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The Impact of IFRS 9 on Commercial Banks' Performance: Evidence from Cambodia

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ABSTRACT

Following the criticism directed at IAS 39, the IASB issued a standard for financial instruments IFRS 9. This study sheds light on the impact of applying this new standard on Cambodian commercial banks' financial performance. Using ROA and ROE as proxies of financial performance of banks and employing data manually extracted from the annual reports of Cambodian commercial banks, we analyze the impact of adopting IFRS 9 and some bank specific characteristics based on a sample of 152 bank-year observations from 2014 to 2021 to compare the financial performance of these banks before and after applying IFRS 9. The practical outcomes of the regression analysis signified that the implementation of IFRS 9 has a significant and negative influence on the financial performance of Cambodian commercial banks. The results of this study provide useful explanations which are helpful to regulators and standard setters on how banks' performance is affected by the implementation of this new standard. This study is expected to make significant contributions to the body of literature as it is one of the first studies to examine this issue in Cambodia and it provides new evidence about the effect of this new standard on the performance of commercial banks in emerging countries.

Keywords: International Financial Reporting Standard (IFRS); International Accounting Standard (IAS); Financial performance; Return on assets; Return on equity

INTRODUCTION

In the aftermath of the 2008 global financial crisis, many criticisms have been leveled of accounting standards for financial instruments, especially international accounting standard no.39 (IAS 39) entitled "Financial instruments: Recognition and Measurement." Incurred credit losses (ICLs) model applied by this standard has proven to be invalid in dealing with and addressing enormous credit losses, especially during the periods of economic downturns (Ntaikou & Vousinas, 2018). Under this model, credit losses are recognized only when there is clear evidence that loss has occurred, which is considered as "too little, too late."

Regulators around the globe (e.g., Group of twenty (G20), 2009; Basel Committee of Banking Supervision (BCBS), 2009; Financial Stability Forum, 2009) have called standard setters to develop accounting standards that allow for a more forward-looking provisioning. In response to these calls, the International Accounting Standards Board (IASB), the Financial Accounting Standards Board (FASB), and the Consultative Group for Financial Crisis (FCAG) have agreed to come up with a new standard that has the purpose of resolving the late recognition of credit losses. They stated that forward looking information should be used in recognizing loan loss provision (LLP) and fair value (FV) measurement should be taken into consideration when classifying and measuring the financial instruments (BCBS, 2016).

In July 2014, The IASB issued the final version of international financial reporting standard no.9 (IFRS 9) entitled "Financial Instruments" as an alternative to IAS 39. The standard issuance has divided into three phases. The first phase is related to the classification and the measurement of the financial instruments. The second phase is about the impairment model for financial instruments based on expected credit losses (ECL) model. Finally, the third phase focuses on hedge accounting. IASB stated that this standard should be applied in January 2018, and it allowed the early application of the standard in 2015.

Under IFRS 9, the financial instruments are measured at amortized cost (AC), or fair value either at fair value through profit or loss (FVTPL) or fair value through

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other comprehensive income (FVOCI). The new method for classification and measurement depends on the entity business model and the cash flow characteristics of the financial instruments instead of management intent, which was applied under IAS 39.

The new impairment model depends on the forward-looking impairment model to address any changes in the fair value of financial instruments, some time before it is acutely occurred instead of ICLs model, which records impairment loss only after the default had already occurred.

As a result of the accounting improvement introduced by IFRS 9, the way the financial institutions follow in recognizing credit losses changes. It limits credit losses on the one hand but causes a significant increase in the volume of provisions on the other hand. Therefore, the performance of banks and financial institutions might be affected by the adoption of this new standard.

Many researchers (Bellagdid et al., 2021; Besmir et al., 2021; Frykström & Li, 2018; Gornjak, 2020; Khersiat & Alkabbji, 2020; Kund & Rugilo, 2019; Mahendrarajah et al., 2019; Moutinho, 2019; Novotny-Farkas, 2016; Ntaikou & Vousinas, 2018) have analyzed the effect of applying IFRS 9 on the performance of financial institutions across different countries, but they yield mixed results.

In Cambodia, public accountable entities, such as listed companies, banks, microfinance institutions, and insurance companies, as well as large private companies, are required to apply Cambodian International Financial Reporting Standards (CIFRS), which is equivalent to IFRS, in preparing their financial statements. In line with the transition from IAS 39 to IFRS 9 by IASB, CIFRS 9 *Financial Instrument* replaces CIAS 39 *Financial Instruments*: *Recognition and Measurement* for annual periods beginning on or after 1 January 2018. While the Cambodian banking industry has grown rapidly in recent years, little is known about how the banks of this country are performing.

Since previous studies have not focused on banks of such country, it is vital to examine the impact of the application of IFRS 9 on the financial performance of Cambodian commercial banks. Therefore, the purpose of this study is to empirically investigate the profitability of Cambodian commercial banks after the transition from CIAS 39 to CIFRS 9.

The profitability indicators employed in this study are return on assets (ROA) and return on equity (ROE). As IFRS 9 come into force and is implemented as of 1 January 2018, the data about these indicators are collected from the annual reports of a sample of Cambodian commercial banks for eight years (from 2014 to 2021). The data about the sampled banks for the first four years are compared with that of the last four years to determine whether the financial performance of these banks have been affected by changes provided by IFRS 9.

It is found that the profitability indicators of Cambodian commercial banks have been significantly deteriorated during the period after the adoption of IFRS 9. This indicates that the financial performance of commercial banks in Cambodia have been negatively influenced by the implementation of this new standard.

Literately, the importance of this study from an academic point of view lies in the importance of the topic of IFRS and the performance of banks in contemporary accounting literature. It provides significant contributions to the existing financial instrument literature particularly in emerging economies such as Cambodia. This research highlights the impact of applying IFRS 9 on the financial performance of Cambodian commercial banks and covering the research gap regarding the influence of this new standard in such country.

As for the practical aspect, the study derives its importance from showing the performance of these banks before and after the application of this standard. This may provide useful information for the authorities responsible for setting standards regarding the impact of the decision to switch to the new issued standards.

Other parts of this paper put forward a brief reference to the transition from IAS 39 to IFRS 9 and the main differences between the two standards, and comprehensive literature review are presented; the third part describes the research methodology used; the fourth part presents the main findings of the study, and the last section shows the conclusions, with some limitations and future research directions.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

In order to analyze how the transition from IAS 39 entitled "Financial Instruments: Recognition and Measurement" to IFRS 9 entitled "Financial Instruments" affects financial performance of Cambodian banks, it is necessary to highlight the new standard's major contributions in the accounting of financial instruments, before reviewing earlier research that has addressed this issue.

The application of IAS 39 in 2001 sometimes resulted in an inconsistent application and providing irrelevant and non-understandable information. IAS 39 has some shortcomings related to the classification of financial assets as this standard depends upon four categories to classify financial assets. This makes accounting of financial instruments according to this standard complicated and difficult to be applied. Additionally, the classification of such assets according to this standard relied upon the personal judgment of the management, which makes it difficult to achieve comparability either at the level of the entity itself across financial periods or between entities and each other. Besides, a heterogeneous mixture is also another important problem related to this standard as it relies upon both amortized cost (AC) and fair value (FV) in measuring the value of financial instruments, which complicates the ability to assemble the financial statements in the light of this standard. There is also a contradictory between the bases of measuring financial instruments that are measured by FV and their hedging instruments that are measured by AC, which increases the problem of mix measuring, and this is considered as a duality of using two different measurement bases to measure the financial instrument and its hedging instrument (Kund & Rugilo, 2019).

There is a separation between financial instrument and derivative financial instrument that exist in one contract, which leads to lack of clarity of the impact of the contact as a whole although they are one unit. There is another issue related to the fluctuation in earnings as unrealized profits and losses resulted from change in FV of financial asset or liability are recognized in the statement of profits and losses (Duh et al., 2012).

