Research Article

Does the Adoption of TFRS 9 Financial Instruments Affect the Timeliness of Loan Loss Recognition of Thai Commercial Banks?

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ABSTRACT

This study aims to examine the effects of TFRS 9 Financial Instruments adoption on timeliness of loan loss recognition. TFRS 9 changes the accounting practices of loan loss (or credit loss) from the incurred credit loss (ICL) model to expected credit loss (ECL) model which may affect the timeliness of loan loss recognition. The samples in this study are commercial banks listed on the Stock Exchange of Thailand (SET). The data used in this research is collected from the quarterly financial statements. The period of this study is the first quarter of year 2018 to the fourth quarter of year 2021 which covers eight consecutive quarters before and after adoption of TFRS 9. The timeliness of loan loss recognition is measured from the relationship between the loan loss provisions in the current period and changes in non-performing loans in the future period. The results show that the changes in non-performing loans in the future period are positively and significantly related to the loan loss provisions in the current period. However, TFRS 9 adoption does not affect the timeliness of loan loss recognition which provides the implication to Thailand Federation of Accounting Professions (TFAC) for future improvement of TFRS 9. In addition, this research also finds that Thai commercial banks utilize the loan loss provisions with income smoothing's incentives. The income smoothing purposes may reduce the informativeness of forward-looking of loan loss provisions to reflect the future changes in non-performing loans of Thai commercial banks.

Keywords: TFRS 9 Financial Instruments, Timeliness of Loan Loss Recognition, Thai Commercial Banks

บทความวิจัย

การนำมาตรฐานการรายงานทางการเงิน ฉบับที่ 9 เรื่อง เครื่องมือทางการเงิน มาถือปฏิบัติส่งผลต่อการรับรู้ผลขาดทุนด้านเครดิตของเงินให้สินเชื่ออย่างทันเวลาของธนาคารพาณิชย์ไทยหรือไม่ ?

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บทคัดย่อ

การศึกษานี้มีวัตถุประสงค์ เพื่อตรวจสอบผลกระทบของการนำมาตรฐานการรายงานทางการเงิน ฉบับที่ 9 เรื่อง เครื่องมือทางการเงิน มาถือปฏิบัติต่อการรับรู้ผลขาดทุนด้านเครดิตของเงินให้สินเชื่ออย่างทันเวลา มาตรฐานการรายงานทางการเงิน ฉบับที่ 9 เปลี่ยนวิธีปฏิบัติทางการบัญชีเกี่ยวกับการรับรู้ผลขาดทุนด้านเครดิต จากการรับรู้ผลขาดทุนด้านเครดิตเมื่อเกิดขึ้นแล้วเป็นการรับรู้ผลขาดทุนด้านเครดิตที่คาดว่าจะเกิดขึ้น ซึ่งอาจส่งผลต่อการรับรู้ผลขาดทุนด้านเครดิตของเงินให้สินเชื่ออย่างทันเวลา กลุ่มตัวอย่างในการศึกษาครั้งนี้คือ ธนาคารพาณิชย์ที่จดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทย ข้อมูลที่ใช้ในการศึกษาเก็บจากงบการเงินรายไตรมาส ระยะเวลาที่ใช้ในการศึกษา คือ ไตรมาสที่ 1 พ.ศ. 2561 ถึงไตรมาสที่ 4 พ.ศ. 2564 ซึ่งครอบคลุมระยะเวลา 8 ไตรมาสต่อเนื่องก่อนและหลังการนำมาตรฐานการรายงานทางการเงินฉบับที่ 9 มาถือปฏิบัติ การรับรู้ผลขาดทุนด้านเครดิตของเงินให้สินเชื่ออย่างทันเวลาวัดจากความสัมพันธ์ระหว่างการตั้งค่าเผื่อผลขาดทุนด้านเครดิตของเงินให้สินเชื่อในงวดปัจจุบันกับการเปลี่ยนแปลงของเงินให้สินเชื่อด้อยคุณภาพในงวดอนาคต ผลการศึกษาพบว่า การเปลี่ยนแปลงของเงินให้สินเชื่อด้อยคุณภาพในงวดอนาคตมีความสัมพันธ์เป็นบวกอย่างมีนัยสำคัญทางสถิติกับการตั้งค่าเผื่อผลขาดทุนด้านเครดิตของเงินให้สินเชื่อในงวดปัจจุบัน อย่างไรก็ตาม การนำมาตรฐานการรายงานทางการเงินฉบับที่ 9 มาถือปฏิบัติไม่ส่งผลกระทบต่อการรับรู้ผลขาดทุนด้านเครดิตของเงินให้สินเชื่ออย่างทันเวลาซึ่งผลดังกล่าวจะเป็นการให้คำแนะนำแก่สภาวิชาชีพบัญชีในการปรับปรุงมาตรฐานการรายงานทางการเงิน ฉบับที่ 9 ในอนาคต นอกจากนี้ งานวิจัยนี้ยังพบว่าธนาคารพาณิชย์ไทยใช้การตั้งค่าเผื่อผลขาดทุนด้านเครดิตของเงินให้สินเชื่อโดยมีแรงจูงใจในการทำกำไรราบเรียบ การทำกำไรราบเรียบอาจส่งผลให้ประโยชน์ของข้อมูลการตั้งค่าเผื่อผลขาดทุนด้านเครดิตของเงินให้สินเชื่อ ที่ใช้ในการคาดการณ์การเปลี่ยนแปลงของเงินให้สินเชื่อด้อยคุณภาพในอนาคตของธนาคารพาณิชย์ไทยลดลง

คำสำคัญ: มาตรฐานการรายงานทางการเงิน ฉบับที่ 9 เรื่อง เครื่องมือทางการเงิน การรับรู้ผลขาดทุนด้านเครดิตของเงินให้สินเชื่ออย่างทันเวลา ธนาคารพาณิชย์ไทย

1. INTRODUCTION

Loan loss provision is a significant and important accounting accrual in the banking systems (Bushman & Williams, 2012). It affects the quality and transparency of reported accounting numbers (Nicoletti, 2018). It also has the impact on the bank's risk and fragility which bank regulators monitor the optimal amount of loan loss provisions and loan loss allowances. Therefore, this is a dramatically attention on loan loss provisions from accounting standards setting bodies and bank regulatory agencies. Thailand Federation of Accounting Professions (TFAC) has issued the Thai Financial Reporting Standard 9 (TFRS 9) Financial Instruments which is effective for annual reporting periods beginning on or after January 1, 2020 (TFAC, 2019). The adoption of TFRS 9 makes a significant change of classification and impairment of financial assets especially for banks (e.g., Limani & Meta, 2017). Previously, under TAS 39 Financial Instruments, the incurred credit loss (ICL) model is required for the recognition of loan loss provisions and allowances. The ICL model requires banks to recognize the credit loss when the evidence of credit loss is apparent. However, under the new standard TFRS 9, the expected credit loss (ECL) model is forward-looking and taken account in the current and expected macro environment. Banks are required to recognize all lifetime credit loss when credit risk has increased significantly since initial recognition. Consequently, this will affect the amount of f loss loan provisions after the implementation of this new standard (e.g., Polak & Panos, 2019; Al-Sakini, Awawdeh, Awamleh, & Qatawneh, 2021). Previous studies showed a significant increase in the amount of loan loss provisions after IFRS 9 adoption (e.g., Loew, Schmidt, & Thiel, 2019; Goh, Lim, & Yong, 2021; Behn & Couaillier, 2023). Moreover, most previous studies showed that the implementation of IFRS 9 improved the timeliness of loan loss recognition (e.g., Kim, Ng, Wang, & Wu, 2021; Obersons, 2021; Beatty & Liao, 2021; Jia, 2022; Lopez-Espinosa & Penalva, 2023; Gee, Neilson, Schmidt, & Xie, 2024). However, the ECL model enhanced the timeliness of loan loss provisions after IFRS 9 adoption especially for more riskier and weaker governance banks (e.g., Albian, 2020; Kim et al., 2021; Mahiuex Sapra, & Zhang, 2022). When banks were moderately capitalized and regulatory intervention was sufficient costly, the switching to ECL model impaired the efficiency and timeliness of loan loss recognition (Mahiuex et al., 2022). Moreover, previous studies indicated that banks utilized the loan loss provisions for income smoothing purposes (e.g., Wahlen, 1994; Kanagaretnam, Lobo, & Mathieu, 2003; Kanagaretnam, Lobo, & Mathieu, 2004; Liu & Rayan, 2006; Fonseca & Gonzalez, 2008; Kilic, Lobo, Ranasinghe, & Sivaramakrishnan, 2013; Morris, Kang, & Jie, 2016; Kilic, Lobo, Ranasinghe, & Yi, 2021; Hou, Wang, Lian, & Li, 2021; Biwas, Bhattacharya, Jin, Bhattacharya, & Sadarangani, 2024). If the banks have more incentives for income smoothing via the use of loan loss provisions, this will lead

to less informativeness of forward-looking of non-performing loans (NPLs) or less timely of loan loss recognition (e.g., Kim et al., 2021).

