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The Influence of XBRL Adoption on Financial Reporting Timeliness: Evidence from Indonesian Banking Industry

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ARTICLE INFO	ABSTRACT
	This study examines the impact of eXtensible Business Reporting Language (XBRL) adoption on financial reporting timeliness. The population are banking companies listed on the Indonesian Stock Exchange (IDX) between 2015 and 2019. The samples are 38 Indonesian banks or 190 bank-year observations. Using logistic regression this study demonstrates the XBRL adoption positively affects financial reporting timeliness. The findings confirm that XBRL adoption benefit banks as it stimulates automation process, improves cost-effectiveness, fasten data collection, enhances data reliability and accuracy, and thus it may lead to better business decision-making. The positive signal provided by the adopters of XBRL will influence the decisions of shareholders, which in turn will lead to share ownership increase. ***Pengaruh Adopsi XBRL Terhadap Ketepatan Waktu Pelaporan Keuangan: Bukti Empiris dari Sektor Perbankan Indonesia*** **ABSTRAK** *Penelitian ini bertujuan untuk menguji pengaruh adopsi eXtensible Business Reporting Language (XBRL) terhadap ketepatan waktu pelaporan keuangan. Populasi penelitian adalah perusahaan perbankan yang terdaftar di Bursa Efek Indonesia (BEI) dari tahun 2015 s.d. 2019. Sampel penelitian perusahaan perbankan sebanyak 38 perusahaan atau 190 observasi. Dengan menggunakan data panel yang diolah dengan regresi logistic, hasil penelitian menunjukkan bahwa XBRL berpengaruh positif terhadap ketepatan waktu pelaporan keuangan karena adopsi XBRL diukur dengan variabel dummy. Manfaat yang dapat diperoleh bank dengan menerapkan sistem XBRL adalah otomatisasi, hemat biaya, pengumpulan data yang cepat, keandalan yang lebih, akurasi penanganan, analisis yang baik, informasi yang berkualitas, dan pengambilan keputusan bisnis yang lebih baik bagi investor. Sinyal positif yang diberikan oleh perusahaan akan mempengaruhi keputusan pemegang saham, yang pada gilirannya akan mempengaruhi peningkatan kepemilikan saham.*

1. Introduction

In recent years technology has shown rapid development as the internet offers a unique form of disclosure through which companies can provide immediate information to the wider public (Abdelsalam & El-Masry, 2008). The use of technology is considered indispensable in preparing a company's financial statements. Astria (2012) affirmed that the use of technology in the data input process could automatically reduce the potential for errors compared to carrying out an internal input process. The first data users often face various

obstacles to obtain fast and accurate information. Therefore, an integrated solution in language standardization for reporting information is needed to resolve these conditions, namely the eXtensible Business Reporting Language (XBRL). XBRL can support the creation of facilities to implement business intelligence and provide convenience for investors and regulators in accessing and processing the data needed for decision making.

Rashty (2013) stated that in an effort to improve and enhance the functionality of the Electronic Data Collection, Analysis, and Retrieval (Edgar)

database, in 2019, the Securities and Exchange Commission (SEC) mandated the use of the XBRL format. Previously, America began voluntary adoption of the XBRL in 2005 and mandated its adoption in 2008. Countries in Asia such as China, Korea, and Singapore have made the implementation of XBRL mandatory in 2009. Apart from these Asian countries, other Asian countries such as Malaysia, Taiwan, and Thailand have also implemented XBRL, Wada (2013).

Since 2012, The Indonesian Stock Exchange (IDX) has started developing XBRL-based reporting. The obligation to submit financial statements in XBRL format began to be implemented since November 2, 2015. IDX continues to provide outreach and assistance for listed companies to improve their compliance with financial reporting obligations in the XBRL format (IDX, 2021). Wada (2013) in his presentation regarding XBRL in Asia and Oceania, touched on the implementation of XBRL in Indonesia which stated that the background project for XBRL Bank Indonesia (BI) was a demand for new information requirements to accommodate new Indonesian Islamic GAAP, new regulatory requirement, new Islamic banking products, monetary statistics, and payment system statistics.

Furthermore, Wada (2013) also explained that the XBRL BI (Indonesian Bank Central) project was intended to prepare for the transition of financial supervision from BI to *Otoritas Jasa Keuangan (OJK)* (Financial Service Authority) in 2014. The BI XBRL project is part of efforts to develop a financial reporting system that will accommodate BI and OJK's information requirements, for example, in the form of a Monetary and Financial System Stability Report (LSMK). Thus, based on this information, this study focuses on financial reports prepared by banks.

