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Do CAMEL and Sustainability Influences a Bank Performance?

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ABSTRACT

This research investigates the influence of sustainability reports and CAMEL ratios on Indonesian banks performance, utilizing secondary data from Indonesia's publicly listed banks. The main **purpose** of this study is to identify the relationship between sustainability reports and CAMEL ratios in terms of impact on the performance of banks. Specifically, it aims to explore how sustainability practices affect bank performance, considering factors such as share price, profit per share, and overall growth. The **relevance** of this study is due to the development of the banking sector, in which factors that go beyond financial indicators, such as sustainable development, are becoming increasingly important. Assessment of the impact of sustainability practices along with established financial ratios, such as CAMEL, on bank performance provides novel insights into the contemporary evaluation of banking institutions. The examination of the Indonesian banking sector offers a unique perspective due to its dynamic economic and environmental context. This research uses a quantitative approach. Secondary data from the financial statements, annual reports and sustainability reports of several Indonesian banks were analysed. The study utilizes statistical analysis to explore correlations between sustainability disclosures, CAMEL ratios, and various performance indicators. The **conclusions** of this study confirm the pivotal role of sustainability reporting in influencing banks' performance. Notably, environmental disclosures emerge as a crucial aspect positively associated with financial performance metrics. The alignment of sustainable practices with financial prudence is indicative of a proactive risk management approach adopted by banks, thereby contributing to their overall soundness and growth potential.

Keywords: bank performance; CAMEL; growth; soundness; sustainability; ratio

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Влияют ли показатели CAMEL и устойчивого развития на результаты деятельности банка?

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АННОТАЦИЯ

В данном исследовании изучается влияние отчетов об устойчивом развитии и коэффициентов CAMEL на показатели деятельности индонезийских банков с использованием вторичных данных публично зарегистрированных банков Индонезии. Основная **цель** исследования – выявить взаимосвязь между отчетами об устойчивом развитии и коэффициентами CAMEL в плане влияния на показатели деятельности банков. В частности, исследование направлено на изучение того, как практика устойчивого развития влияет на показатели деятельности банков, учитывая такие факторы, как цена акций, прибыль на акцию и общий рост. **Актуальность** данного исследования обусловлена разви-

тием банковской сферы, в которой все большее значение приобретают факторы, выходящие за рамки финансовых показателей, такие как устойчивое развитие. Оценка влияния практики устойчивого развития, наряду с устоявшимися финансовыми коэффициентами, такими как CAMEL, на результаты деятельности банка позволяет по-новому взглянуть на современную оценку банков. Рассмотрение банковского сектора Индонезии предлагает уникальную перспективу в связи с его динамичным экономическим и экологическим контекстом. В данном исследовании применяется количественный подход. Проанализированы вторичные данные из финансовой отчетности, годовых отчетов и отчетов об устойчивом развитии нескольких индонезийских банков. Метод статистического анализа использован для изучения корреляций между раскрытием информации об устойчивом развитии, коэффициентами CAMEL и различными показателями деятельности. **Выводы**, сделанные на основе данного исследования, подтверждают ключевую роль отчетности в области устойчивого развития во влиянии на результаты деятельности банка. Примечательно, что раскрытие информации об экологии является важнейшим аспектом, положительно связанным с показателями финансовой деятельности. Согласование практики устойчивого развития с финансовой осмотрительностью свидетельствует о проактивном подходе банков к управлению рисками, что способствует их общей устойчивости и потенциалу роста.

Ключевые слова: банковская деятельность; CAMEL; рост; устойчивость; устойчивость; коэффициент

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INTRODUCTION

The number of sustainability reports and Environmental, Social, and Governance aspects (ESG) in Indonesia has increased rapidly since the Indonesia Financial Service Authority's (OJK) regulation No. 51/POJK03/2017 about companies are required to prepare a Sustainability Report starting in 2021 (1 January 2021–31 December 2021) [1]. The demand for the disclosure of sustainability reporting for companies along with public awareness about social and environmental issues. Moreover, the company's market value will increase as investors consider companies with good environmental responsibility because they tend to have a small risk [2]. Existing institutional and functional contradictions at various levels must be eliminated for the present global monetary and financial system to be transformed. As a result of the unequal development of the global financial sector, a number of contradictions occurred [3].

The financial industry is a significant player in facilitating the population's monetary transactions, as further proven by the growing number of customers served by financial companies [4]. A study of the Indonesian banking industry elaborates on how the large consumer base and the rising middle-class population are the key drivers of the banking market. A modern economy cannot be imagined without the services of a bank. The banking business has been shaped as a global business since its functions have reached beyond the borders of a country. Most importantly, the rest of other businesses are greatly dependent upon the sound performance of the banking business.

Banks are the backbone of the global economy and play an integral role in society, affecting not

only spending by individual consumers but also the growth of entire industries. Banks are mediating cash movements from households to firms and their vital role makes them one of the most regulated industries [5]. Regulations aim to stabilize the economic movement and act as macro-prudential supervision, particularly in analyzing trends to avoid systemic risks and possibly impeding a nation's economic condition.