Whether the implementation of TFRS 9 will enhance the timeliness of loan loss provisions is interesting due to contradicting findings from previous studies. Although most of them found that there was the significant improvement of timeliness of loan loss provisions after the IFRS 9 adoption (e.g., Kim et al., 2021; Oberson, 2021), some studies indicated that the more pronounced effect of IFRS 9 depended on many factors such as the risk, the governance, the regulatory control of banks (e.g., Hassouba, 2021; Jutasompakorn, Lim, Ranasinghe, & Yong, 2021; Kim et al., 2021). Timeliness of loan loss recognition in Thailand are challenges for the regulators, standard setters and banking industry when the introduction of ECL model under new standard TFRS 9. Therefore, this study aims to examine the effects of TFRS 9 adoption on timeliness of loan loss recognition in Thai commercial banks context. In addition, whether Thai banks have the income smoothing behavior by using loan loss provisions and their income smoothing behaviors will dominate the informativeness of loan loss recognition are also examined.

This study makes two main contributions. First, it contributes to the literature on the timeliness of loan loss recognition for Thai commercial banks which is limited evidence in Thailand. Prior studies mainly investigated the timeliness of loan loss provisions for the U.S. banks and/or European banks (e.g., Liu & Ryan, 2006, Bushman & Williams, 2012, Nicoletti, 2018; Kim et al., 2021; Oberson, 2021). Secondly, this study provides the evidence whether the adoption of TFRS 9 enhance the timeliness of loan loss provisions of Thai commercial banks. It also provides the guidance to accounting standard setting bodies in Thailand for future improvement of TFRS 9. The findings also give the implications and suggestions for regulatory agencies in monitoring the setting up of the appropriate amount of loan loss provisions. In addition, the results also provide the implications to the auditors and the Securities and Exchange Commission (SEC) for investigating the income smoothing incentives of Thai commercial banks.

2. CONCEPT, THEORY, AND PRIOR RESEARCH

2.1 Positive Accounting Theory

Positive Accounting Theory indicates that accounting information in financial statements reflected the accounting decision and non-accounting decisions taken into consideration by managers and executives (Watts & Zimmerman, 1986). The manager's decision to revise the accounting information is affected by many incentives such as the bonus plans, debt covenant violations and political costs (Watts & Zimmerman, 1986; Watts & Zimmerman, 1990). Positive Accounting Theory is related to loan loss provisions in terms of the use of managers' discretion to set the high or low amount of loan loss provisions. The banks' managers may have incentives to record low amount of loan loss provisions for higher profit and higher stock prices due to the good performance (Ozili & Arun, 2023). In the opposite direction, in the years with high earnings, managers may have incentives to smooth earnings through the recognition of high amount of loan loss provisions to reduce profitability (e.g., Kanagaretnam et al., 2003; Kanagaretnam et al., 2004; Liu & Ryan, 2006; Hou et al., 2021; Biwas et al., 2024).

2.2 The Changes from TAS 39 to TFRS 9 Financial Instruments

Thailand Federation of Accounting Professions (TFAC) has announced a new standard on accounting for financial instruments, TFRS 9 Financial Instruments which is effective beginning on or after January 1, 2020. New TFRS 9 is based on IFRS 9 issued by the International Accounting Standard Board (IASB) when fundamentally rearranging the accounting regulations for financial instruments. TFRS 9 Financial Instruments has dramatically changed from TAS 39 in three main aspects: classification of financial assets, impairment loss models and hedge accounting (TFAC, 2019). TFRS 9 introduces a new expected credit loss (ECL) model which entity should measure the loan loss provisions and allowances for a financial instrument at amount equal to lifetime expected credit losses or 12 month expected credit losses. The new expected credit loss is a forward-looking for impairment. A loss event no longer needs to occur before an impairment loss is recognized. This is the major shift from the incurred credit loss (ICL) model to the expected credit loss (ECL) model. Previously, under the requirement of TAS 39, impairment loss of ICL model is recognized only if there is the objective evidence of impairment as a result of the occurrence of loss events after the initial recognition of assets. TAS 39 prohibits the recognition of loss expected as a result of future events, no matter how likely they have happened. This often results in impairment being too little and too late.

2.2.1 Measuring the Expected Credit Loss under TFRS 9

TFRS 9 uses for three stage approach to classify financial assets depends on their credit risk. Stage one indicates the lower risk category of financial assets which require loan loss provisions set aside to 12 months of credit loss. Assets with a significant increase on credit risk are classified in stage two. In this stage, a loan loss allowance equals to the expected loss for the entire lifetime of the asset. Stage three has occurred when credit-impaired loan and the provisioning for life time of expected loss is also determined.

The expected credit loss model is a probability-weighted estimate of credit losses. A credit loss is the difference between cash flows that are due to an entity in accordance with contract and the cash flows that an entity expected to receive by discounting at the original effective interest rate. The accounting standard requires that management should measure expected credit loss over the remaining useful life of a financial instrument in a way that reflects an unbiased and probability weighted amount that is determined by evaluating a range of possible outcomes, time value of money and reasonable and suspectable information about past events, current conditions, reasonable and supportable future events and economic conditions at the reporting date.

2.3 Timeliness of Loan Loss Recognition

2.3.1 Definition of Timeliness of Loan Loss Recognition (TLLR)

Ball and Shivakumar (2005) indicated that economic income incorporates both current period cash flows and any revisions of presented value of future cash flows. The economic income is the change in market value of equity adjusted for dividends and capital contributions. Accounting recognition can be defined into two broad models: deferred and timely recognition. Deferred recognition largely ignores revisions in expectations and awaits realization of the revised cash flows. For multi period of investment, revisions in expected cash flows for any one future period are likely to be correlated with the revisions for other future periods. Deferred recognition incorporates economic gains and losses in accounting income over the entire life. Therefore, deferred recognition generates persistent components of accounting income. Timely recognition incorporates unrealized gains and losses in income on an accrual basis such as inventory write-downs and restructuring charges. Timely loss recognition (TLR) referred to the timely incorporates of economic losses into accounting earnings (e.g., Basu, 1997; Watts, 2003).

Definition of loan loss recognition timeliness is how well the loan loss provisions (LLP) reflect and predict the future changes in loan portfolio performance or the extent to which credit loan loss provisions are positively related to future changes in non-performing loans (e.g., Beatty & Liao, 2011; Bushman & Williams, 2012; Nicoletti, 2018; Beatty & Liao, 2021). It represents the extent to which current loan loss provisions (LLP) explicitly anticipate the deterioration in loan portfolios (Balakrishnan & Ertan, 2021).

2.3.2 Measurement of Timeliness of Loan Loss Recognition

The timeliness of loan loss recognition (TLLR) is not directly observed. Therefore, there are many ways to measure it. Many previous studies measured the TLLR as the ratio of loan losses reserves to non-performing loans (e.g., Beatty & Liao, 2011; Akins, Dou, & Ng, 2017; Mengistu, Ng, Saffar, & Zhang, 2022). It represented the extent to which the loan loss made at time t as percentage of non-performing loan at time t+1. It also captured the extent to which the loan loss reserves occurred at time t taken into account the current levels and future changes in non-performing loans. The non-performing loan at time t+1 equals to non-performing loan at time t plus the change in non-performing loan at time t+1.