Globally, the banking sector plays a vital role in every country's economic growth (Murti, 2021). The banking performance worldwide has raised concerns among professionals, especially in the banking sector (Pinto & Joseph, 2017). With respect to Bank

Indonesia Regulation Number 14/14/PBI/2012 regarding transparency and financial reports publication, it is stated that to increase transparency, banks need to provide quantitative and qualitative information that is timely, accurate, relevant, and adequate to allow information users to assess the financial condition, performance, risk profile, and risk management practices of banks, as well as business activities including interest rate setting.

In 2015 when Indonesia began to implement XBRL, as many as 9 of banking companies listed on the IDX delayed submitting their financial reports, namely Bank Capital Indonesia Tbk, Bank Pembangunan Daerah Jawa Timur Tbk, Bank Maybank Indonesia Tbk, Bank Sinar Mas Tbk, Bank of India Indonesia Tbk, Bank Arta Graha Internasional Tbk, Bank China Construction Tbk, Bank Mega Tbk, and Bank Woori Saudara Indonesia 1906 Tbk (IDX, 2021). So, based on these data, the authors were motivated to conduct this research.

A previous research conducted by Yoon et al. (2011) showed that XBRL could increase transparency, timeliness, and the level of information disclosure. They also stated that the impact of XBLR implementation in shortening the reporting time was more influential on large companies than the small ones. The research results conducted by Rupang et al. (2019) found that the XBRL implementation had a positive and significant impact on the timeliness of financial reporting. The positive direction of the XBRL variable coefficient indicates that the application of XBRL can increase or speed up the processing of financial reporting so that companies can timely report financial reporting on the Indonesian Stock Exchange. By implementing XBRL, companies can get many benefits and conveniences for the users of financial statements. However, in contrast to what was stated by Steenkamp & Nel (2012), the companies that did not implement XBRL considered that there would be no benefit from its implementation.

This study is conducted with the background of several underlying rationales. Firstly, similar research has not been widely carried out in Indonesia

because the Indonesian Stock Exchange (IDX) started developing XBRL-based reporting in 2012 (IDX, 2021). According to the research conducted by Saragih et al. (2021), XBRL-related empirical research with quantitative methods in Indonesia is still limited. Secondly, there is still a lack of literature on the effect of XBRL adoption on financial reporting timeliness at banking companies in Indonesia. Oswari & Januarianto (2017) conducted a study on XBRL in Indonesia's banking industry, but it only analyzed the XBRL implementation to the standardization of financial reports. Banking companies were selected since this business sector is highly regulated industry. Moreover, the banking company was the first to implement reporting in the XBRL format (Bank Indonesia, 2013).

This study is expected to make several contributions, particularly in the accounting information systems. First, this study adds literature on XBRL by examining the effect of XBRL adoption on financial reporting timeliness. The issue of XBRL becomes increasingly popular to meet the demands of new technology developments in the delivery of financial and non-financial reporting. The benefits of XBRL implementation can be felt by both companies that use the XBRL format and the report users. Second, this study adds literature on XBRL by observing the effect of its adoption on financial reporting timeliness in banking companies.

Furthermore, this research is expected to provide salient information to companies and users of financial statements about the XBRL adoption to the timeliness of financial reporting. It is also expected to show that regulatory policies have a significant active role in realizing increased transparency through the provision of quantitative and qualitative information promptly, accurately, relevantly, and adequately. Thus, it allows the information users to assess the financial condition, performance, risk profile, and risk management practices of banks, as well as business activities, including interest rate setting. XBRL is a royalty-free, open standard that enables more rapid and efficient information processing within and across companies Arnold et al. (2012).

The remainder of the paper is organized as follows. The next section presents a summary of literature related to financial reporting timeliness and XBRL and hypotheses development. Section three presents the research method to test the hypotheses. Section four presents empirical findings and discussion. Finally, in the last section, conclusions, limitations, and suggestions for future research are presented.

2. Literature review and hypothesis development
Signaling theory

According to Muslichah (2020) signal theory explains how companies must signal various parties using financial statements. The signal is essential information related to what has been done by management to realize the owner's expectations. Signals can mean giving a hint that the company has better prospects compared to others. A positive signal provided by the company will influence the shareholders' decisions, which in turn will affect the increase in share ownership (Muslichah, 2020). Delays in financial reporting can result in negative consequences for the company, either directly or indirectly. Indirectly, investors may respond to the delay as a bad signal for the company. As direct consequence, public companies that violate the principle of information disclosure due to the failure of annual financial report submission on time have been subjected to administrative sanctions and fines (Suryanto & Pahala, 2016).