Besides all of the above mentioned shortcomings, applying the ICL model is the most significant shortcoming that prompted IAS users and experts to reevaluate their orientations towards IAS 39 as it resulted in a delaying in recognizing of credit losses as these losses are recognized and the provisions of the losses are formed only in case of the default of the loan or financial asset as well as the expected losses were not recognized as a result of future events, which is considered "too little, too late" (Halilbegovic et al., 2019).

As a result of the previous mentioned shortcomings of the IAS 39, a severe weakness in the financial stability of banks, most of which were given high credit ratings was revealed because the model of forming provisions to meet the weakness of assets was based on the losses actually incurred and therefore the banks did not have information about the extent of the weakness of their assets and the adequacy of their capital to absorb future shocks. This leads to the exacerbation of the 2008 global financial crisis. Hence, it was necessary to shed light on the inevitability of issuing accounting standards that deal with financial instruments and hedging against potential risks and control the process of recognizing various profits and losses resulting from entering into transactions, in order to reduce the degree of expected risk of using various contemporary financial instruments.

Based upon the call from (e.g., Group of Twenty (G20), 2009; Basel Committee of Banking Supervision (BCBS), 2009; Financial Stability Forum (2009) to replace IAS 39, International Accounting Standards Board (IASB) and Financial Accounting Standards Board (FASB) collaborated to form the Financial Crisis Advisory Group (FCAG), which is concerned with examining how advancements in financial reporting could contribute to boosting the confidence of investors in financial markets. This group issued a report, in which it cited the complexity of different impairment techniques and the deferred recognizing of losses related to loans and other financial instruments as the two main drawbacks in accounting standards and their implementation, and it recommended replacing the ICL model for forming loan loss provision (LLP) with alternative approaches that involve a broader set of available credit information to identify potential future losses in consistency with the needs of users of financial statements and transparency regarding changes in credit trends (Buesa et al., 2020).

In April 2009, the IASB and the FASB announced an expedited schedule for substituting IAS 39 (which was effective from 2005 to 2017) with IFRS 9 by dividing the replacement project into three phases.

In November 2009, the IASB released an Exposure Draft titled "Financial Instruments: Amortized Cost and Impairment" (ED/2009/12) as a first step in its project to replace IAS 39. IFRS 9 introduces a new accounting mechanism for assessing credit losses that differs from that used in accordance with IAS 39, as the new standard relies on the approach of expected credit losses (ECLs), that recognizes losses before they occur and depends on the measurement of losses on information related to past events, current conditions and reasonable predictions (IASB, 2009a). This draft suggested guidelines about the way of incorporating credit loss expectations in the pricing of financial assets through recognizing interest on basis of a credit-adjusted yield and subsequently recognizing alterations to initial expectation as profits and losses. As a result, initial expectations of losses would be gradually recognized over time as credit-adjusted interest, with subsequent alterations in expectations being recognized as they happen (Canals-Cerdá, 2020).

In October 2010, IASB issued the second draft of IFRS 9, which includes new accounting requirements for the classification and measurement of financial liabilities that were the same requirements of IAS 39.

In December 2011, IASB issued the last binding amendment to apply the IFRS 9, which specified the effective date of IFRS 9 for the financial periods beginning on or after December 1, 2015, with an allowance for early application. It is also stipulated that the companies that apply the standard early before January 2012 do not need to amend the financial statements for previous fiscal years or add the additional disclosures mentioned in paragraphs 44s-44w of IFRS 7 entitled "Financial Instruments: Disclosures". Companies that apply IFRS 9 on or after January 2012 and before January 2013 can choose between adjusting the financial statements for previous years, or to be satisfied with the additional disclosures mentioned in paragraphs 44s-44w of IFRS 7. Finally, companies that implements IFRS 9 on or after January 2013 should release the additional disclosure requirements mentioned in paragraphs 44s-44w of IFRS7 without the need to amend the financial statements for previous financial years.

IFRS 9 also stipulates that companies that do not need to amend the financial statements of previous periods must recognize any differences between the previous book value and the book value after applying IFRS 9 with the opening balance of retained earnings at the beginning of the financial period that includes the date of early application of IFRS 9, as recent amendments to IFRS 7 require disclosures about financial assets and liabilities on early application of the standard such as the initial classification of a financial asset or liability and its carrying amount under the requirements of IAS 39; the new classification of a financial asset or liability and its carrying amount resulting from the application of IFRS; the value of financial assets or liabilities that were designated as fair value through profit and loss (FVTPL) as required by IAS 39 and are no longer designated as FVTPL under IFRS 9 after distinguishing between financial assets or financial liabilities that can no longer be designated at FVTPL and between these that can be reclassified to FVTPL in accordance with the requirements of IFRS 9.

In November 2013, IASB issued the third draft of IFRS 9 to include amendments to IAS 39 by involving guidance on hedge accounting (IASB, 2013). In July 2014, IASB completed and issued the final amendment to the draft of IFRS 9 that includes a new ECLs model and is mandatory to apply for periods beginning on or after 1 January 2018 (IFRS Foundation, 2014).

The transition from IAS 39 to IFRS 9 indicates a significant change in the accounting for financial instruments, as the shift to a principle-based standard from a rule-based standard as the rules are not adaptive and useless in a changing environment or in an environment with innovative transactions (Gornjak, 2017). The most important accounting improvements included in IFRS 9 are revised classification and measurement of financial instruments, the launch of the model of ECLs for assessing impairment, and an amendment to hedge accounting.

Many changes take place in the classification and measurement of financial instruments by IFRS 9. An entity must recognize a financial asset or a financial liability when the entity becomes a party of the contractual terms of the asset only. When the financial asset or liability is recognized, the entity must classify financial assets and liabilities starting from the first moment of recognition. The financial instruments are measured at AC or FV either at FVTPL or fair value through other comprehensive income (FVOCI). The classification of a certain financial instrument at initial recognition is established based on two trends, which are the business model and the characteristics of cash flows (IASB, 2009b).

As for the first trend, it depends on the way in which financial institutions manage their financial assets in

order to generate cash flows by maintaining the time value of money. This model is determined by the goals and activities that the company seeks to determine. If the business model aims to collect contractual cash flows, representing the principal of debt and return on debt, the financial assets are classified at AC (IASB, 2009b).

Financial assets are classified at fair value through other comprehensive income (FVOCI) if the aim of business model is holding the instruments until the maturity date to acquire contractual cash flows and sell the asset. If the business model aims to buy and sell the financial instrument and is active, the financial assets are classified at fair value through profit and loss (FVTPL). Whatever the classification of financial assets, the return of such assets and ECLs are recorded in profit and loss statement (IASB, 2009b).

The amount, timing, and unpredictability of the future cash flows of banks, as well as all relevant information that is available at the time of the assessment are crucial factors that banks should consider when classifying and measuring their assets. With regard to the contractual characteristics of the cash flow of a financial asset, the details of the contractual payments must be scrutinized and whether these payments are limited to principal and interest payments. It must be pointed out that the accepted interest here consists only of time value and credit risk. Seitz (2019) summarizes the classification and measurement of financial instruments in the light of business model and decisions related to payments and interests in accordance with IFRS 9 in Table 1.

Table 1: Classification of financial instruments according to business model and contractual cash flows

Characteristics of cash flows	Business model		
	Holding until collecting	Holding until collecting & selling	Others
Payments of basic price & interest	AC	FVOCI	FVTPL
Other types of cash flows	FVTPL	FVTPL	FVTPL

Pertaining to the classification of financial liabilities, they are classified according to IFRS 9 at AC calculated by the effective interest method, except for financial liabilities that are measured at FVTPL; financial liabilities that arise when the transfer of the asset does not qualify for derecognition; financial guarantee contracts; liabilities related to loans; and the financial return resulting from the acquisition. Such liabilities are recognized by FV and subsequent changes in FV are recorded in the statement of profits and losses while changes of credit risk of financial liabilities related to the bank itself are recognized in other comprehensive income statement and they are not transferred back to the statement of profits and losses even if these amounts are achieved and these liabilities are disposed of. While it is not allowed to reclassify financial assets in all cases except if the bank changes the business model, it is not permitted to reclassify financial liabilities in any case (IASB, 2009b).