In addition, the timeliness of loan loss recognition can be measured in terms of the relationship between the current loan loss provisions and future changes in non-performing loans (e.g., Beatty & Liao, 2011; Bushman & Williams, 2012; Nicoletti, 2018; Kim et al., 2021). That is, it represents how well current loan loss provisions reflect the loss deterioration of loan portfolio in the future period. An important concept underlying this measurement is that the future change in non-performing loan represents the bank's unobservable current expected loan loss (e.g., Beatty & Liao, 2011; Bushman & Williams, 2012; Kim et al., 2021). The expost deterioration in the loan portfolio in terms of an increase in non-performing loan is the ex ante expected by bank. Therefore, the concept of loan loss timeliness is the record of impairment loss reflecting the expected credit loss. The actual non-performing loan is the objective credit quality indicators (Liu & Ryan, 2006). Therefore, the increases in non-performing loans indicate that the vulnerability and sign of loan's troubles triggered by both internal and external factors (Cantrell, McInnis, & Yust, 2014) which leads to the credit impairment loss. Therefore, the relationship between current loan loss provisions and future changes in non-performing loans can be the measure of timeliness of loan loss recognition.

2.4 Prior Research and Hypothesis Development

Most previous research found that the adoption of IFRS 9 Financial Instruments enhanced the timeliness of loan loss recognition in different countries and macro environments (e.g., Kim et al., 2021; Oberson, 2021; Beatty & Liao, 2021; Jia, 2022; Lopez-Espinosa & Penalva, 2023; Gee et al., 2024). Kim et al. (2021) examined the effect of ECL model under IFRS 9 on the timeliness of loan loss recognition of international banks from 33 countries. They showed that banks with countries which adopted IFRS 9 increased the timeliness of loan loss recognition significantly in the post adoption periods relative to those in non-adopting countries. This effect was more pronounced for banks that engaged in more risk-taking and recorded the lower loan loss provisions prior to the shift to ECL. This impact was also more pronounced for banks subject to heavier loan loss provisions for underperforming loans after the adoption of IFRS 9. Oberson (2021) also found that the timeliness of loan loss recognition of 69 IFRS banks across 24 countries has improved after the adoption of IFRS 9. Consistent with Kim et al. (2021) and Oberson (2021), Beatty and Liao (2021) indicated that analyst provision forecast will incremental predict the future non-performing loan (NPL) as market's expectation. It can be implied that the ICL provisions did not incorporate all available future loss information. The ECL model could affect the cross-sectional provisions timeliness differences by removing the ICL constraints. Moreover, Jia (2022) studied the effect of switching from the ICL to ECL model on the U.S. banks' timeliness of loan loss recognition. The result showed that changes from ICL to ECL model enhanced the banks' loan loss recognition timeliness for voluntarily adopting ECL model during the COVID-19 pandemic. The effect is more pronounced for riskier banks with a higher proportion of loans individually calculated impairment which is consistent with Kim et al. (2021). Lopez-Espinosa and Penalva (2023) studied the effects of IFRS 9 adoption and COVID-19 on banks' lending and regulatory capital by using the Spanish quotes banks. They showed that the implementation of IFRS 9 resulted in an increase in the timeliness of loan loss recognition and it only had a negative effect on lending for smaller banks that are timelier in recognizing the expected credit losses. Timelier, large, and small banks increase their tier 1 regulatory capital after the implementation of IFRS 9, although larger banks to a greater extent. Gee et al. (2024) studied the effect of current expected credit loss model (CECL) adoption on the timeliness of credit loss information. They found that CECL improved the value relevance of credit loss allowances and their ability to predict future credit losses for both small and large banks. Comparing CECL and incurred loss (IL) allowances for the same banks on the same day of CECL adoption, they found that CECL allowances were more useful in valuing stocks and predicting future credit losses than IL allowances.

Although most previous studies supported the improvement of timeliness of loan loss recognition (TLLR) after IFRS 9 adoption, other factors can influence this effect (e.g., Bushman & Williams, 2012; Bushman & Williams, 2015; Albian, 2020, Kim et al., 2021; Taylor & Aubert, 2022; Jia, 2022). The TLLR was not primarily driven from accounting standards, other factors can affect the timeliness of loan loss recognition such as institutional characteristics, the risk of banks, earnings management incentives, the strong or weak governance (e.g., Bushman & Williams, 2012; Bushman & Williams, 2015; Kim et al., 2021; Taylor & Aubert, 2022; Jia, 2022). The effect of IFRS 9 adoption on TLLR was more pronounced for banks with weaker governance (Munoz, Norden, & Udell, 2022) and more risk-taking banks (Kim et al., 2021; Jia, 2022). In addition, the timeliness of loan loss recognition also relied on the debt structure of banks (Li, Ng, & Saffar, 2017). Moreover, countries with banks using loan loss provisions for income smoothing objectives appeared to dampen the market discipline (Bushman & Williams, 2012; Albian, 2020). In the context of income smoothing, the informativeness of loan loss provisions for forward-looking non-performing loan will decrease (Bushman & Williams, 2012). In addition, timeliness of loan loss recognition may not be enhanced due to the failure of forward-looking nature of IFRS 9 in some ways. First, many loans were not moved to stage 2 ahead of default as banks seemed to either unwilling or unable to identify the significant increases in credit risk for these exposures as a sufficiently early stage. Secondly, even loan losses that were moved to stage 2 experience only statistically significant increased in provisions, so that that bulk of the adjustment under IFRS 9 occurred at the time of default (Behn & Couaillier, 2023). Many factors (not only accounting standards) can influence the less or more pronounced effect of IFRS 9 adoption on timeliness of loan loss recognition. The banking systems and environment in Thailand are also different from previous studies which focused on the U.S., UK., Spain, and European banks. Consequently, the adoption of IFRS 9 on timeliness of loan loss recognition cannot be specified the direction of this effect apparently. For the best of my knowledge, the studies on the timeliness of loan loss recognition of Thai commercial banks are limited evidence. Therefore, this study expects that the implementation of TFRS 9 will affect to the timeliness of loan loss recognition of banks in Thailand. However, the direction of this impact is not predicted. The main hypothesis in this paper is set as follows.

H1: The adoption of TFRS 9 Financial Instruments affects the timeliness of loan loss recognition of Thai commercial banks.

3. RESEARCH DESIGN

3.1 Sample Selection and Data Collection

The sample used for this study is the banks listed on the Stock Exchange of Thailand. This research uses quarterly financial statements instead of yearly data because of the limited number of samples. The period of study covers eight quarters before and after TFRS 9 adoption consecutively, totaling 16 quarters. The first period of TFRS 9 implementation is the first quarter of year 2020. Therefore, the data for analysis has started from the first quarter of year 2018 and ended with the fourth quarter of year 2021. However, some variables in research models such as SIZE ($SIZE_{it-1}$) and equity capital to total assets ratio (CAP_{it-1}) are extracted from one lagging period. In addition, the non-performing loans (NPL) are used in three lagging periods for calculating the ΔNPL_{it-2}. and one-quarter ahead for the calculation of ΔNPL_{it+1}. Thus, the actual data collected in this research is during the period from the second quarter of year 2017 to the first quarter of year 2021. Moreover, the non-performing loan (NPL) information is manually collected from the notes to financial statements. The number of samples in the study is presented in Table 1.

Table 1 Number of Samples in this Study

Number of banks listed on the Stock Exchange of Thailand	11	firms
Number of quarterly financial statements	16	quarters
Total samples	176	firms-quarters
Less Outliers (error terms are more than or less than +/–3 Standard Deviation)	(6)	firms-quarters
Final number of samples in this study	**170**	**firms-quarters**

The number of banks listed on the Stock Exchange of Thailand is 11 firms. The eight quarters before and after the adoption of TFRS 9 is used in this study, totaling 16 quarters. The final number of samples in this study is 170 firms-quarters after cutting the outliers.