Financial reporting timeliness

Timely means that information must be delivered as early as possible to be used as a basis for economic decision-making and to avoid delays in making these decisions. Timeliness cannot guarantee the information relevance, but there is certainty in the information relevance if it is timely. Users of financial statements must receive information related to the company's condition and position quickly and on time. Timeliness also shows that financial reports must be presented a regular

basis to show changes in the company's circumstances, which in turn may affect the predictions and decisions of users (Andriana & Arina Raspati, 2015).

Suryanto & Pahala (2016) state that on time is defined as using the information in the decision-making process before it loses its capacity or ability to make decisions. Timeliness implies that financial statements should be presented at time intervals to explain company changes that affect information users and make predictions and decisions. Timeliness shows the period between presenting the desired information and the frequency of reporting information. It also shows that financial reports must be presented at regular times to show changes in the company's circumstances, which may affect users' predictions and decisions (Andriana & Arina Raspati, 2015).

The timeliness of financial reporting is the period to announce audited annual financial reports to the public from the closing date of the company's books (31 December) to the date of submission to Bapepam-LK (Nurmiati, 2016). Timely financial reports will be more valuable than untimely ones (Murti, 2021). Once the relevant information is available more quickly, it is able to increase its capacity to influence decisions, and the lack of timeliness can reduce information from its usefulness (Abernathy et al., 2018).

Referring to the copy of the Decree of the Head of Bapepam-LK Number KEP-346/BL/2011 concerning the Submission of Periodic Financial Statements for Issuers or Public Companies, it is conveyed that the annual financial reports must be submitted to Bapepam and LK and announced to the public not later than the end of the third month after the date of the annual finance report. If the submission is done beyond the predetermined time, the issuer is considered late submitting the financial report. It is classified as a late submission if the financial statements are reported after March 31, while companies that are on time submit financial statements before the said date. Timeliness is measured using dummy variables, where category 0 is for companies that are not on time, while category 1 is assigned for those on time

XBRL (eXtensible Business Reporting Language)

XBRL was developed in 1998 by Charles Hoffman, and in 2002 XBRL International, Inc. was founded. XBRL technology does not only integrate complex financial information, but also helps in the analysis of financial and non-financial report data for investors, bondholders, or other users in the capital market (Chen et al., 2014). XBRL is recognized as an open international standard for digital business reporting, managed by a global non-profit consortium (XBRL International, 2021). It is an electronic communication language used universally for the transmission and exchange of business information, which improves the preparation, analysis, and accuracy processes for the various parties that provide and use business information. It can communicate information between businesses and users of financial information, such as investors, analysts, and regulators. The XBRL format can be used to prepare an institution's information report (IDX, 2021).

Rupang et al. (2019) argue that there are several advantages for the companies using the XBRL format to report their finances. They can save costs through increased efficiency and processing capability and lower bookkeeping costs (Rupang et al., 2019). Furthermore, Rupang et al. (2019) stated that greater transparency and increased access to data could allow investors to dig into finances more efficiently. It can help reduce investors' perceptions of the risk and uncertainty of investing in companies and make them more likely to invest (Andriana & Arina Raspati, 2015).

Various sectors such as banking, insurance, securities regulators, data providers, and taxation have started using XBRL in the reporting process. A standard electronic format commonly used in business reporting is made specifically with XBRL. It does not change the reported information; rather, it only changes how it is reported (IDX, 2021). XBRL (eXtensible Business Reporting Language) will soon be the leading means of corporate financial

reporting. A well-defined standard taxonomy can influence key features in the implementation of XBRL, which should reflect the company's accounting standards and reporting practices (Valentinetti & Rea, 2011).

In its application, XBRL provides many benefits, including improved efficiency, speed and automatic data processing to support the analysis process and information quality and can be used to determine company decisions.

Users and companies implementing XBRL can gain significant benefits because it is an open system reporting (Stergiaki et al., 2013). In general, the benefits of XBRL are (1) increasing the usability of the electronic reporting system; (2) XBRL can facilitate the issuance of financial and non-financial reports because it can be reprocessed into the desired format such as HTML, Excel, TXT, PDF, etc.; (3) it helps international investors access financial information because the standard for identifying information has been applied to XBRL. Foreign investors can carry out their analysis independently as well as to make comparisons in their own language; (4) other benefits of XBRL are automation, cost-effectiveness, faster data processing, more reliable, accurate to handle, generate analysis, quality information, and better business decision-making process; (5) XBRL-based reporting format is versatile for IDX to develop business intelligence that will be used for evaluation and monitoring of the listed companies (IDX, 2021).