In order to address the principle of "too little, too late", a new impairment model based upon ECLs has replaced the model of ICLs. IFRS 9 requires recognition of LLP at the initial recognition of the instrument in addition to recognizing the ECLs at each reporting date to reflect changes in the credit risk of financial instruments, where an accurate and unbiased expected amount cash deficits is estimated after studying a set of possible outcomes, and taking into account the time value of money, based on reliable information with documentary support on the current conditions and expected economic events (IASB, 2013).

This expected amount also requires a set of information, the most important of which are past events such as historical experience in estimating the losses of financial instruments, the following conditions and events, and expectations that affect the collection of expected future cash flows from financial assets (Albrahimi, 2020). This requires updating all data to calculate the ECLs, meaning that credit losses can be recognized, even if the loss event does not occur (Gornjak, 2017). Table 2 shows the way of applying ECLs model on financial instruments as indicated by Sanchidrián and Garcia (2019).

Table 2: Applying ECLs model on classifications of financial instruments

Financial assets classification	ECL model
Financial assets at AC (loans & bonds)	ECLs model to assess the impairment in accordance with IFRS9
Financial assets at FVOCI (loans & bonds)	ECLs model to assess the impairment in accordance with IFRS9
Financial assets at FVOCI (equity)	Without impairment
Financial assets at FVTPL (bonds, equity & derivatives)	Without impairment

For all instruments included in the scope of the requirements of impairment, IFRS 9 mandates the use of the similar measurement base for impairment.

The conception of ECL model is to represent the broad trend of improvement or deterioration in the quality of credit of financial instruments (Casta et al., 2019; Fatouh et al., 2022).

In line with the regulatory framework, ECL assessments consist of four main elements, which are the probability of default (PD), which is an assessment of the probability of default over a defined time period; the exposure at default (EAD) that is the approximated exposure of forthcoming default because of changes after the date of reporting after taking the reimbursement of both principal and interest into account; the loss given default (LGD) that is typically expressed as a ratio of the EAD and is essentially the variance among the contractual cash flows and the corresponding anticipated ones rising from any collateral; and the discount rate that is used to convert an anticipated loss into a present value employing the effective interest rate (Novotny-Farkas, 2016).

Therefore, assessment of ECLs requires using forward information when measuring the LLP, especially when determining the expected changes in default rates, and this was not required before by IAS 39 (Holt & McCarroll, 2015). This is accomplished through either available market information or internal historical amended information that big companies and banks often use to reflect future expectations. In the absence of both types of information, it is valid to use internal model to calculate the default rate in the light of default rates of other companies, or information of financial statements in addition to other sources (Ntaikou & Vousinas, 2018).

Additionally, ECLs are measured independently in the case of significant individual exposures. ECLs are measured collectively when it comes to retail exposures because there is not much information available. Despite this, there should be an access to definite information of borrower, such as exposure of losses, and macroeconomic forecasting data. The bank should categorize its exposures based on characteristics of shared credit risk, for example geographic zone, customer type, industry, kind of product, customer rating, date of initial recognition, term to maturity, quality of guarantee, and loan to value ratio to measure loss allowance on a communal base. It is rather anticipated that variance in PDs is reflected by diverse segments (Novotny-Farkas, 2016).

Because credit characteristics and the macroeconomic environment are continually changing, banks need to re-segment their sub portfolios. For the purposes of measuring expected losses for regulatory purposes, banks are not permitted to use FV models that do not account for variations in returns and market interest rates that are not acquired in the ECLs by assembling exposures that do not share characteristics of credit risk and excluding contractual repaying of loans (Ntaikou & Vousinas, 2018).

IFRS 9 sets a three-stage algorithm for LLP. This methodology for impairment is based on changes in credit quality or the rising likelihood of default since initial recognition. The shift from stage to another is based upon the fundamental changes in the assessment of the credit risk. IFRS 9 can minimize the severity of the "cliff-effect" and lessen countercyclical impacts by gradually recognizing the ECL throughout the course of the life of the loan (Kund & Rugilo, 2019).

Credit risk is differentiated into Stage 1, where all assets under the classification of AC or FVOCI as they are with minimal credit risk as of the reporting date or at their initial recognition. The majority of the performing loan portfolio held by banks is categorized in this stage. Credit loss has to be recognized since the initial recognizing of such assets onwards. At any time, a financial instrument is originated, a 12-month ECLs, which refers to the share of the lifetime expected credit losses that rise from default events that are probable within 12 months of the reporting date, should be recognized in profit and loss and a reserve of loss is formed as a representative of the initial expectation of credit losses. The loss allowance is equivalent to the cash shortages that would arise from a default event occurring within a year weighted by the likelihood that this default would occur. Interest revenue is computed based on the asset's gross carrying amount before the exclusion of the loss allowance (Seitz, 2019).

Stage 2 comprises assets that "significantly deteriorated in credit quality" since initial recognition but lack actual impairment evidence as there is a raise in the credit risk, and hence a reduction in the credit quality. Financial assets that are currently listed in bank financial statements as "financial assets past due, but not impaired" or underperforming financial assets would mostly be classified in this stage. Although lifetime ECLs that are the expected credit loss resulting from all potential default events throughout the anticipated remaining life of the financial instrument are specified for such assets, interest revenue is still determined based on the

asset's gross carrying value. The reporting entities must assess whether there has been a possibly substantial rise in credit risk at each reporting date. The IASB offers a list of data that might be employed for the evaluation of a substantial deterioration of credit risk. In addition to the valid supposition that the credit risk on a financial asset has raised substantially since initial recognition when the due date of contracting reimbursements has exceeded more than 30 days. The standard setter also provides a "low credit risk exemption", under which financial assets are exempted from the continuous credit-risk assessment and permits them to remain in stage 1 if they demonstrate a low credit risk (Novotny-Farkas, 2016).

Lastly, assets with realized evidence of impairment at the reporting date or the level of credit risk of the financial assets raise up to the classification of non-performing or credit-impaired assets are included in Stage 3. This generally corresponds to the objective evidence of a loss occurrence under the previous IAS 39. Lifetime ECLs are also recognized for such assets. Interest income is computed based upon the asset's net carrying amount, which is the gross carrying amount deducted by the loan loss allowance. Due to the underlying assets' default position, ECL recognized in Stage 3 will probably be larger than the in Stage 2 (Ntaikou & Vousinas, 2018). The way of recognizing the impairment in accordance with IFRS 9 to assess ECL and interest rate of financial assets according to credit risk is indicated in Table 3 below.

Table 3: The assessment of ECLs and interest rate

Stage	Stage 1	Stage 2	Stage 3
Credit risks	Performing financial instruments with non-existent credit risks.	Under- performing financial instruments with low credit risks.	Impaired financial instruments with impairment.
Assessing expected loss	It includes financial instruments and credit risks that do not experience default. The provision is an amount equal expected losses through the coming 12 months or the probability of default during this period.	In case of rising credit risk and default on payment, or in case of not paying installments through 30 days, the credit will be transferred from stage 1 to stage 2 (credit losses throughout the useful life). The provision in this case is an amount equals	In case of decreasing the value of financial instrument or default of paying the credit obviously and continuously, thus amount equal expected losses throughout the useful life should be kept. The amount of impairing of financial instrument by
		the expected losses throughout the useful life of the credit or the financial instrument.	the difference between the book value and the current value of expected future cash flows.
Interest rate	Actual interest rate on the gross book value.	Actual interest rate on the gross book value.	Actual interest rate on the net value.