3.2 Research Models and Data Analysis

The main research models used for measuring the loan loss recognition timeliness are adjusted from Bushman and Williams (2012); Kim et al. (2021), Beatty and Liao (2021). Model (1) is used for measuring the timeliness of loan loss recognition regardless of the impact of TFRS 9 adoption. Model (2) is used to test the effects of TFRS 9 adoption on the timeliness of loan loss recognition. The research models in this study are as follows.

$$LLP_{it} = \alpha_0 + \alpha_1 \Delta NPL_{it+1} + \alpha_2 \Delta NPL_{it} + \alpha_3 \Delta NPL_{it-1} + \alpha_4 \Delta NPL_{it-2} + \alpha_5 ELLP_{it} + \alpha_6 CAP_{it-1} + \alpha_7 SIZE_{it-1} + \alpha_8 \Delta GDP_t + e_{it} \quad (1)$$

$$LLP_{it} = \beta_0 + \beta_1 POST + \beta_2 \Delta NPL_{it+1} + \beta_3 \Delta NPL_{it} + \beta_4 \Delta NPL_{it-1} + \beta_5 \Delta NPL_{it-2} + \beta_6 POST * \Delta NPL_{it+1} + \beta_7 POST * \Delta NPL_{it} + \beta_8 POST * \Delta NPL_{it-1} + \beta_9 POST * \Delta NPL_{it-2} + \beta_{10} ELLP_{it} + \beta_{11} CAP_{it-1} + \beta_{12} SIZE_{it-1} + \beta_{13} \Delta GDP_t + e_{it} \quad (2)$$

LLP_{it} = loan loss provisions of firm i quarter t scaled by lagged gross loans;
ΔNPL_{it+1} = changes in non-performing loans of firm i quarter t+1 scaled by lagged gross loans ;
ΔNPL_{it} = changes in non-performing loans of firm i quarter t scaled by lagged gross loans;
ΔNPL_{it-1} = changes in non-performing loans of firm i quarter t–1 scaled by lagged gross loans;
ΔNPL_{it-2} = changes in non-performing loans of firm i quarter t–2 scaled by lagged gross loans;
$ELLP_{it}$ = earnings before loan loss provisions and taxes of firm i quarter t scaled by lagged gross loans;
CAP_{it-1} = equity capital to total assets ratios of firm i quarter t-1;
$SIZE_{it-1}$ = size of firm i quarter t–1 (measured by log of total assets of firm i quarter t–1);
ΔGDP_t = percentage changes in Gross Domestic Products per capita of quarter t.
$POST$ = 1 if the period is after TFRS 9 adoption; = 0 otherwise; and
e_{it} = error term of firm i quarter t.

The relationship between the current loan loss provisions (LLP_{it}) and future changes in non-performing loans (ΔNPL_{it+1}) is a measure of the timeliness of loan loss recognition (see details in Section 2.3.2). The study uses ΔNPL_{it}, ΔNPL_{it-1}, ΔNPL_{it-2} as the control variables in research model (1) and model (2) because these variables control the non-discretionary fundamentals directly related to loan losses. The changes in current NPL and the changes in lagged NPL capture the observe changes in current and past loan portfolios performance which affect the recognition of loan losses in current period (e.g., Bushman & Williams, 2012; Kim et al., 2021). In addition, to isolate the other factors affecting the loan loss recognition, the study controls for both firm-level and country-level characteristics. The $ELLP_{it}$, CAP_{it-1}, $SIZE_{it-1}$ and ΔGDP_t are control variables which are consistent with many previous studies (e.g., Bushman & Williams, 2012; Albian, 2020; Kim et al., 2021; Jia, 2022). Earnings before loan loss provisions and taxes ($ELLP_{it}$) are used for controlling the discretion of bank's manager to manipulate loan loss provisions for income smoothing (e.g., Kanagaretnam et al., 2003; Kanagaretnam et al., 2004; Kim et al., 2021; Hou et al., 2021; Biwas et al., 2024). Banks may manage the high amount of loan loss provisions in the years with high earnings and low amount of loan loss

provisions in the years with low earnings. The equity capital to total assets ratio (CAP_{it-1}) is used for controlling the banks' motives to utilize the loan loss provisions for regulatory capital management (Collins, Shackelford, & Wahlen, 1995; Ahmed, Takeda, & Thomas, 1999; Albian, 2020). That is, banks may adjust the loan loss provisions to meet the minimum capital requirements. Banks' managers may delay the loan loss provisions recognition once the regulatory capital is low (Ahmed et al., 1999; Albian, 2020; Bank for International Settlements, 2021). In addition, the paper also uses the bank's size as one control variable in research model. Many previous studies of the determinants of loan loss provisions found that bank's size affected the loan loss recognition (e.g., Kanagaratnam, Lobo, & Yang, 2005; Bushman & Williams; 2012; Kim et al., 2021; Nguyen, 2022). They indicated the positive relationship between bank's size and loan loss provisions. Larger banks will recognize the high amount of loan loss provisions than lower ones. Lastly, previous studies also found that economic growth affect the loan loss provisions (e.g., Ozili & Arun, 2023; Ozili, 2024; Hansen, Charifzadeh, & Herberger, 2024). Banks will record the higher amount of loan loss provisions during the bad economic years while they will record the lower amount of loan loss provisions in the period of economic prosperity. This reflects the procyclicality of loan loss provisioning. Therefore, the percentage change in Gross Domestic Products per capita (ΔGDP_t) is used for controlling the economic condition affecting the loan loss recognition.

The model (1) is used to test whether there is the timeliness of loan loss recognition regardless of the impact of TFRS 9. The model (2) is used use to test whether the adoption of TFRS 9 affects the timeliness of loan loss recognition. The coefficient of ΔNPL_{it+1} (α_1) in model (1) is used to capture whether and how loan loss provisions at time t predict future changes in loan portfolios performance at time t+1, then it capture timeliness of loan loss recognition (TLLR) without the effect of IFRS 9 adoption. In addition, the paper also aims to examine whether the adoption of TFRS 9 Financial Instruments has the impact on the loan loss recognition timeliness. The coefficient of ΔNPL_{it+1} (β_2) in model (2) also captures the timeliness of loan loss recognition. The main variable of interest in model (2) is coefficient of $POST*\Delta NPL_{it+1}$ (β_6) which indicates the effects of TFRS 9 adoption on timeliness of loan loss recognition. As stated in research hypothesis, the study expects that β_6 in model (2) is statistically significant.

4. EMPIRICAL RESULTS

This section indicates the empirical findings by dividing into four sub sections: Descriptive Statistics, Correlation Analysis, Regression Results, and Robustness Test.

4.1 Descriptive Statistics

This section describes the descriptive statisctics for all variables used in this study. It shows the mean, standard deviation (SD.), minimum and maximum values of variables. This information is presented in Table 2.

Table 2 Descriptive Statistics for Variables Used in Model (1) and Model (2)

Variables	Mean	Standard Deviation (SD.)	Minimum	Maximum
LLP_{it}	0.0034	0.0016	–0.0043	0.0079
ΔNPL_{it+1}	–0.0004	0.0095	–0.1049	0.0257
ΔNPL_{it}	0.0004	0.0137	–0.1108	0.1240
ΔNPL_{it-1}	–0.0012	0.0274	–0.3095	0.1310
ΔNPL_{it-2}	–0.0016	0.0299	–0.3269	0.1279
$POST*\Delta NPL_{it+1}$	–0.0007	0.0087	–0.1049	0.0151
$POST*\Delta NPL_{it}$	0.0002	0.0133	–0.1108	0.1240
$POST*\Delta NPL_{it-1}$	–0.0014	0.0274	–0.3095	0.1310
$POST*\Delta NPL_{it-2}$	–0.0019	0.0297	–0.3269	0.1279
$ELLP_{it}$	0.0100	0.0091	–0.0183	0.1002
CAP_{it-1}	0.1440	0.0828	0.0893	0.5221
Total $Assets_{it-1}$ (Baht)	1,665,737,000,000	1,334,085,000,000	140,760,000,000	4,275,700,000,000
$SIZE_{it-1}$ (Log of Total Assets)	11.9990	0.4916	11.1485	12.6310
ΔGDP_t (%)	0.5135	4.7430	–12.20	7.50

Note: See the definition of variables in Section 3.2 Research Model and Data Analysis.