XBRL development in Indonesian Stock Exchange

The advantages of XBRL as a standard business reporting format that has been used worldwide are recognized by various institutions in Indonesia, including Bank Indonesia and the IDX (Rupang et al., 2019). The IDX is the second organization to launch the XBRL implementation officially for public companies in Indonesia. Since 2012, the Indonesian Stock Exchange (IDX) has started developing XBRL-based reporting. In order to implement the report, taxonomy in representing a

report must be prepared by the IDX. In its early development, the IDX has completed a unique taxonomy for corporate financial statements. Later, the taxonomy of financial statements that the IDX has prepared will be disseminated to all the listed companies (IDX, 2021). The growing use of XBRL represents a fundamental change in flows of financial information (Eierle et al., 2014). In Indonesia, the obligation to submit financial reporting in the XBRL format has been implemented since November 2, 2015

Hypothesis development

Today XBRL's existence is fundamental in digital business reporting since it can enhance transparency, public interest, and stakeholders. According to the information available on the site xbrl.org, XBRL is known as a "bar code for reporting" where data will be marked by taxonomies and the data meaning will be brought more standardized and the reporting chain will be faster, more accurate, and digitized. Signaling theory suggests that signals can indicate that a company has better prospects than other companies (Muslichah, 2020). The positive signal provided by the company will influence the decisions of shareholders, which in turn will affect the increase in share ownership (Muslichah, 2020).

Bank Indonesia Regulation Number 14/14/PBI/2012 states that to increase transparency, banks need to provide quantitative and qualitative information that is timely, accurate, relevant, and adequate to facilitate information users to assessing financial conditions, risk profile performance, and implementation of bank risk management, as well as business activities, including setting interest rates. Along with reporting in the XBRL format, it is hoped that companies can report their financial reports on time. Compliance theory can encourage someone to comply more with applicable regulations, and companies promptly submit financial statements. In addition to the company's obligation, on-time financial statements submission will also be very beneficial for the users (Sulistyo, 2010). The digitized format in reports has shifted

from manual to automatic, and paper-based, HTML, and PDF formats have shifted to formats, meaning data will be defined with special meaning as output known as XBRL instant documents (Ilias & Ghani, 2015). This XBRL reporting format enhances financial statement quality. When the XBRL reporting format is used, it reduces the likelihood of accrual policies from management to improve the quality of financial statements (Prasetyo & Apandi, 2019). For example, in banking organizations, it is found that banks reporting financial statements using XBRL exhibit more sound quality than those not using XBRL (Prasetyo & Apandi, 2019).

Several studies associate XBRL with financial reporting timeliness. Aksoy et al. (2021)investigated the effect of XBRL on annual financial reporting timeliness of non-financial companies listed on Borsa Istanbul (BIST). They found that XBRL had a positive influence on the filing of financial reports. XBRL could help companies prepare their reports more quickly under the internationally standardized taxonomies, allowing information users to easily search for and facilitate the detection and collection of information (Aksoy et al., 2021). In Indonesia, the XBRL application can standardize the financial statements of the banking industry concerning the taxonomy created by IDX specifically for the banking industry (Oswari & Januarianto, 2017). Using this format, the banking sector is found to be more timely in financial reporting (Iyoha, 2012). In line with the study conducted by Rupang et al. (2019), the result shows that the implementation of XBRL has a positive and significant impact on the timeliness of financial reporting. The XBRL suggests that providing financial information in digital format should allow investors to collect and analyze data in a more efficient manner by leveraging automated data collection techniques (Hoitash et al., 2021). Previous studies claimed that the XBRL could increase transparency, timeliness, and the level of information disclosure (Yoon et al., 2011). Based on the explanations above, the hypotheses below are formulated.

H_1: There is a positive relationship between the adoption of XBRL and the financial reporting timeliness.

Control variables
A review of previous studies regarding the financial reporting timeliness leads us to consider the firm characteristics as control variables to analyze the filing lag. These variables include company age, public shareholding, and profitability.

Company age
Owusu & Ansah (2000) stated that older companies tended to be more skilled at producing information. They tend to be more skilled in gathering, processing, and producing information when needed because they have gained sufficient experience so that financial reports can be presented more timely (Saleh & Susilowati, 2004). The older firms are more likely to provide financial reports timely (Iyoha, 2012).

Public shareholding
Outside company owners or shareholders have an interest in knowing the rate of return on their investment. Therefore, they need information that helps them decide whether to buy, hold, or sell shares in a company. With the concentration of ownership from outsiders, the management will be able to get more pressure from outsiders to be more timely (Saleh & Susilowati, 2004).

Profitability
The basis for making investment decisions can use the level of profitability. The company's profitability has significant effects on timely reporting (Aksoy et al., 2021). The study conducted by Wijayanti (2020) concluded that profitability has a positive effect on the timeliness of report submission. It indicates that companies will tend to timely submit their financial statements because the information can enable the public to immediately know that the company has high profitability (Wijayanti, 2020).