(Source: Sanchidrián & Gracia, 2019)

While Stage 1 and Stage 2 credit exposures will effectively replace those exposures that are cumulatively evaluated for impairment under IAS 39, Stage 3 credit exposures are similar to those found to be individually impaired under IAS 39 (EY, 2014, p. 8). Thus, the recognition of lifetime ECLs will happen earlier than under IAS 39, i.e., already when there is a substantial rise in credit risk at Stage 2, but before actual default (Stage 3).

Since IFRS 9 recognizes ECLs but disregards changes in market interest rates, the ECL model of this new standard is situated between the incurred loss approach of IAS 39 and fair value accounting.

Among the most important changes imposed by IFRS 9, it includes fundamental amendments to the accounting treatment of hedges stipulated in IAS 39, as it expands the scope of the application of hedge accounting to include more disclosure of risk management activities. These amendments aim to present information in the financial statements and the impact of hedging activities on the risk management of the enterprise that uses financial instruments and how it uses those instruments in managing its risks (Kund & Rugilo, 2019).

Based upon the most important accounting improvements introduced by IFRS 9, the main differences between this standard and IAS 39 is indicated in Table 4.

Table 4: Main difference among IAS 39 and IFRS 9

Comparison area	IFRS 9	IAS 39
Standard name	Financial instruments	Financial instruments - recognition and measurement
Classification basics	The classification is based on the business model and contractual cash flow characteristics	Contract intent for short term profit, loans, derivatives subject to certain restrictions
Types of classification	• AC • FVOCI • FVTPL	• FVTPL • Held-to-maturity (HTM) • Loans and receivables (LAR) • Available for sale (ASF)

Subsequent measurement	• AC • FVOCI • FVTPL	• FV • AC • Costs (for the share-based instruments, which do not have a reliable fair value measurement)
Classification of debt instruments	• FVTPL • AC	• FVTPL • Instruments available for sale (AFS) • Held to maturity (HTM)
Classification of equity instruments	• FVTPL • FVOCI	• FVTPL • Instruments available for sale (AFS)
Measurement of debt instruments	• They are measured at AC if the objective of the business model is to collect contractual cash flows that are solely repayment of principal and interest on the principal amount outstanding • If not, it is measured at FVTPL	It is measured at AC if it is classified as HTM and for some classifications it is measured on a FV basis
Measurement of equity instruments	They are measured at FVTPL, but an entity may make an irreducible choice on initial recognition for specific investments in equity instruments that are otherwise measured at FVTPL to present subsequent changes in FV in other comprehensive income, provided that there is no intention of trading	They are measured at FV, excluding unquoted shares, investments are measured at cost where fair value is weak in reliability
Embedded derivatives	An embedded derivative is separated from the base contract and measured as a derivative in accordance with this standard if the economic characteristics and risks of the embedded derivative are not closely related to the characteristics and risks of the underlying contract and is measured at FVTPL	They are considered as mixed contracts and are measured at FVTPL
Fair value option	The entity measures the financial asset at FVTPL upon initial recognition only, and after initial recognition the financial asset is measured at AC	An entity measures financial assets measured at FV at initial recognition and is free to do so without regard to other criteria
Reclassification	Change of business model	Reclassification shall be prohibited through profit or loss after initial recognition
Reclassification of debt instruments	If the objectives of the business model change, the reclassification of financial instruments is allowed to be changed from FVTPL to AC or vice versa, provided that those changes are clear to the parties, and this is expected to be rare	Debt is reclassified among the 4 groups specified in the standard under specific circumstances according to the movement of the classifications contained in the standard, and it is reclassified from the date of holding the debt instrument until the maturity date in earnest unless there are exceptions
Reclassification of equity instruments	If the entity reclassifies an instrument between FVOCI to FVTPL measurement category, the instrument continues to be measured at FV and the accumulated gain in comprehensive income from equity is reclassified to profit and loss account on the reclassification date	Reclassification between AFS equity instruments and FVTPL is permitted, when the unrealized gain and loss has been recognized on a FV basis, and when the transfer from FVTPL to AFS instruments does not reflect unrecognized and unrealized gains and losses. All realized gains or losses from AFS instruments are included in profits and losses, adding or deducting shareholders' equity
Impairment	• A unified model of impairment • The ECLs model	• Several models of impairment • The ICLs model

(Source: Huian, 2012; IFRS Foundation, 2014)

It is evident from Table 4 that the main changes introduced by IFRS 9 are observed in the classification and subsequent measurement method of financial instruments, which is in the line with the shift from various models to a discrete and consistent model of impairment through the adoption of the model of ECLs. It is indicated that IFRS 9 tries to simplify the degree of complexity of IAS 39 by eliminating the categories of classification and measuring of financial assets into only two categories which are AC, FVTPL, or FVTCI on the basis of the entity's business model to manage the financial assets, and the characteristics of contractual cash flows of financial assets. This is opposed to IAS 39, which includes four categories of financial assets.

IAS 39 distinguishes between the initial measurement and the subsequent measurement of financial assets and liabilities. The classification of financial assets also plays an important role in their subsequent measurement. For example, IAS 39 stipulates that financial assets classified at FVTPL are measured at FV upon subsequent measurement, with the gain or loss resulting from a change in FV being recognized through profit or loss, with the exception of changes in the FV for financial derivatives classified as hedging instruments for cash flow hedge operations that is accounted for based on hedge accounting requirements are recognized through other comprehensive income.

IAS 39 also stipulates that financial assets classified as available-for-sale should be measured at FV with changes in their FV recognized through other comprehensive income, except for interest computed using the effective interest rate method and recognized through profit or loss; impairment loss; losses of exchange rate changes for financial assets available for sale denominated in foreign currency or their profits; profits and losses recorded in the statement of other comprehensive income resulting from changes in the FV of the financial asset are transferred upon the abandonment or sale of the financial asset available for sale.

On the other hand, IFRS 9 removes what is stated in IAS 39 by including changes in the FV of financial assets in profit or loss as the new standard requires that the gain or loss of a financial asset or liability that are measured at FV to be recognized in other comprehensive income, but IFRS 9 maintains the mechanisms for measuring financial liabilities in accordance with the requirements of IAS 39 as they are initially measured at FV and subsequently at AC. Taking into account the exceptions related to the subsequent measurement of financial liabilities at FVTPL, or those related to financial guarantees or hedge accounting.

While IAS 39 made an exception for derivatives with unreliable measurement of FV and equity instruments that do not have a market price by measuring them at cost, IFRS 9 requires that such instruments to be measured at FV. Furthermore, IFRS 9 removed the division that existed under the IAS 39 as the new standard indicated that the embedded derivatives should not be separated if the host is an asset within the scope of the standard, in addition to evaluating mixed contracts that include one or more embedded derivatives as a single unit according to the conditions specified by the standard.

Using the same impairment model for financial assets recognized through FVOCI as it does for assets recognized at AC is a major difference of IFRS 9 from IAS 39. However, there is no specific provision account for FVOCI assets, unlike for assets assessed at AC. Gains and losses from impairment are recognized in the revaluation reserve in accumulated other comprehensive income and are deducted from profits or losses.

With regard to impairment model used in both standards, LLP under the ICL approach of IAS 39 is only taken into account when there is “objective evidence” that impairment has existed at the balance sheet date, but the definition of objective evidence provides lots of room for subjective considerations (Dugan, 2009). Additionally, it postponed the recognition of so-called “day-1-losses” that happened instantly after origination but were not realized until the date of balance sheet.

IFRS 9 changed the impairment requirements by replacing the ICLs model under IAS 39 by the ECLs model, as it is no longer necessary for a credit event to be occurred to recognize credit losses, but rather IFRS 9 requires forming a LLP for ECLs upon initial recognition of financial assets based on current expectations of possible credit assumptions in the future, provided that the amount of ECLs is updated at the date of each report to reflect changes in credit risk.