Table 2 indicates descriptive statistics of variables used in research model (1) and (2). Mean of LLP_{it} shows the positive value (0.0034). It indicates that Thai commercial banks recognize the credit loan losses more than reversals of loan losses. The mean of ΔNPL_{it+1} shows the negative value (–0.0004) which can be implied that the non-performing loan of quarter t+1 is less than that of quarter t. In the same direction, the mean of ΔNPL_{it-1} (–0.0012) and ΔNPL_{it-2} (–0.0016) are also negative which indicates that non-performing loan of quarter t–1 is less than that of quarter t–2, non-performing loan of quarter t–2 is less than that of quarter t–3, respectively. Nevertheless, mean of ΔNPL_{it} is positive (0.0004) which shows that the nonperforming loan at quarter t is more than that of quarter t–1. The mean of $ELLP_{it}$ is positive (0.0100) which reveals that Thai listed banks have the operating profit before the recognition of loan loss provisions and taxes. The mean of equity capital to total assets ratio (CAP_{it-1}) is 0.1440 or 14.40%. That is, total assets $100 will be financed from equity capital $14.40 and the remaining $85.60 will be financed from debt or borrowings. It can be inferred that the financing of Thai commercial banks are mainly from the debt or borrowing more than that of internal financing by issuing stocks. The mean of ΔGDP_t is 0.5135%. That is, the average of percentage change in Gross Domestic Products (GDP) per capita is positive. The growth of in Gross Domestic Products per capita in the period of the study mostly increases.

4.2 Correlation Analysis

This section shows the Pearson correlation between all variables used in this study. In addition, the correlation is also used to examine the multicollinearity problem of independent variables in research models. The Pearson correlation is described in Table 3.

Table 3 Pearson Correlation between Variables Used in Model (1) and Model (2)

Variables	LLP_{it}	ΔNPL_{it+1}	ΔNPL_{it}	ΔNPL_{it-1}	ΔNPL_{it-2}	POST* ΔNPL_{it+1}	POST* ΔNPL_{it}	POST* ΔNPL_{it-1}	POST* ΔNPL_{it-2}	$ELLP_{it}$	CAP_{it-1}	$SIZE_{it-1}$	ΔGDP_t
LLP_{it}	1.000												
ΔNPL_{it+1}	0.067	1.000											
ΔNPL_{it}	0.025	−0.615***	1.000										
ΔNPL_{it-1}	0.088	0.786***	−0.842***	1.000									
ΔNPL_{it-2}	−0.060	−0.144*	0.635***	−0.495***	1.000								
POST* ΔNPL_{it+1}	0.069	0.924***	−0.659***	0.852***	−0.161**	1.000							
POST* ΔNPL_{it}	−0.038	−0.624***	0.974***	−0.862***	0.648***	−0.678***	1.000						
POST* ΔNPL_{it-1}	0.095	0.788***	−0.841***	0.997***	−0.495***	0.854***	−0.864***	1.000					
POST* ΔNPL_{it-2}	−0.063	−0.147*	0.637***	−0.496***	0.995***	−0.162**	0.652***	−0.498***	1.000				
$ELLP_{it}$	0.047	−0.683***	0.405***	−0.617***	−0.221***	−0.718***	0.389***	−0.617***	−0.220***	1.000			
CAP_{it-1}	−0.184**	−0.307***	−0.026	−0.252***	−0.336***	−0.315***	−0.017	−0.250***	−0.334***	0.717***	1.000		
$SIZE_{it-1}$	0.354***	0.148*	0.019	0.114	0.140*	0.161**	0.022	0.111	0.145*	−0.293***	−0.432***	1.000	
ΔGDP_t	−0.275***	0.091	0.088	−0.019	0.130*	0.082	0.077	−0.022	0.123	−0.058	−0.071	0.027	1.000

Note: See the definition of variables in Section 3.2 Research Model and Data Analysis.

*** for significant level at 0.01; ** for significant level at 0.05; and * for significant level at 0.10 (for two-tailed test)

The variable POST is omitted from Table 3 due to its nominal scale level of measurement.

Table 3 shows the Pearson correlation between variables used in model (1) and model (2). The loan loss provisions (LLP_{it}) are negatively and significantly related to equity capital to total assets ratio (CAP_{it-1}) and percentage changes of Gross Domestic Products (ΔGDP_t) at 0.05 and 0.01 level, respectively. Thai commercial banks with high equity capital to total assets have less amount of loan loss provisions. They recognize loan loss provisions lower amount in the period with the high growth of economics. Loan loss provisions are positively and significantly related to bank's size at 0.01 level. Larger banks will recognize the higher amount of loan loss provisions than smaller ones. However, loan loss provisions (LLP_{it}) are not associated with ΔNPL_{it+1}, ΔNPL_{it}, ΔNPL_{it-1}, ΔNPL_{it-2}, $POST*\Delta NPL_{it+1}$, $POST*\Delta NPL_{it}$, $POST*\Delta NPL_{it-1}$, and $POST*\Delta NPL_{it-2}$. The $ELLP_{it}$ is negatively and significantly correlated with ΔNPL_{it+1}, ΔNPL_{it-1}, ΔNPL_{it-2}, $SIZE_{it-1}$ at 0.01 level while it is positively and significantly related to ΔNPL_{it} and CAP_{it-1} at 0.01 level. In addition, CAP_{it-1} is negatively and significantly related to ΔNPL_{it+1}, ΔNPL_{it-1}, ΔNPL_{it-2} at 0.01 level, but it is not related to ΔNPL_{it}. $Size_{it-1}$ is positively and significantly related to ΔNPL_{it+1}, and ΔNPL_{it-2} at 0.10 level. In addition, ΔGDP_t is positively and significantly correlated with ΔNPL_{it-2} at 0.10 level.

In addition, ΔNPL_{it+1}, ΔNPL_{it}, ΔNPL_{it-1}, and ΔNPL_{it-2} are highly and significantly correlated. The variables ΔNPL_{it+1} and $POST*\Delta NPL_{it+1}$, ΔNPL_{it} and $POST*\Delta NPL_{it}$, ΔNPL_{it-1} and $POST*\Delta NPL_{it-1}$, ΔNPL_{it-2} and $POST*\Delta NPL_{it-2}$ are also highly and significantly related. Some of these correlations are more than 0.80. Nevertheless, they do not introduce the multicollinearity problem. The reason of high correlation is that ΔNPL and $POST*\Delta NPL$ are the same variables when the POST variable is 1 (after the adoption of TFRS 9 period).

4.3 Regression Results

This section shows the regression results of research model (1) and model (2). Research model (1) is used to investigate the timeliness of loan loss recognition by testing the relationship between current period of loan loss provisions and changes in future non-performing loans. Research model (2) is used to examine the effects of TFRS 9 Financial Instruments adoption on the timeliness of loan loss recognition. The findings of regression model (1) and (2) are presented in Table 4 and Table 5, respectively.

Table 4 Regression Results of Model (1)

$$LLP_{it} = \alpha_0 + \alpha_1 \Delta NPL_{it+1} + \alpha_2 \Delta NPL_{it} + \alpha_3 \Delta NPL_{it-1} + \alpha_4 \Delta NPL_{it-2} + \alpha_5 ELLP_{it} + \alpha_6 CAP_{it-1} + \alpha_7 SIZE_{it-1} + \alpha_8 \Delta GDP_t + e_{it} \quad (1)$$

Variables	Unstandardized Coefficients	t statistics	Sig.
Constant	−0.009***	−3.193***	0.002
ΔNPL_{it+1}	0.040**	2.062**	0.041
ΔNPL_{it}	0.009	0.500	0.618
ΔNPL_{it-1}	0.029***	2.731***	0.007
ΔNPL_{it-2}	0.012*	1.686*	0.094
$ELLP_{it}$	0.168***	5.594***	< 0.001
CAP_{it-1}	−0.009***	−4.271***	< 0.001
$SIZE_{it-1}$	0.001***	4.473***	< 0.001
ΔGDP_t	−0.001***	−4.885***	< 0.001
F statistics 12.231*** (Sig. F < 0.001)			
Adjusted R^2 = 0.347 Durbin Watson = 1.589			

Note: See the definition of variables in Section 3.2 Research Model and Data Analysis.