3. Research method
Population and sample

The research sample was selected using a purposive sampling approach, meaning that the sample used in this study had to meet specific criteria. The purposive sampling method was used based on the following criteria: (a) banks that successively participated in the Indonesian Stock Exchange in the period of 2015 – 2019; (b) banks that consecutively published annual reports for the period of 2015 – 2019; (c) banks that displayed data and information used to analyze the effect of XBRL adoption on financial reporting timeliness from 2015 – 2019. Based on these criteria, 43 banking companies listed on the IDX met the research sample criteria. In this study, the authors used 38 banks as the samples since the period used was five years. Therefore, the total observation reached 190. Banking companies were selected since they are a highly regulated industry. In addition, this business sector is the first to implement reporting in the XBRL format (Bank Indonesia, 2013). The samples of 38 banking companies listed on the IDX as research samples are presented in Table 1 as follows:

Table 1 List of sample banks in this study

No	Bank Name	No	Bank Name
1	Bank Rakyat Indonesia Agro Niaga Tbk	21	Bank Mandiri Tbk
2	Bank Agris Tbk	22	Bank Bumi Arta Tbk
3	Bank MNC Internasional Tbk	23	Bank CIMB Niaga Tbk
4	Bank Capital Indonesia Tbk	24	Bank Maybank Indonesia Tbk
5	Bank Central Asia Tbk	25	Bank Permata Tbk
6	Bank Harda Internasional Tbk	26	Bank Sinar Mas Tbk
7	Bank Bukopin Tbk	27	Bank of India Indonesia Tbk
8	Bank Mestika Dharma Tbk	28	Bank Tabungan Pensiunan Tahunan Tbk
9	Bank Negara Indonesia Tbk	29	Bank Victoria Internasional Tbk
10	Bank Rakyat Indonesia Tbk	30	Bank Dinar Indonesia Tbk
11	Bank Tabungan Negara Indonesia Tbk	31	Bank Arta Graha Internasional Tbk
12	Bank Yudha Bhakti Tbk	32	Bank China Construction Tbk
13	Bank J Trust Indonesia Tbk	33	Bank Mega Tbk
14	Bank Danamon Indonesia Tbk	34	Bank OCBC NISP Tbk
15	Bank Pembangunan Daerah Jawa Timur Tbk	35	Bank Nationalnobu Tbk
16	Bank Ina Perdana Tbk	36	Bank Pan Indonesia Tbk
17	Bank Jabar Banten Tbk	37	Bank Panin Syariah Tbk
18	Bank Pembangunan Daerah Jawa Timur Tbk	38	Bank Woori Saudara Indonesia 1906 Tbk
19	Bank QNB Indonesia Tbk		
20	Bank Maspion Tbk		

Source: IDX, 2021

Variable measurement
Financial reporting timeliness

The dependent variable in this study is financial reporting timeliness. Timeliness is measured using dummy variables, where category 0 is for companies that issued financial reports on time and category 1 is for those issuing financial reports on time (Rupang et al., 2019). A company financial report submission is considered late if it is reported after March 31, while on-time submission is done before the said date.

XBRL adoption

The independent variable in this study is XBRL adoption which is measured using dummy variables, where category 0 is for companies that have not reported their financial statements in XBRL format. Category 1 is assigned for those having reported their financial statements in XBRL format (Nurhasanah & Harahap, 2018).

Control variable

This study uses several control variables, namely company age, public shareholding, and profitability.

Company age

Old or mature companies tend to be more skilled in gathering, processing, and producing information when needed, because the company has gained sufficient experience so that financial reports can be

presented more timely (Saleh & Susilowati, 2004). The company age is measured since its first issue to the Indonesian Stock Exchange. In this study, the company age is measured by the difference between the beginning of the company making its first issue to the Indonesian Stock Exchange or known as the Initial Public Offering (IPO) with the research year (Suryanto & Pahala, 2016).

Public shareholding

Outside company owners or shareholders have an interest in knowing the rate of return on their investment. Therefore, they need information that helps them to decide their actions, whether to buy, hold or sell shares in a company. Public ownership in this study is measured by the percentage of share ownership by the public (Suryanto & Pahala, 2016).

Profitability

Profitability is used to assess the company's ability to make a profit (Setiawan et al., 2016). The basis for making investment decisions can use the level of profitability. Return on asset (ROA) becomes important information for investors about how much profit is generated from their invested capital. In this study, profitability is measured using the ROA formula which is calculated by dividing operating profit after-tax by total assets multiplied by one hundred percent (Arifin & Wardani, 2016). ROA calculations are used in this study because the ratio can measure overall management effectiveness in terms of profits generation.