This modification is intended to address the shortcoming of delay in recognizing of credit loss under IAS 39. As a result, the scope for credit loss recognition is expanded beyond the rigid prerequisite of an incurred loss occurrence as a trigger (Gebhardt, 2016; Novotny-Farkas, 2016).

With the implementation of the new impairment model, an increase or decrease of LLP shall be reported on the income statement of the company as a loss or gain, respectively. Recognizing of these provisions might happen significantly more frequently since the new impairment model is based on the long term, or from a forward-looking perspective. As a result, it is not anticipated that the revised impairment model will result in more credit losses being recorded during a recession. Instead, it might change how these identical losses are spread over time, taking a larger proportion of them into account towards the outset of a downturn when default expectations are only beginning to rise.

The transition from ICLs to ECLs changed the type of used information. Knowledge concerning potential losses is not permitted to be used even when it is available under IAS 39. Conversely, the information set that must be taken into account when assessing its expectations of credit losses has been greatly expanded by IFRS 9 by including data from previous events, current circumstances, and relevant forecasts. Therefore, it can be argued that applying the ECLs model is better than applying the ICLs model, as the new standard depends on past and future information, which leads to accurate prediction of risks in a timely manner.

In light of the previous changes made by IFRS 9 on accounting for financial instruments, it is clear that the standard has addressed many of the problems that were caused by shortcomings in the treatments contained in IAS 39.

Based upon the above discussion, there are many advantages of applying IFRS 9. For example, it provides a simple, comprehensive and clear framework for classification and measurement of financial instruments due to its reliance on only two categories based on the entity's business model and cash flow characteristics. Therefore, it can reflect how an entity manages its financial instruments and the contractual cash flow characteristics of the financial assets, and thus depicts how business activities are managed (Kund & Rugilo, 2019).

One of the most important advantages of the implementation of this standard is assisting in reducing risks by creating an allowance for ECLs. It also reflects the impact of the enterprise's risk management activities on the financial statements through the hedging principles with more principle-based requirements. Finally, it could reduce management's judgment as it is based on the purpose of holding the assets rather than the intent to hold the asset as it was in IAS 39 (Novotny-Farkas, 2016).

Despite the previous advantages of the standard, it is criticized by several criticisms. The problem of homogeneity of the elements of the financial statements is still existent as mixed measurement is still present in this standard. The formation of a LLP by ECLs might result in an expansion in the formation of such provision, which in turn might lead to a reduction in equity ratios due to the elimination of general banking risks, which might be reflected in the capital adequacy ratio and the financial performance (Barrios & Papp, 2017).

Moreover, the estimation of ECLs is subject to the personal judgment of the management, which might result in the lack of comparability of financial statements, whether at the level of one bank from one period to another or between banks and each other, as well as this might lead to the fluctuation and instability of business results from one period to another (Plata García et al., 2017). Obtaining information to estimate ECLs might also have a cost due to banks' request for more sophisticated technological programs, and the application of this new standard might require a change in banking systems, which would subsequently increase the bank's burdens and lead to a reduction in its business results (Labatt & Lemonier, 2015).

Due to the changes introduced by IFRS 9 on the accounting for financial instruments, it can have a significant impact on the financial performance of financial institution. Thus, academic researchers are motivated to investigate the impact of IFRS 9 implementation on the financial performance of financial institutions. However, it must be emphasized that there is very little available literature on this topic, particularly in terms of its empirical applications because IFRS 9 has only recently been implemented and banking institutions are only now beginning to apply it. For example, Gebhardt (2016) discussed the decline in Greek government bonds through the application of IAS 39 and IFRS 9 and compare between them through the rules of impairment. The researcher relied upon the data found in the European Bank report during a period from the second half of 2009 to the end of 2011. The researcher revealed that the rules of present value impairment of IFRS 9 is better than the impairment rules of IAS 39 by recognizing ECL earlier and more comprehensively.

Novotny-Farkas (2016) compared between ECL model of IFRS 9 and incurred loss model of IAS 39 on their impact on financial stability. The study relied on the descriptive approach in analyzing data by referring to the financial statements of existing banks in the European Union. They concluded that IFRS 9 could improve financial stability through incorporating greater and earlier allowances of impairment as well as by recognizing of credit losses in earlier times that would lessen the overestimation of regulatory capital and the formation of accumulated losses.

Frykström and Li (2018) discussed the expected impact of IFRS 9 on the financial ratios of Sweden banks. They showed that provisions of credit losses

are expected to be decreased, and this standard will have a little effect on regulatory capital. They also concluded that this standard might contribute to improving risk management and mitigating the periodic fluctuations if the requirements of this standard are applied well through recognizing of credit losses in a reasonable time, and finally this would lead to improving the financial stability and mitigating the shortcomings of IAS 39.

A comprehensive assessment is conducted by Ntaikou and Vousinas (2018) by analyzing the expected impact of the new regime implementation on the functionality and profitability of European financial institutions. They pointed out that banks will put their capital sufficiency above their responsibility to promote credit expansion in the aftermath of the recent financial crisis. Additionally, banks may have a difficult time raising capital during periods of economic depression when loan losses increase and severely impact regulatory capital due to the uncertainty in the economy. Therefore, banks may decide to actively reduce the amount of credit they provide to the real economy, leading to a credit crunch. They claimed that one of the main advantages of the new standard is that it prevents the rapid increase in loan provisions and the gradual and early recognition of ECLs for loans. The ECLs approach is therefore harmful to the restoration of financial stability.

It should be emphasized that there are big auditing firms that have done studies to gauge the actual effect of the implementation of the aforementioned standard. For example, Deloitte (2019) analyzed the initial impact of implementing IFRS 9 on the financial performance and financial positions of the big UK banks in 2019 after a year of implementing of IFRS 9. This study found that financial results of these institutions are not significantly affected at the first of transformation and implementing on 1 January 2018, and this continues during the year of 2018 with a slight increase in crediting and a decrease in impairment provisions to a high degree in accordance with the requirements of IFRS 9 as a result of the amounts of money that are executed in the third stage.

Kund and Rugilo (2019) investigated the effects of impairment model of IFRS 9 on the financial stability through using the stress test of a sample of 43 European banks during the period from 2014 to 2018. They indicated that applying IAS 39 resulted in sudden increase in impairment of the value as the losses are recognized only when they are incurred and this is cliff-effect, and hence losses happened suddenly and lately. IFRS 9 treats this problem by recognizing losses over the life of the loan and this is front-loading. The joint impact of both of these influences is that the transformation to apply IFRS 9 negatively affects the bank resilience by lessening levels of capital. It can be summarized that gradual recognition of loss in accordance with IFRS 9 will decrease the impact of sudden recognizing of loss on the count of early recognizing of loss and this leads to a decrease in the fluctuation of decrease in value. In addition, the early recognition of loss might decrease the banks' abilities to retain earnings and capital cannot be increased by retained earnings.

Mahendrarajah et al. (2019) investigated the effects of the most recent impairment model formed under IFRS 9 on how well the Sri Lankan Banking Sector (SLBS) performed in terms of facilitating SME loans. They focused on secondary information gathered from resources including annual reports of banks, as well as annual reports and financial sector stability report issued by Central Bank of Sri Lanka (CBSL), etc. They employed a deductive methodology, wherein justifications are primarily linked to theoretical elements supportable by empirical data. With rising NPLs and provisioning, the asset quality of the banking industry, particularly in the SME sector, has severely declined recently. Additionally, the researchers noted that during this study period, the banking sector's performance in Sri Lanka declined. In addition to the aforementioned factors, the new reporting standard's revenue recognition and impairment provisioning techniques have further decreased the profitability of the nation's banking industry.