*** for significant level at 0.01; ** for significant level at 0.05;

* for significant level at 0.10 (for two-tailed test)

Before the regression model is analyzed, the researcher has tested the assumptions of regression model (1). Most assumptions of regression model (1) have passed. The finding shows that independence of error term of model (1) is evidenced. In addition, the variance of error term of model (1) is constant (Durbin Watson = 1.589 which is between 1.50–2.50). However, the distribution of error term is non-normality.

The result from model (1) shows that F statistics is statistically significant (F statisctics = 12.231, Sig. F < 0.001). At least one independent variable can explain the changes in loan loss provisions. The adjusted R^2 is 34.70%. All independent variables (ΔNPL_{it+1}, ΔNPL_{it}, ΔNPL_{it-1}, ΔNPL_{it-2}, $ELLP_{it}$, CAP_{it-1}, $SIZE_{it-1}$, and ΔGDP_t) can explain the changes in loan loss provisions at 34.70%, the remaining (65.30%) of changes in loan loss provisions can be explained by other factors. The coefficient of ΔNPL_{it+1} (α_1) is the main interest variable which can be used for measuring the timeliness of loan loss recognition. The α_1 is positively and statistically significant at 0.05 level. That is, Thai commercial banks have

to account for future non-performing loans in their current loan losses recognition. In the same direction, both coefficients of ΔNPL_{it-1} (α_3) and ΔNPL_{it-2} (α_4) are positively and statiscally significant at 0.01 and 0.10 level, respectively. It can be implied that the current loan loss provisions reflect the changes in non-performing loans of period t–1 and t–2. Nevertheless, the coefficient of ΔNPL_{it} (α_2) is positive, but it is insignificant.

For the control variables in model (1), the results indicate that the coefficients of $ELLP_{it}$ (α_5) and $SIZE_{it-1}$ (α_7) are positively and significantly related to loan loss provisions at 0.01 level. It can be interpreted that Thai commercial banks use the loan loss provisions to smooth their earnings. They recognize the loan loss provisions in the quarters with high earnings more than those of the quarters with low earnings. Moreover, larger banks will record the impairment of loan loss more than that of smaller banks. However, the coefficients of CAP_{it-1} (α_6) and ΔGDP_t (α_8) are negatively and significantly related to loan loss provisions at 0.01 level. Banks with higher equity capital to total assets ratios will record the loan loss provisions less than those of lower ones. The recognition of loan loss provisions of Thai banks in the period of high economic growth will be less than those of lower economic growth.

Table 5 Regression Results of Model (2)

$$\begin{aligned} LLP_{it} = {} & \beta_0 + \beta_1 POST + \beta_2 \Delta NPL_{it+1} + \beta_3 \Delta NPL_{it} + \beta_4 \Delta NPL_{it-1} + \beta_5 \Delta NPL_{it-2} + \beta_6 POST * \Delta NPL_{it+1} \\ & + \beta_7 POST * \Delta NPL_{it} + \beta_8 POST * \Delta NPL_{it-1} + \beta_9 POST * \Delta NPL_{it-2} + \beta_{10} ELLP_{it} + \beta_{11} CAP_{it-1} \\ & + \beta_{12} SIZE_{it-1} + \beta_{13} \Delta GDP_t + e_{it} \end{aligned} \quad (2)$$

Variables	Unstandardized Coefficients	t statistics	Sig.
Constant	–0.009***	–3.369***	< 0.001
POST	0.001***	4.727***	< 0.001
ΔNPL_{it+1}	0.036	1.432	0.154
ΔNPL_{it}	0.101***	3.084***	0.002
ΔNPL_{it-1}	–0.009	–0.177	0.860
ΔNPL_{it-2}	0.027	0.840	0.402
$POST * \Delta NPL_{it+1}$	0.005	0.138	0.890
$POST * \Delta NPL_{it}$	–0.115***	–3.275***	0.001
$POST * \Delta NPL_{it-1}$	0.023	0.436	0.663
$POST * \Delta NPL_{it-2}$	–0.018	–0.549	0.584

Table 5 Regression Results of Model (2) (Cont.)

Variables	Unstandardized Coefficients	t statistics	Sig.
$ELLP_{it}$	0.144***	5.048***	< 0.001
CAP_{it-1}	−0.010***	−4.935***	< 0.001
$SIZE_{it-1}$	0.001***	4.638***	< 0.001
ΔGDP_t	−0.00004*	−1.684*	0.094
F statistics 11.537*** (Sig. F < 0.001)			
Adjusted R^2 = 0.448 Durbin Watson = 1.846			

Note: See the definition of variables in Section 3.2 Research Model and Data Analysis.

*** for significant level at 0.01; ** for significant level at 0.05;

* for significant level at 0.10 (for two-tailed test)

The findings of regression model (2)'s assumptions are consistent with those of model (1). The independence of error term in model (2) is also evidenced. In addition, the variance of error term is constant (Durbin Watson = 1.846 which is between 1.50–2.50). However, the non-normality distribution of error term is also found.

Table 5 shows that F statistics of model (2) is statistically significant (F statistics = 11.537; Sig. F < 0.001). At least one independent variable can explain the changes in loan loss provisions. The adjusted R^2 is 44.80%. All independent variables (*POST*, ΔNPL_{it+1}, ΔNPL_{it}, ΔNPL_{it-1}, ΔNPL_{it-2}, $POST*\Delta NPL_{it+1}$, $POST*\Delta NPL_{it}$, $POST*\Delta NPL_{it-1}$, $POST*\Delta NPL_{it-2}$, $ELLP_{it}$, CAP_{it-1}, $SIZE_{it-1}$, and ΔGDP_t) can explain the changes in loan loss provisions at 44.80%. the remaining (55.20%) of changes in loan loss provisions can be explained by other factors. The coefficient of *POST* (β_1) is positively and statistically significant at 0.01 level. This can be interpreted that the loan loss provisions after the adoption of TFRS 9 is significantly more than that of before adoption. The coefficient of ΔNPL_{it+1} (β_2) is the main interest variable which can be also used for measuring the timeliness of loan loss recognition (TLLR). The β_2 has positive value and it is statistically significant at 0.10 level for one-tailed test (sig.t/2 = 0.154/2 = 0.077). That is, Thai listed banks recognize the future expected loan losses in their current loan loss provisions which is consistent finding with model (1). In the same direction, the coefficient of ΔNPL_{it} (β_3) is positively and significantly related to loan loss provisions at 0.01 level. It can be implied that the current loan loss provisions also reflect the change in non-performing loans in current period. However, the coefficients of ΔNPL_{it-1} (β_4) and ΔNPL_{it-2} (β_5) are insignificant.

Another main interest variable is $POST*\Delta NPL_{it+1}$ which is measured the effect of TFRS 9 on timeliness of loan loss recognition. The coefficient of $POST*\Delta NPL_{it+1}$ (β_6) is positive, but it is insignificant. This evidence shows that the adoption of TFRS 9 does not affect the timeliness of loan loss recognition of Thai commercial banks. However, the coefficient of $POST*\Delta NPL_{it}$ (β_7) is negative and significant for statistical level at 0.01. That is, the adoption of TFRS 9 reduces the relationship between the loan loss provisions and changes in non-performing loans in current period (ΔNPL_{it}). This can be implied that the adoption of TFRS 9 has the negative effect on the relationship between the loan loss recognition and changes in current non-performing loans. Therefore, the determinant of loan loss provisions has changed after the adoption of TFRS 9. The loan loss provisions reflect the changes in current period of non-performing loans less than before TFRS 9 adoption.

The coefficients of $POST*\Delta NPL_{it-1}$ (β_8) and $POST*\Delta NPL_{it-2}$ (β_9) are insignificant. The adoption of TFRS 9 does not have any effect on the relationship between loan loss provisions and changes in non-performing loans at time t–1 and time t–2.