Regression model

The data of this study were processed using logistic regression analysis because the independent variable is a matrix and non-matrix combination (nominal). The regression equation is as follow: $Ln (TL/1-TL)_{it} = \beta_{0it} + \beta_1 XBRL_{it} + \beta_2 AGE_{it} + \beta_3 PS_{it} + \beta_4 ROA_{it} + \varepsilon$. $Ln (TL/1-TL)_{it}$ = dummy variable timeliness (category 0 is assigned if the companies did not report financial reports on time and category 1 is for the companies reporting financial reports on time than company i in year t), β_{0it} = constant for company i in year t, $\beta_1 XBRL_{it}$ = dummy variable XBRL (category 0 is for the company not reporting financial statements in XBRL format and category 1 is for those reporting financial statements in XBRL format from company i in year t), $\beta_2 AGE_{it}$ = the difference between the IPO year and the research year for company i in year t, $\beta_3 PS_{it}$ = the percentage of share ownership by the public for company i in year t, $\beta_4 ROA_{it}$ = net income divided by total assets for company i in year t, ε = error term for company i in year t.

4. Results and discussion
Descriptive analysis

Table 2 presents the observation results of 190 banking data tested in Indonesia from 2015 to 2019. It shows that 36% of observations have a value of 0, indicating that they have not reported financial statements in XBRL format. The remaining 64% observations have a value of 1 which means they reported financial statements in XBRL format. The company age of all banks has a minimum value of 0 which is attributed to Bank Harda Internasional Tbk and Bank Yudha Bhakti Tbk, while the maximum value of 37 is Bank Pan Indonesia Tbk. The lowest public ownership of 0.0028% is attributed to Bank J Trust Indonesia Tbk, while the highest public ownership reached 57.48%, assigned for Bank Capital Indonesia Tbk. The profitability of the banking companies tested has a minimum value of -11.15% which is found at Bank of India Indonesia Tbk in 2016, and a maximum value of 9.58% is found at PT Bank Pembangunan Daerah Jawa Timur Tbk. Furthermore, based on the data tested from 2015 to 2019, 11% banking data of financial reports are not timely reported and 89% banking data financial reports are reported timely. In the timeliness variable, there was a trend that showed an increase from 2015 to 2019. In 2015, 2016, 2017, 2018, and 2019 there were 29, 36, 32, 36, and 37 banks reported timely financial statements.

Regression results

There are two tests to determine the most appropriate model for estimating panel data regression: overall model fit and Hosmer and Lemeshow test.

Table 2 Descriptive statistics analysis

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Age	190	0.00	37.00	13.34	8.88
Public Shareholdings	190	0.00	57.48	22.96	15.91
Profitability	190	-11.15	9.58	0.97	2.33
		2015-2019		% Total	
		Category = 1	Category = 0		
Timeliness	190	11%	89%	100%	
XBRL	190	36%	64%	100%	

Source: Secondary data processed

Overall fit model test

The first step to determine the most appropriate model for estimating panel data regression is to assess the overall regression model

Table 3 Overall fit model test

-2 Log Likelihood	Chi-Square Table
118,943	210.040

Source: secondary data processed

Table 3 shows the iteration history block 1 or when the independent variable was entered into the model with N = 190. The -2 Log probability value is 118,943, which is smaller than the chi-square table value with df 185 prob 0.10, which is 210.040. Based on the comparison, it can be concluded that the model fits with the data by including independent variables.

The goodness of fit test

This study used the Hosmer and Lemeshow Test as measured by the chi-square value to assess the feasibility of a regression model. The probability of significance is then compared with the α significance level of 10%. The following table presents the test results with the Hosmer and Lemeshow test.

Table 4 Hosmer and Lemeshow Test

Chi-square	df	Sig.
11.713	8	0.164

Source: secondary data processed

Table 4 shows that from the eligibility criteria, the model tested by the Hosmer and Lemeshow test has a chi-square value of 11,713 and a significance value of 0.164. The significance value is greater than 0.10, which can be concluded that there is no difference between the logistic regression model estimation data and the observational data. Therefore, the model is appropriate, and it is valid to use.

Logistic regression model analysis was conducted to determine the extent to which the dependent variable could be predicted by the independent variable. Test using the logistic regression model in this study aimed to determine the effect of each independent variable on the dependent variable. The level of confidence of testing criteria is 90% or at a significance level of 10% (α = 0.10). The criteria for acceptance or rejection of a hypothesis are based on the significance of the p-value. If the probability value (sig) $< \alpha = 10\%$, the hypothesis is accepted. On the other hand, if the probability value (sig) $> \alpha = 10\%$, the hypothesis is rejected. This study uses a significance test of 10% because producing a significant variable requires a significance level of 10%.

