \Delta CF_{i,t} + \beta_8 \Delta NPL_{i,t} + \beta_9 RELOAN_{i,t} + \beta_{10} CLOAN_{i,t} + \beta_{11} DILOAN_{i,t} + \beta_{12} AGLOAN_{i,t} + \beta_{13} HLOAN_{i,t} + \beta_{14} OLOAN_{i,t} + \beta_{15} DPLL_{i,t} + \beta_{16} SGLR_{i,t} + YEARDUMMY_{i,t} + \varepsilon_{i,t}$$

Variables	Coefficient estimate	p-value
INTERCEPT	- 0.592	0.581
COM	- 0.121	0.542
FVL1	0.433	0.721
FVL2	1.578	<.005 ***
FVL3	- 3.997	0.235
Log(TA)	- 0.079	0.943
ΔTA	- 2.116	(0.034) **
ΔCF	1.531	0.427
ΔNPL	- 13.141	<.005 ***
ΔRELOAN	5.041	<.005 ***
ΔCLOAN	0.853	0.832
ΔDILOAN	- 0.233	0.832
ΔAGLOAN	2.974	0.634
ΔHLOAN	- 3.853	0.567
ΔOLOAN	4.841	0.603
DPLL	- 16.346	<.005 ***
SGLR	30.832	0.369
d.v.=1	43	
d.v.=0	177	
N	220	
Pseudo-R-sq	0.075	

, **, * indicate significance at 10%, 5%, 1% level, (two-tailed), respectively*

4. CONCLUSION

The fair value accounting is liable for enhancing financial destruction. Many of them have criticized and blame it for causing financial failure. We used the statistical methodology follow by Beatty et al. [1] to test the banks reported fair value assets and liabilities associated with bank report small earnings increase. We use current year data after controlling discretionary provision for loan loss, discretionary security gains and losses and other features of banks. The logistic regression results for fair value variable is positive and significant. This implies that a high fair value measurement report in the financial statements is more likely to report small earnings increases. Hence, we found evidence that; banks reported fair value assets and liabilities are positively associate with bank reported small earnings increase. Next, we investigate the association between different level of fair value assets and liabilities of fair value hierarchy on small earnings increases. According to IFRS 13 disclose requirements, all banks need to disclose assets and liabilities measured at fair value in each level of fair value hierarchy. The logistic regression results for level 1 fair value assets and liabilities is insignificant. This indicates that managers have no or minimal discretion when measuring the level 1 fair value assets and liabilities due to level 1 fair value assets and liabilities are directly observable inputs from the active markets. As we expect and consistent with our second hypothesis, the logistic regression results for level 2 fair value assets and liabilities are significant. This provides evidence of banks report more level 2 fair value assets and liabilities in the financial statements are more likely to manage the earnings to avoid the earnings falls. The logistic regression results for level 3 fair value assets and liabilities is insignificant. This may be due to the bank significantly lower amount report under the level 3 fair value assets, and liabilities compare to the other two levels of fair value hierarchy.

Consequently, the positive relationship between total fair values assets & liabilities and small earnings increases more likely determined by the level 2 fair values assets and liabilities. However, this reading has some limitations. First, we use a sample of banking industry including financial institutions listed under Colombo stock exchange. Generally, the financial industry is highly regulated by Central banks and security & exchange commission. Therefore, these test results cannot generalize to other industries. Second, our tests of the discretionary components of the provision for loan loss and discretionary components security gains and losses biased toward finding earnings management for both licensed commercial banks

and financial institutions. Third, there are maybe unidentified variables (and therefore uncontrolled) which may influence our test results.

In summary, we find that consistent with our expectation, banks reported fair value assets and liabilities are positively associated with bank reported small earnings increase. The level 2 fair value assets and liabilities are a predominant determination for the association between banks reported fair value assets and liabilities associated with bank report small earnings increase. Finally, we can conclude with all these evidence consistent with past and present research that the banks use the fair value measurements to manage the earnings.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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