The results on control variables reveal the interesting evidence. The coefficient of earnings before loan loss provisions and taxes ($ELLP_{it}$) (β_{10}) is positively and significantly related to loan loss provisions at 0.01 level. Firms with higher earnings before loan loss provisions and taxes recognize more loan losses than those of lower earnings. This finding is consistent with income smoothing hypothesis (e.g., Wahlen, 1994; Kanagaretnam et al., 2003; Kanagaretnam et al., 2004; Liu & Ryan, 2006; Fonseca & Gonzalez, 2008; Kilic et al., 2013; Morris et al., 2016; Kilic et al., 2021; Hou et al., 2021; Biwas et al., 2024). The coefficient of CAP_{it-1} (β_{11}) is negatively and significantly related to loan loss provisions at the 0.01 level. Banks with more equity capital to total assets ratio record less amount of loan loss provisions to maintain to high equity capital to total assets ratio. The coefficient of firm's size ($SIZE_{it-1}$) (β_{12}) is positively and significantly related to loan loss provisions at 0.01 level. Large firms will record loan loss provisions more than those of smaller ones. This is consistent with the political cost hypothesis of Positive Accounting Theory (Watts & Zimmerman, 1986; Watts & Zimmerman, 1990). Large banks will use income-decreasing accounting policies to avoid the political attention. The coefficient of ΔGDP_t (β_{13}) is negatively and significantly related to loan loss provisions at 0.10 level. Thai banks recognize less amount of loan loss provisions in the quarters with high economic growth while they will recognize high amount of loan loss provisions in the decline of economic growth. The findings of all four control variables ($ELLP_{it}$, CAP_{it-1}, $SIZE_{it-1}$, and ΔGDP_t) in model (2) are consistent with those of model (1).

4.4 Robustness Test: Change the Measurement of Timeliness of Loan Loss Recognition

Previous studies utilized another method for measuring the timeliness of loan loss recognition. Beatty and Liao (2011); Akins et al. (2017); and Mengistu et al. (2022) measured the timeliness of loan loss recognition as extent to which loan loss reserves (or allowances) at time t as the percentage of non-performing loan at time t+1. The formula for calculating the timeliness of loan loss recognition (TLLR) is as follows.

$$\text{Timeliness of Loan Loss recognition (TLLR)} = \frac{\text{Loan Loss Reserves or Allowances at time t}}{\text{Non-Performing Loans at time t+1}}$$

The study uses this formula for calculating the timeliness of loan loss recognition of Thai commercial banks. The samples are divided into two main groups: before and after the adoption of TFRS 9 group. The mean difference of timeliness of loan loss recognition between two groups is tested by using paired-sample t test or dependent t test (for parametric-statistics). Due to the limited number of samples in this study, the mean difference of timeliness of loan loss recognition is also tested by the Wilcoxon Signed-Rank test (for non-parametric statistics). The results are presented in Table 6.

Table 6 Mean Difference Test of Timeliness of Loan Loss Recognition between Before and After TFRS 9 Adoption Group

Panel A: Descriptive Statistics and Paired-Sample t test

Variables	Mean	Standard Deviation (SD.)
$TLLR_{before}$	1.3677	0.2858
$TLLR_{after}$	1.4113	0.3769

	Mean Difference	t statistics	Sig. (two-tailed)
$TLLR_{before} - TLLR_{after}$	−0.0437	−1.411	0.162

Table 6 Mean Difference Test of Timeliness of Loan Loss Recognition between Before and After TFRS 9 Adoption Group (Cont.)

Panel B: Wilcoxon Signed-Rank test

Test statistics	1732.000
Standard Error	200.773
Standardized test statistics	0.954
Sig. (two-tailed)	0.340

Note: $TLLR_{before}$ = timeliness of loan loss recognition before TFRS 9 adoption;
$TLLR_{after}$ = timeliness of loan loss recognition after TFRS 9 adoption.
*** for significant level at 0.01; ** for significant level at 0.05;
* for significant level at 0.10 (for two-tailed test)

Table 6 Panel A indicates that the mean of TLLR after TFRS 9 adoption (mean of $TLLR_{after}$ = 1.4113) is more than that of before adoption (mean of $TLLR_{before}$ = 1.3677). The test of mean difference by paired-sample t statistics shows that t statistics (–1.411, sig. = 0.162) are not statistically significant. That is, the timeliness of loan loss recognition (TLLR) before and after TFRS 9 adoption is not different. Moreover, this research also utilizes the Wilcoxon Signed-Rank test. The finding in Table 6 Panel B indicates that Standardized test statistics for Wilcoxon Signed-Rank is 0.954 (sig. = 0.340). This result is consistent with t statistics. There is no significant change in TLLR between before and after TFRS 9 adoption. The result from robustness test is consistent with the regression findings in Table 5. This can be inferred that the adoption of TFRS 9 does not affect the timeliness of loan loss recognition of Thai commercial banks. Consequently, both findings from regression model and mean difference test indicate that the research hypothesis (H1) is rejected. The adoption of TFRS 9 in Thailand does not have any impact on timeliness of loan loss provisions of Thai commercial banks.

5. CONCLUSION, DISCUSSION, AND SUGGESTION

5.1 Conclusion and Discussion

The study's objective is to examine the effects of TFRS 9 adoption on the timeliness of loan loss recognition of Thai commercial banks. TFRS 9 changes the accounting practices from the incurred credit loss (ICL) model to expected credit loss (ECL) model. The coefficients of ΔNPL_{it+1} capture the sensitivity of current loan loss provisions to future potential non-performing loans which are used to measure the timeliness of loan loss recognition. The finding shows that the change in future non-performing loan (ΔNPL_{it+1}) is positively and significantly related to loan loss provisions for both model (1) and (2). This finding is consistent with many previous studies (e.g., Beatty & Liao, 2011; Bushman & Williams, 2012; Kim et al., 2021). That is, future change in non-performing loans (NPL) represents for the bank's (unobservable) current expected credit loss (Beatty & Liao, 2011). The result also indicates that the change in current non-performing loan (ΔNPL_{it}) in model (1) is also positively and significantly related to loan loss provisions. The finding is consistent with Ahmed et al. (1999), Beatty and Liao (2011), Kilic et al. (2013), Kim et al. (2021). That is, the change in current NPL is also the objective determinant of loan loss provisions for Thai commercial banks.

The coefficient of *POST* in model (2) is positively and significantly related to loan loss provisions which indicate that the loan loss provisions after the adoption of TFRS 9 are significantly higher than those of before adoption. This result is consistent with Loew et al., (2019); Goh et al., (2021); Behn and Couaillier (2023).

The adoption of TFRS 9 leads to the forward-looking impairment model, therefore this study expects that the timeliness of loan loss recognition is affected by the new standard. However, the result shows that the coefficient of $POST*\Delta NPL_{it+1}$ is positive, but it is not statistically significant. It can be inferred that the timeliness of loan loss recognition is not affected by the adoption of TFRS 9. For the robustness test, the paper changes the measurement of timeliness of loan loss recognition by the ratio of loan loss reserves (allowances) in current quarter to the changes in non-performing loans in the future quarter same as previous studies (e.g., Beatty & Liao, 2011; Akins et al., 2017; Mengistu et al., 2022). The result also shows that the timeliness of loan loss recognition after TFRS 9 adoption is not different from that of before adoption period. The mean difference test (paired-sample t statistics and Wilcoxon signed-rank test) of timeliness of loan loss recognition before and after TFRS 9 provides the consistent evidence with regression model (2). The adoption of TFRS 9 does not affect the loan loss recognition timeliness. However, this finding is contradicted with many previous studies (e.g., Kim et al., 2021; Beatty & Liao, 2021; Oberson, 2021; Lopez-Espinosa & Penalva, 2023; Gee et al., 2024). Previous research focused on different countries in different regions. Kim et al. (2021) studied

the timeliness of loan loss recognition of International banks from 33 countries. Oberson (2021) used a sample of 69 banks across 24 countries. Beatty and Liao (2021), Jia (2022), and Gee et al. (2024) examined the timeliness of loan loss recognition of the public U.S. banks. Lopez-Espinosa and Penalva (2023) studied from Spanish banks. Their findings supported the same conclusion that the shift from the incurred credit loss (ICL) model to expected credit loss (ECL) model under IFRS 9 enhanced the timeliness of loan loss recognition. Nevertheless, Behn and Couaillier (2023) examined the timeliness and procyclicality of loan loss provisions of European banks from European credit banks register. They found the timeliness of loan loss recognition has not improved explicitly for less capitalized banks which are less likely to move exposures to higher credit risk before the default. The difference of countries' environment, the regulatory control, the strong or weak governance, and the level of risk-taking of banks lead to the divergence results from adoption of IFRS 9.