Hypothesis testing

The following table presents the hypothesis testing of the logistic regression model coefficient analysis. Based on table 5, the following logistic regression model is obtained:

$$TL_{it} = 1.934 + 1.208\ XBRL_{it} + 0.002\ AGE_{it} - 0.010\ PS_{it} + 0.175\ ROA_{it} + \varepsilon \qquad (2)$$

Table 5 Hypothesis testing results

	B	S.E.	Wald	df	Sig.	Exp(B)
XBRL	1.208	0.650	3.451	1	0.063	3.348
Age	0.002	0.028	0.006	1	0.940	1.002
Public Shareholdings	-0.010	0.015	0.418	1	0.518	0.990
Profitability	0.175	0.084	4.367	1	0.037	1.191
Constant	1.934	0.574	11.338	1	<0.001	6.920

Source: Secondary data processed

Discussion

XBRL Adoption and Financial Reporting Timeliness

Based on the results of the logistic regression test as shown in Table 5, the variable XBRL has a significance value of 0.063, which is lower than 0.10. Based on the significance value, it could be concluded that H1 is accepted, which means that XBRL has a significant effect on financial reporting timeliness. Based on the logistic regression test results, it shows a positive direction in the XBRL variable coefficient in line with the research conducted by Aksoy et al. (2021) and Rupang et al. (2019). It means that the adoption of XBRL can speed up the processing time of financial reporting so that companies can timely report financial reporting on the Indonesian Stock Exchange. Financial reporting using XBRL, which makes the process routinized and automated, is expected to be completed more timely (Du & Wu, 2018). Timely reporting is possible when the reporting mechanism and technology development promote management to disclose information as soon as the information is available. The fast information submission can be a positive signal for investors, which will influence the decisions of shareholders. In turn, it will affect the increase in share ownership (Muslichah, 2020).

Alles & Debreceny (2012) state that investors, analysts, financial institutions, and regulators are financial data users. Given the report in XBRL format, the users will be able to receive, find, compare, and analyze data more quickly and efficiently. According to Chang & Jarvenpaa (2005), financial report information reported via the internet based on XBRL format is expected to be used as global standard data. This statement is also in line

with Wagenhofer (2007), suggesting that standardization of the format and content of financial information can be obtained if XBRL is widely applied. The development of the capital market industry can lead to a high need for information to be used by parties interested in these reports. If the information issued by a company or country is presented in the same language format, it can be processed quickly.

From 2015 to 2019, the rate of financial report submission in XBRL format in Indonesian banking companies continued to increase. As in the 3rd quarter of 2019 financial statements, XBRL reporting reached 97% vis-a-vis 76% in the first year of implementation in 2015. Based on Bank Indonesia Regulation Number 14/14 / PBI / 2012 that requires banks to provide quantitative and qualitative information on time, in accordance with the research results, the XBRL application is in line with the increasing number of banks reporting financial reports on time. In 2015, the first year for the XBRL implementation, there were 29 banks or 76% reporting financial reports on time and continued to increase until 2019, accounting for 37 or 97% banks that reported financial reports on time. These data show that XBRL adoption can improve financial reporting timeliness. The timely submission of financial reporting will affect the value of financial statements relating to the value of company securities and investors' decisions (Kartikasari & Ifada, 2010) The adoption of XBRL itself aims to improve stakeholder decision-making by increasing the speed of information transmission these stakeholders need in making important decisions. In addition, from the company side, XBRL plays a role in presenting financial statements

with high quality and standardized formats; thus, investors will judge that the company has good quality and low risk. It will lower the company's cost of capital (Mahardika & Harahap, 2018).

Dyer & Aj (1975) state that timeliness in reporting is an essential characteristic of financial statements. Information should be submitted as early as possible to be used as a basis to assist in making economic decisions and avoid delays in the process (Baridwan, 1995). The value of information will be lost if the information is not delivered on time. In addition, it will also cause managers to face the uncertainty that occurs in their work environment. Moreover, delays in financial reporting can have negative consequences for the company, either directly or indirectly. Indirectly, investors may respond to the delay as a bad signal for the company. Directly, public companies that violate the principle of information disclosure by not submitting annual financial reports on time have been subject to administrative sanctions and fines (Suryanto & Pahala, 2016).

Company age and financial reporting timeliness

Based on the results of the logistic regression test as shown in Table 5, we can see that the variable company age has a significance value of 0.940, which is greater than 0.10. Based on the significance value, it can be stated that company age variable has no significant effect on financial reporting timeliness. The study results are in line with that of the research conducted by Indrayenti & Ie (2016) which found that companies listed on the Indonesian Stock Exchange for extended period did not always submit their financial reports on time. On the other hand, the newly listed companies on the Indonesian Stock Exchange will not always be late in submitting financial reports. The study results are not in line with that conducted by Saleh & Susilowati (2004), which found that older companies tended to be more skilled in collecting, processing, and producing information when needed. They have gained sufficient experience so that financial statements will be served timelier.