Moutinho (2019) used an empirical approach to assess the impact of IFRS 9 on financial stability using databases from Pordata, the ECB, the World Bank, the United Nations, and the OECD for 23 European Union member nations plus the United States from 2008 to 2017. They found that the new standard requirements directly and positively affect economic stability, but only if banks consistently and strictly implement them.

Gornjak (2020) reviewed the empirical research on the IFRS 9 accounting of financial instruments. He concentrated on the most popular research in each area of this new standard that is currently publicly available after the implementation of IFRS 9 took place. He concentrated on the effect on profit and loss as well as on the requirements of bank capital. In his opinion, IFRS 9 could increase financial stability and

lessen pro-cyclicality during economic downturns. The influence of impairment on profit and loss should be less in good economic circumstances than during a recession as a major deterioration in the credit risk during this period necessitates the computation of lifetime ECL rather than 12-month ECL. The statement of profit or loss at the time of replacement and afterwards, as well as the capital requirements and the value of shareholders are all impacted by the accounting for ECL provisions.

Khersiat and Alkabbji (2020) examined the effect of applying the standard IFRS 9 on the profits and losses of 23 Jordanian insurance companies listed on the Amman Stock Exchange for the fiscal year of 2019 through employing the analytical descriptive methodology. They showed that there is a statistically significant impact for the application of the standard IFRS 9 standard on profits and losses of insurance companies.

A Moroccan public financial institution with 145 subsidiaries across all lines of business and industrial sectors was the subject of an empirical study by Bellagdid et al. (2021) to determine the influence of IFRS 9 on its financial performance. They utilized a reclassification model, implemented it for all financial instruments on the sample institution's financial statements. In order to evaluate the effect on financial performance, they set up a comparison study between real and simulated events. They pointed out that the Group's profitability, and hence its financial performance, has improved following the shift from IAS 39 to IFRS 9.

Besmir et al. (2021) compared data from financial statements and notes as of 31 December 2017 and 31 December 2018 to examine the day-one transition effect of IFRS 9 on the level of assets balance, allowance for loan losses, and capital regulatory class II for the six largest commercial banks in Kosovo before and after adopting IFRS 9. The findings suggest that assets and capital regulations are not greatly impacted by the transition phase, but IFRS 9 significantly affects the recognition of further loan impairment. Results also show that the transition to IFRS 9 results in capital instability and re-consolidation, but it lessens the likelihood of significant and unexpected losses in the long run.

It can be indicated that most of these studies conducted during the periods before applying this new standard and therefore they might not check such aspects empirically as the standard was not applied, and they depend upon simultaneous quantitative analysis, whereas the investigations during the period after applying this standard focused on the expected credit losses and its impacts on financial stability. None of the previous studies have conducted a time-series analysis to study the effect of the transition to the implementation of IFRS 9 in the banks' performance. It is also noticed that most of previous studies have not concentrated on emerging countries.

From what has been discussed above, it can be argued that the application of IFRS 9 might result in a significant change in the strategy of risk management, and hence might lead to a substantial change in the financial performance of financial institutions. With regard to this impact, there are two different viewpoints.

The application of IFRS 9 might avoid significant losses that banks experienced due to the delay in recognizing the loan losses until they were validated under IAS 39. As a result, banks would carry over a portion of their losses from year to year until they accumulated. Due to the lack of provisions to address the potential losses, banks would suffer significant losses. Due to the possibility of any financing or debt defaulting, IFRS 9 offered a new model in dealing with such losses by assessing provisions even for the debts (Khersiat & Alkabbji, 2020).

Alternatively, the application of ECLs under IFRS 9 might result in fluctuations in profits and losses as credit losses of all financial instruments and not of these related to loss are recognized. This model also depends upon external information as basic factors to assess credit losses. In addition, the transition from 12-month ECLs to lifetime ECLs of financial instruments might give rise to numerous changes in loss provisions, and the early recognition of credit losses might lead to forming high loss provisions, affecting some items of financial statements and consequently influencing the financial performance of banks (Ntaikou & Vousinas, 2018).

Given the mixed results of the impact of IFRS 9 on the performance of banks and the lack of such studies in emerging countries, this paper examines the Cambodian scenario, as the commercial banks in this country have different regulatory settings than these in the countries where the previous studies are applied.

Although the performance of Cambodian banks is under scrutiny, the country's banking sector has

grown quickly in recent years. To ensure the effective mobilization and appropriate allocation of both domestic and international funds, the Cambodian government has continuously carried out structural changes in the financial sector. Despite the fact that the Cambodian economy appears to be entering a phase of stable expansion, more work needed to be done to change its economic structure and improve the effectiveness of market mechanisms. From this point of view, improving the banking sector's operations was crucial for the continued growth of the economy (Aiba & Hidenobu, 2021).

Since the late 2000s, the size of the Cambodian banking sector has been quickly growing, supported by good macroeconomic conditions. The Cambodian central bank, which is called the National Bank of Cambodia (NBC), has been working hard to enhance the banking industry's operations while advancing deregulatory measures to create a freer market (Aiba & Hidenobu, 2021).

These banks, however, have numerous issues. Due to their high liquidity holdings, commercial banks' intermediation operations are inefficient. Additionally, because the Cambodian economy is heavily dollarized, Cambodian banks have a sizable quantity of excess reserves (Delechat et al., 2012). The effectiveness of the financial operations of the commercial banks in Cambodia has been considerably lowered by these circumstances. Thus, it is vital to study whether the financial performance of Cambodian commercial banks has been affected by the application of IFRS 9.

With regard to the adoption of IFRS in Cambodia, National Accounting Council (NAC) was established in 2002 under the Ministry of Economy and Finance of the Royal Government of Cambodia by the Law on Corporate Accounts, their Audits, and the Accounting Profession to set and regulate accounting and auditing standards. In 2012, the Cambodian Accounting Standards Board of the NAC fully adopted all IFRSs, including IASs, and all interpretations made by *International Financial Reporting Interpretation Committee (IFRIC)* without modifications. The standards were thereby renamed Cambodian International Financial Reporting Standards (CIFRS). The Ministry of Economy and Finance approved these standards for application in the jurisdiction through proclamations (Prakas No. 068 MEF/BK and No. 097/09 MF-NAC). The date for application of full IFRS Standards in Cambodia was set for periods beginning on or after 1 January 2012.

In line with the issuance of IFRS 9, CIFRS 9 *Financial instrument replaces CIAS Financial instruments: Recognition and Measurement* for annual periods beginning on or after 1 January 2018. The financial performance of Cambodian commercial banks is expected to be influenced by the implementation of CIFRS 9. Based upon the above arguments and the results of previous studies, the following hypothesis is developed:

H1: The financial performance of Cambodian commercial banks is influenced by the implementation of CIFRS 9.

DATA AND METHODOLOGY

Sample

The data employed in this research are extracted manually from the annual reports of a sample of Cambodian commercial banks. Due to the availability of data, only 19 individual banks and 152 firm-year data during the period from 2014 through 2021 are focused on this study. A panel dataset of 152 bank-year observations is employed in this investigation. There are many benefits of employing panel data analysis. It increases the effectiveness of econometric estimations by providing a high degree of freedom, a big amount of data points on each sample item and minimizing the issue of multicollinearity among the research variables (Hsiao, 2014).

Variables

Dependent Variable

Return on equity (ROE), which is calculated by dividing net income by the total equity of the company, is used to measure financial performance. Another indicator of financial performance is the return on assets (ROA), which is computed by dividing net income by the total assets' book value. These two indicators have been frequently employed to assess the performance of banks (e.g., Ahmadi et al., 2018; Duppati et al., 2019; Erhardt et al., 2003; Fernández-Temprano & Tejerina-Gaite, 2020; Low et al., 2015; Terjesen et al., 2016).

Independent Variable

In order to measure the impact of the adoption of IFRS 9, a dummy variable is employed, where the value of "1" for data of the years after the implementation of this standard and "0" for data of the years before the application of this standard.