The possible reason of less informativeness of loan loss recognition is that Thai commercial banks use loan loss provisions for income smoothing purposes instead of forward-looking of loan loss information. Bushman and Williams (2012) indicated that market discipline was improved in those countries in which banks used the loan loss provisions in a more timely fashion and incorporated forward-looking information. On the opposite direction, countries in which banks used loan loss provisions for income smoothing purposes appeared to dampen market discipline. Moreover, Albain (2020) also indicated that banks in countries that use loan loss provisions to smooth income will take advantage how that accounting standard allow more discretion and therefore it is more difficult for the market to exercise the discipline. Thai banks utilize loan loss provisions as the means to smooth their earnings (see the coefficients of $ELLP_{it}$ in model (1) and (2) are positively significant). This will lead to a decrease in informativeness of loan loss provisions to reflect the forward-looking of NPL. In addition, Gebhardt and Novonty-Farkas (2011) indicated that credit losses were less timely manner under IFRS adoption. The impact of IFRS 9 adoption on TLLR was less pronounced for countries which had stricter supervisory regime (Gebhardt & Novotny-Farkas, 2011) and for less riskier banks (Kim et al., 2021). Kim et al. (2021) also showed that the effect of IFRS 9 on the timeliness of loan loss recognition is more pronounced for the high-risk banks and for the case of lower amount of loan loss provisions before IFRS 9 adoption. Thai banks environments are under the strict supervisory and regulators by the Bank of Thailand (BOT). The operation and financing of Thai commercial banks are less risky. The mean of equity capital to total assets ratio is 14.4% (see the descriptive statistics in Table 2) which is much more than the minimum requirement of equity capital to total assets ratio (8.50%) of the Bank of Thailand (BOT). Less risk banks and stronger regulatory control by Thai

government leads to the less pronounced effect on timeliness loan loss recognition after TFRS 9 implementation.

Other possible reason is that the loan loss provisions under ICL model in Thailand (TAS 39 requirement) may not less timely recognition which is consistent with O'Hanlon (2013). He showed the loan loss provisions of 37 UK. banks did not become less timely under IAS 39. The evidence suggested that loan loss provisions under IAS 39 became more timely, although the effect was only statistically significant for the subset of banks in a stock market quotation during the periods of the study.

Moreover, this study shows the negative and significant coefficient of $POST*\Delta NPL_{it}$ in model (2) which indicates that the association between loan loss provisions and changes of non-performing loans in current quarter decreases. This finding is consistent with Albian (2020). Under the incurred credit loss (ICL) model, NPL and changes in NPL are the major determinants of loan loss provisions. Credit losses are not recognized unless a credit default occurs. Nevertheless, under the ECL model, the association between loan loss provisions and changes in NPL will be lower after the adoption of TFRS 9 because the forward-looking factors are expected to be the new drivers for loan loss provisions (Albian, 2020; Kim et al., 2021). It confirms that, after introduction of expected credit loss (ECL) model from TFRS 9's requirement, Thai commercial banks depend less likely on the incurred loss determinants of loan loss provisions and there may be other factors influence the loan loss provisions.

The earnings before loan loss provisions ($ELLP_{it}$) capture the extent to which banks record loan loss provisions based solely on the level of earnings without reference to information about the loan portfolios. The findings in this research show that the coefficient of $ELLP_{it}$ is positively and significantly related to loan loss provisions both model (1) and (2). That is, they record large loan loss provisions because earnings are high and low provisions because earnings are low. Consequently, Thai commercial banks utilize the loan loss provisions as the means for income smoothing purposes. Then, banks buildup in loan loss reserves when earnings are high, and then a loan loss reserve draws down when earnings are low. This result is consistent with many previous studies (e.g., Wahlen, 1994; Kanagaratnam et al., 2003; Kanagaratnam et al., 2004; Liu & Ryan, 2006; Fonseca & Gonzalez, 2008; Kilic et al., 2013; Morris et al., 2016; Kilic et al., 2021; Hou et al., 2021; Biwas et al., 2024). When engaging income smoothing, this evidence provides more discretion to smooth earnings that obscures fundamentals, instead of enhancing timeliness and informativeness of earnings. This may be the possible reason for which the introduction of TFRS 9 does not improve the timeliness of loan loss recognition.

The finding shows that the equity capital to total assets ratio (CAP_{it-1}) is negatively and significantly related to loan loss provisions. That is, Thai commercial banks with high equity capital to total assets ratios record the lower loan loss provisions than those with low equity capital to total assets ratios. This result is consistent with Collins et al. (1995), Ahmed et al. (1999), Bushman and Williams (2012), Albian (2020), Bank for International Settlements (2021). In addition, the firm's size is positively and significantly related to loan loss provisions. It can be implied that larger banks will recognize the loan loss provisions in higher amount than those of smaller ones which is consistent with Kanagaretnam et al. (2005), Bushman and Williams (2012), Kim et al. (2021), and Nguyen (2022). That is, large sizes of banks will utilize the income decreasing accounting policies which is consistent with the political cost hypothesis under the Positive Accounting Theory (Watts & Zimmerman, 1986; Watts & Zimmerman, 1990). The percentage change in Gross Domestic Products (ΔGDP_t) is negatively related to loan loss provisions. This result is consistent with Ozili and Arun (2023), Ozili (2024), and Hansen et al. (2024). That is, loan loss provisions will be higher amount in the year of low GDP growth rate which provide the evidence of increased riskiness of credit loan loss portfolios when business cycles turn downwards.

5.2 Suggestion

5.2.1 Suggestion for Practical Implication

The finding in this research show that the adoption of TFRS 9 does not affect the timeliness of loan loss recognition. The failure of forward-looking nature of TFRS 9 provides the key implication to TFAC for future improvement of this standard. The timeliness of loan loss recognition is not enhanced after the TFRS 9 adoption may be arisen from four aspects. First, many loans are not moved to stage 2 ahead of default. Second, Thai banks are not willing to identify the significant increases in credit loan losses for the exposure at early stage. Third, although loans are moved to stage 2 that increases in loan loss provisions, the significant of the adjustment loans under TFRS 9 has occurred at the time of default or majority of provisioning still recognizes at the default. Lastly, Thai banks utilize loan loss provisions as the means for income smoothing which leads less informativeness of forward-looking of loan loss provisions. TFAC should consider the aspects discussed above and revise TFRS 9 in the future especially for loan loss provisions. How to recognize the loan loss provisions more timely will be the main points for further improvement. In addition, accountants determining the loan loss provisions should critically examine these aspects and recognize the stage 2 loan loss before default. Moreover, banks' manager should control the credit risk by investigating the macro

economics forecast and considering the potential procyclicality effects. Lastly, auditors, the Bank of Thailand (BOT), the Securities and Exchange Commission (SEC) should monitor and oversee the compliance of loan loss provisions' requirements of Thai Commercial Banks.

5.2.2 Suggestion for Future Study

Due to the limited number of banks listed on the Stock Exchange of Thailand, the suggestion for future study is to extend the samples for other industries and compare the different impact of timeliness of loan loss recognition from TFRS 9 adoption between industries. The future research can be studied from other stock exchanges in ASEAN due to the different levels of IFRS convergence, environment, and regulatory control. Moreover, the measurement of loan loss recognition timeliness may be changed from the relationship between current loan loss provisions and one-quarter ahead of change in non-performing loans to two-quarter ahead of changes in non-performing loans.

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