Public shareholding and financial reporting timeliness

Based on the logistic regression test results, as shown in Table 5, it shows that the public shareholding variable has a significance value of 0.518, which is greater than 0.10. Based on the significance value, we can state that public shareholding has no significant effect on financial reporting timeliness. The study results are in line with those of the research conducted by Suryanto & Pahala (2016), which revealed that either high or low public shareholding companies did not affect to submit their financial reports timely. Outside company owners or shareholders are interested in the rate of return on their investment. Therefore, they need information that helps them decide whether to buy, hold, or sell shares in a company. The percentage of share ownership measures public ownership in this study by the public (Suryanto & Pahala, 2016). Based on data obtained from financial reports uploaded from the IDX website, it can be seen that either high or low public shares cannot influence the bank to submit financial reports timely. For example, Bank Artha Graha Internasional has a public share of 55.78%, and Bank IBK Indonesia, which has a public share of 2.94%, these banks are not timely in submitting the company's financial statements. Therefore, it is concluded that public share ownership does not affect the company's financial reporting timeliness.

Profitability and financial reporting timeliness

Based on the logistic regression test results as shown in Table 5, it shows that the profitability variable has a significance value of 0.037, which is smaller than 0.10. Based on the significance value, it can be stated that profitability influences financial reporting timeliness. The direction of the positive coefficient shows that the higher the level of profitability, the higher the tendency of the bank to submit financial reports on time. The basis for making investment decisions can use the profitability level, which can be used to measure how capable the company is in obtaining a rate of return on its assets. It is used to assess a company's

ability to create a profit (Setiawan et al., 2016).The level of profitability can be used as the basis for making investment decisions to measure the company's ability to produce a rate of return on assets. Return on asset (ROA) becomes valuable information for investors about how much profit is generated from the invested capital. In this study, profitability is measured using the ROA formula which is calculated by dividing operating profit after-tax by total assets multiplied by one hundred percent (Arifin & Wardani, 2016) In line with the study conducted by (Wijayanti, 2020), profitability has a positive effect on the timeliness of report submission. It indicates that companies will tend to submit their financial statements timely. The public must immediately know the good news that the company has high profitability (Wijayanti, 2020). Azhari & Nuryatno (2019) state that profitability influences financial reporting timeliness. The higher the level of profitability, the higher the tendency to submit financial reports on time. Furthermore, a company's profitability has significant effects on timely reporting (Aksoy et al., 2021).

5. Conclusions

This study aims to find empirical evidence regarding the effect of XBRL adoption on financial reporting timeliness. These research objects are banking companies listed on the Indonesian Stock Exchange which provides research data for five consecutive years from 2015 to 2019. Based on the logistic regression and research analysis results, it can be concluded that XBRL adoption has a significant effect on financial reporting timeliness in a positive direction. The adoption of XBRL can speed up the processing time of financial reporting so that companies can timely issue financial reporting on the Indonesian Stock Exchange. According to the research results, the XBRL implementation is in line with the increasing number of banks reporting financial reports on time. In 2015, the first year of the XBRL implementation, there were 29 banks reporting financial statements on time and continued to increase until 2019, acounting for 37 banks reporting on time. This evidence shows that

XBRL adoption can improve financial reporting timeliness.

Based on the research results, there are several research implications. First, this research is expected to inform investors that current financial information of Indonesian banking companies can be accessed via XBRL format. Second, the study results are expected to be a reference as a recommendation for companies, especially banking companies, that the XBRL implementation can provide relevant and reliable information, faster data access, and better business decision-making for investors.

As other empirical studies, this study has several limitations that provide initiatives for future research. This study uses only one independent variable, XBRL adoption with three control variables, i.e., company age, public shareholdings, and profitability. Several other factors that might affect the financial reporting timeliness are not taken into account in this study. In addition, this study uses a dummy variable to measure the XBRL implementation. Future research is expected to use another formula as a comparison and completion of this research.

In the light of the above discussion results, conclusions, and limitations in this research, the authors wish to make some recommendations to obtain more improved results. First, this study only examines banking companies listed on the Indonesian Stock Exchange. Future research is expected to widen coverage by reviewing more companies, such as all companies listed on the Indonesian Stock Exchange. Second, the dependent variable can be further developed or future study may examine the effect of XBRL adoption on other aspects in financial reporting timeliness, such as information asymmetry. Third, further research can add control variables to determine the effect of the independent variable on the dependent variable. Thus, it is not influenced by other factors outside the study.

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