Control variables

Some of specific characteristics of banks are included as control variables in order to take into consideration their possible confounding influences. Firstly, Bank size (SIZE), which is calculated by the natural logarithm of the book value of total assets, is included (Almutairi & Quttainah, 2017; John et al., 2016). A large bank is distinguished by its wide range of skills, capacity to benefit from scale economies. These attributes enable large banks to improve their performance in comparison to small banks by making operations more efficient. Dogan (2013) and Lee (2009) documented that there is a positive link between firm size and financial performance.

Secondly, leverage (LEV), which is the proportion of total liabilities to total equity, is also involved (Arora & Sharma, 2016; Peni & Vähämaa, 2012). High indebtedness might be related to better performance by preventing bankruptcy (Damodaran, 2010). Majumdar and Chhibber (1999) and Berger and Di Patti (2006) empirically supported this claim. Thirdly, the ratio of the banks' credit (LTA), which is calculated as the proportion of total loans to total assets, is one of the control variables in this study model (De Andres & Vallelado, 2008). Since loans make up a large portion of the bank's entire asset structure, a high LTA suggests a strong bank performance. Saeed (2014) demonstrated how LTA had a favorable impact on bank performance.

Fourthly, the deposit financing ratio (DTA), which is assessed by dividing the total deposits by total assets, is another factor that is taken into consideration (Aebi et al., 2012). Since deposits are regarded as the primary source of the financing of the bank, this rate is involved. Gul et al (2011) demonstrated that deposits and bank performance are positively correlated. Lastly, the capitalization of the bank is shown by the capital ratio (ETA), which is defined as a ratio of equity over average total assets (Ghosh, 2017). High ETA indicates the significant role the owners played in pressuring the management to boost the performance of the bank. Rumler and Waschiczek (2016) revealed that ETA significantly improves bank performance. The research variables and the way of their measurement are shown in Table 5.

Table 5: Research variables and their measurement methodology

Variable	Abbreviation	Measurement
Financial performance 1	ROE	Return on equity
Financial performance 2	ROA	Return on assets
Standard	IFRS9	Dummy variable represented by "1" for data of years after the application of IFRS 9, "0" otherwise
Bank size	FSIZE	Natural logarithm of total assets
Leverage	LEV	Ratio of total liabilities to total equity
Credit performance	LTA	Ratio of total loans to total assets
Deposit financing	DTA	Ratio of deposits to total assets
Capital	ETA	Ratio of equity to average of total assets

Empirical Modeling

The following models are developed to examine the impact of IFRS 9 implementation on the financial performance of banks:

$$ROA = \alpha + \beta_1 IFRS9_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 LTA_{i,t} + \beta_5 DTA_{i,t} + \beta_6 ETA_{i,t} + \varepsilon_{i,t}$$

$$ROE = \alpha + \beta_1 IFRS9_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 LTA_{i,t} + \beta_5 DTA_{i,t} + \beta_6 ETA_{i,t} + \varepsilon_{i,t}$$

where *ROA* = return on assets; *ROE* = return on equity; *IFRS9* = a dummy variable represented by "1" for data of years of the application of IFRS 9, "0" otherwise; *SIZE* = natural logarithm of total assets; *LEV* = total liabilities divided by total equity; *LTA* = Ratio of loans to total assets; *DTA* = total deposits divided by total assets; and *ETA* = total equity divided by average total assets.

FINDINGS AND DISCUSSION

This section consists of three parts. Firstly, description of statistics of the research variables is presented, and then the correlation matrix between research variables is shown. The final part presents the regression findings about the relationship between the adoption of IFRS 9 and financial performance in light of the proposed and illustrated hypothesis.

Descriptive Statistics

Table 6 presents the descriptive analysis. The average of *ROA* and *ROE* are 0.02 and 0.12 respectively and *ROA* ranges from-0.08 to 0.29, while *ROE* ranges from -0.45 to 0.39. Both measures are reasonably similar, and this proves that these two proxies validate similar conclusion.

The *SIZE* of sampled banks ranges between 17.53 and 22.8, while the mean and standard deviation of the size of these banks are 20.35 and 1.24. This indicates

there is no big difference in the size of the Cambodian commercial banks included in the sample. At the same time, sampled banks experience high disparity in the level of leverage as the minimum and maximum values of *LEV* are 0.02 and 11.32, correspondingly.

The mean value of *LTA* is higher than the mean value of *DTA*, demonstrating that the sampled banks pay higher attention to credit performance than deposit financing. Lastly, *ETA* ranges among 0.02 and 1.53, its mean value is 0.22, and the standard deviation is 0.23. This shows that there is no big divergence in the capital structure among the sampled banks.

Table 6: Descriptive Statistics

	N	Mean	Min	Max	St.Dev.
ROA	152	0.0216	-0.0803	0.2924	0.0270
ROE	152	0.1168	-0.4525	0.3891	0.0925
IFRS9	152	0.5	0	1	0.5017
SIZE	152	20.3532	17.5302	22.7978	1.2402
LEV	152	5.0613	0.0246	11.3178	2.4552
LTA	152	0.6268	0.0446	0.9686	0.1515
DTA	152	0.5758	0.0122	0.8846	0.2349
ETA	152	0.2236	0.0203	1.5300	0.2280

Unit Root Test

The Levin–Lin–Chu test is applied to examine whether the series contains a unit root. It is shown in Table 7 that the panel dataset is not stationary since the p-values for dependent variables are significant.

Table 7: Unit root test

	ROA	ROE
Unadjusted t	-13.1844	-8.9516
Adjusted t	-10.3710	-6.9901
P-value	0.000	0.000

Pairwise Correlation

In Table 8, pairwise correlation is conducted to show the direction of the association between the research variables and to check the multicollinearity. If the coefficient value is more than 0.80, multicollinearity issue might be detected in study analysis (Gujarati, 2022). With the greatest coefficient of 0.709, which is located between the ETA and LEV, it can be observed that multicollinearity is therefore not a problem in this investigation.

It can be shown that the implementation of IFRS 9 has a negative impact on the financial performance of Cambodian banks as both of *ROA* and *ROE* are negatively and significantly correlated with IFRS 9. Both of *SIZE* and *DTA* have a positive and significant correlation with both of *ROA* and *ROE*, indicating that Cambodian commercial banks with bigger size and higher deposits experience better financial performance.

Table 8: Pairwise correlation

	ROA	ROE	IFRS9	SIZE	LEV	LTA	DTA	ETA
ROA	1							
ROE	0.6161***	1						
	0.0000							
IFRS9	-0.1360*	-0.1354*	1					
	0.0947	0.0962						
SIZE	0.2278***	0.4183***	0.3026***	1				
	0.0048	0.0000	0.0002					
LEV	0.0970	0.4343***	-0.0418	0.6191***	1			
	0.2347	0.0000	0.6093	0.0000				
LTA	0.0771	0.1957**	0.1212	-0.0935	-0.0215	1		
	0.3449	0.0157	0.1370	0.2520	0.7924			
DTA	0.1974**	0.4361***	0.0709	0.6219***	0.6591***	-0.1497*	1	
	0.0148	0.0000	0.3856	0.0000	0.0000	0.0657		
ETA	-0.1035	-0.3302***	0.5151***	-0.2410***	-0.7093***	-0.0155	-0.4679***	1
	0.2043	0.0000	0.0000	0.0028	0.0000	0.8499	0.0000	

Note: ***, ** and * indicate that the variable is significant at 0.01, 0.05 and 0.10, respectively.

Multivariate Regression Analyses

Table 9 shows the ordinary least squares (OLS) regression findings on the impact of IFRS 9 adoption on financial performance as evaluated by ROA and ROE in conjunction with the control variables. Four regression models are tested for each performance measurement. The reliability of the results is improved by comparing the output of the two financial performance indicators.

Models 1 and 5 present the OLS regression between the performance of the bank and the control variables. The findings show a substantial positive association between SIZE, LTA, DTA, and ETA and bank performance as determined by ROA or ROE. This is in accordance with (Dogan, 2013; Gul et al., 2011; Saeed, 2014; Lee, 2009; Rumler & Waschiczek, 2016). LEV does not considerably affect ROA, but it has a significant and positive influence on ROE. The R-squared of Model 1 (0.217) is lower than this of Model 5 (0.434), suggesting that the control variables included in this study can explain 21.7% of ROA and 43.4% of ROA.

The variable of the adoption of IFRS 9 is included in the remaining models in table. The banks' performance is assessed using ROA in Models 2, 3, and 4, while ROE is used to assess their financial performance in the final three models.

The association between IFRS9 and ROA in Model 2 is negative and significant, demonstrating that the financial performance of Cambodian commercial banks has been weakened after the adoption of this new standard. The same regression analysis is done in Model 6, but the banks' performance is measured by ROE rather than ROA. The results are largely the same, indicating that IFRS9 has a substantial negative correlation with ROE. The consistency of the results between the two models shows that the implementation of this new standard has had no different effects on bank performance, whether performance assessed either by ROA or ROE. The key difference here is that the R-squared in Model 6 is higher than this in Model 2, indicating that variables included in this study explain more ROE than ROA.

Robust regression estimation of the Model 2 regression is run in Model 3. In this regression, the IFRS 9 implementation variable yields results that are similar to the primary baseline result in Model 2. Therefore, it can be said that the results are the same under different regression estimating methods. However, LTA, DTA, and ETA in this model have insignificant relationship with ROA in contrast to their significance in Model 2. Additionally, in Model 7, the same regression analysis of Model 3 is performed using the banks' performance as assessed by ROE rather than ROA, and the analysis yields comparable results.

Further tests are conducted using the random effect regression model, which is shown in Model 4 by measuring bank performance by ROA and in Model 8 by employing ROE as a measure of bank performance. The outcomes of the analysis for the whole variables support the conclusions of the prior models, demonstrating the validity of the results.

Although the Cambodian commercial banks with better financial performance are characterized with high ratios of credit and deposit financing, the adoption of IFRS 9 has negatively impacted the profitability of Cambodian banks. This might be related to the formation of LLP with higher extent due to the application of the new ECLs model stipulated by the new standard, and this might influence the figures of earnings of these banks.

Table 9: Regression results on board diversity and financial performance

	IFRS9 and financial performance (ROA)				IFRS9 and financial performance (ROE)			
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**	**Model 7**	**Model 8**
	Pooled OLS	**Pooled OLS**	**Robust**	**Random Effect**	**Pooled OLS**	**Pooled OLS**	**Robust**	**Random Effect**
	Coef.	**Coef.**	**Coef.**	**Coef.**	**Coef.**	**Coef.**	**Coef.**	**Coef.**
	(t-stat)	**(t-stat)**	**(t-stat)**	**(z-stat)**	**(t-stat)**	**(t-stat)**	**(t-stat)**	**(z-stat)**
IFRS9		-0.0224216***	-0.0224216***	-0.0185512***		-0.1249417***	-0.1249417***	-0.0987951***
		0.000	0.001	0.002		0.000	0.000	0.002
SIZE	0.0047419***	0.0049747***	0.0047419***	0.0034516**	0.0258024***	0.0258024***	0.0258024***	0.0191431**
	0.000	0.000	0.000	0.027	0.000	0.000	0.000	0.034
LEV	-0.0005583	-0.0006784	-0.0005583	-0.0005485	0.0086738*	0.0086738*	0.0086738**	0.0094231*
	0.522	0.447	0.497	0.547	0.065	0.065	0.031	0.061
LTA	0.0227074***	0.021725***	0.0227074	0.0277653***	0.2235309***	0.2235309***	0.2235309***	0.2084635***
	0.006	0.01	0.102	0.003	0.000	0.000	0.000	0.000
DTA	0.015397**	0.015216**	0.015397	0.0193437**	0.1293104***	0.1293104***	0.1293104***	0.1243519***
	0.027	0.029	0.116	0.018	0.001	0.001	0.001	0.008
ETA	0.047349**	0.0454893*	0.047349	0.0313377	0.3245875***	0.3245875***	0.3245875***	0.2314588*
	0.046	0.057	0.16	0.173	0.011	0.011	0.001	0.063
Year effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.0969519	-0.0969519	-0.0969519	-0.0751819	-0.6612895	-0.6612895	-0.6612895	-0.5127784
	0.000	0.000	0.000	0.011	0.000	0.000	0.000	0.003
N	152	152	152	152	152	152	152	152
F/Wald Chi^2	3.22	3.22	5.66	30.71	8.88	8.88	11.03	65.8
Prob > F	0.0004	0.0004	0.000	0.0022	0.000	0.000	0.000	0.000
R-squared	0.2173	0.2173	0.2173	0.2005	0.434	0.434	0.434	0.427

Note: ***, ** and * indicate that the variable is significant at 0.01, 0.05 and 0.10, respectively.

CONCLUSION

In the aftermath of the 2008 global financial crisis, many criticisms were leveled against the accounting standard for financial instruments—which was IAS 39. It was argued that this standard was the main reason of this crisis because the ICLs model adopted by this standard had led to late recognition of losses. This encouraged many international bodies to call standard setters to issue a new standard that focuses on the recognition of LLP based upon forward looking information. In 2014, the IASB issued IFRS 9 to be initially applied on 1 January 2018 with permission of early application. This standard has introduced many changes to accounting of financial instruments, the most important of which are the application of ECLs in recognizing LLP that allow the early recognition of credit losses before they occur. Also, the ways in which the financial assets and liabilities are measured and classified have been improved. In view that these developments have important implications upon the banking sector in any developing economy, this study has examined the impact of the adoption of IFRS 9 on the financial performance of Cambodian commercial banks.

This study' accounting data were manually extracted from the annual reports of 19 individual Cambodian commercial banks over an eight-year period ranging from 2014 to 2021. This has allowed us to compare the financial performance four years before and four years after the application of this new standard. We conducted multivariate regression analyses for the extracted data and we found that the implementation of IFRS 9 has negatively influenced the financial performance of the sampled banks.

This study is not without limitations. Firstly, the data of this study were only drawn from commercial banks in one country—i.e., Cambodia. Future research can consider examining the influence of the new standard on commercial banks' financial performance of various countries with different regulatory characteristics for more meaningful comparisons. Secondly, since this study's focus is solely devoted to the financial performance of commercial banks, future research can be directed towards analyzing the influence of IFRS 9 on the quality of earnings and the value relevance of accounting information. Lastly, although we considered the four years post IFRS 9 implementations (i.e., from 2018, 2019, 2020 and 2021), we did not analyze the last two years (i.e., from 2020 and 2021) from the context of the COVID-19 pandemic. Thus, the impacts of such pandemic as signaled through, for example, higher amounts of bad debts amongst commercial banks in Cambodia remains underexplored. Future research may address this gap.

Despite the limitations indicated above, this study has made several literary and practical contributions. Indeed, it contributes significantly to the literature on financial instruments by providing empirics on a developing country, i.e., Cambodia. This study fills a research gap about IFRS 9's effects by highlighting how the adoption of the new standard affects the financial performance of Cambodian commercial banks. This study can be considered to be one of the first studies that depends upon real numbers of financial performance of banks after the application of this new standard as most of previous studies of this issue depend upon simultaneous numbers and are applied before the implementation of IFRS 9.

In terms of practical contributions, this study compares the performance of the Cambodian commercial banks before and after this new standard was applied. It also provides useful information for the state authorities in charge of developing standards regarding the impact of the choice to transition to the newly issued standards in emerging economies.

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