Market failures within the financial industry result in substantial consequences for numerous industries as well [6]. A major example was the 2008 financial crisis triggered by the U.S. subprime mortgage market, but it affected the shrinkage of Germany's GDP by up to 6% and was recorded as the most notable drop in global trade since the 1930s [6]. These phenomena prove the importance of banking regulations to ensure the system is safe and sound.

Bank soundness is the ability of a bank to survive adversity in the economy. Financial ratios play a key role in assessing bank soundness, as early signs of impairment could be easily detected by changes in the internal condition of the banks [7]. Each country has different banking regulations to ensure soundness. Indonesian regulatory policies are issued by the Central Bank of Indonesia, which aim to foster improvement in national economic growth, maintain financial system stability and realize society's financial interdependence [8].

The border on the soundness of a bank is done with an integrated rating of banking performance focusing on their capital, asset quality, management, earnings, and liquidity (CAMEL). As stated in the Indonesian Banking Dictionary, CAMEL is the aspect influencing the financial condition and soundness of

the bank and is published in the bank's annual report. CAMEL is an internationally applicable rating system to rate financial institutions [9]. A bank is considered safe and sound, when its CAMEL ratios are within the required ratios established by the central bank. Thus, CAMEL ratios of banks are standardized for an overall stable, safe, and sound economic system [9].

The challenge of balancing a good internal operation and leaving a positive footprint on the environment may be immense. Are banks that successfully portray good soundness able to disclose their sustainable actions? To what extent does becoming socially responsible and having good soundness result in a good bank's performance to their shareholders? This study aims to elaborate on the influence of sustainability and soundness, approximated by the sustainability report and CAMEL ratio, on Indonesian banks' performance.

Hypothesis 1: Sustainability influences a bank's performance

Hypothesis 2: CAMEL influences the bank's performance

DATA AND METHODOLOGY

Data set

The sources of data collection for this study are secondary data. The study relies on available data from the banks in marketplaces. Essentially, secondary data means the data is provided through 1st and 2nd parties, not directly from the source. The main source of collections is the bank's annual reports and sustainability reports.

To complete the data for sustainability indicators, the information and figures are collected from the bank's sustainability report. Some banks provide a separate sustainability report, while others include it in the annual report under the section "Corporate Social Responsibility". Within the reports, banks disclose their sustainable actions according to the bottom-line outcome. For instance, a bank's economic sustainability is reflected through sales growth, asset growth, branch expansion, and net profit growth [10]. A bank's social sustainability is reflected through the loans distributed to Micro, Small, and Medium Enterprises, People's Business Loans, and employee training and development expenses. Lastly, a bank's environmental sustainability is disclosed through resource usage: water, electricity, and paper consumption.

A bank's CAMEL ratios are all extracted strictly from the annual report to ensure the figures are accurate and validated [11]. In each annual report, all ratios of CAMEL are available under the financial

highlights. The ratios extracted from the annual reports are capital adequacy ratio (capital adequacy), non-performing loan ratio (asset quality), net interest margin (management), return on assets (earnings), and loan deposit ratio (liquidity).

For the performance indicator, share price, earnings per share (EPS), and price earnings ratios (P/E), the Indonesia Stock Exchange website (IDX) and Bloomberg terminal are used to complete any missing figures from the report. These two sources were chosen because they facilitate the movement of shares, complete with their supporting information. Furthermore, these two facilities summarize and share information, such as EPS and P/E for the convenience of buyers. In the annual report, share prices are found under share highlights.

From the total of 43 publicly listed banks within the banking industry, the banks selected are based on their strata. The study focuses on the 10 largest banks based on total assets as of 2017. The 10 banks listed in the table below are selected because, according to the publication by D. Rimbo et al. [12], as of 2017, these 10 banks are the key players in the Indonesian Banking Industry due to their significant market share (*Table 1*).

METHODOLOGY

The methods used in this research are descriptive and causal-correlational. The population in this study is publicly traded banks in Indonesia that are listed on the Indonesian Stock Exchange. We found 43 publicly listed banks but only focused on 10 banks that are known as key players in the Indonesian banking industry. Bank Indonesia (2015) describes the CAMEL rating as the most influential aspect of the bank's financial condition, thus affecting the bank's soundness. The rating is set as a benchmark by regulators to supervise banking conditions. The official CAMEL ratings are not yet publicly released and are disclosed strictly to the top management level. Any result may trigger public opinion, eventually causing a possible bank run. Each rating ranges from 1 to 5, with 1 being the best rating as it represents the least amount of regulatory concern. A. Kusumawardani [13] affirms that in Indonesia, CAMEL is legitimated through the Decree of the Board of Directors of Bank Indonesia No. 30/11/KEP/DIR in 1997, the Decree of the Board of Directors of BI No. 30/227/KEP/DIR in 1998 and the Circular Letter of Bank Indonesia No. 06/23/DPNP, May 31, 2004 — dictating the assessment level system of Commercial Bank Regulations. All

Table 1

10 Largest Publicly Listed Banks by Total Asset as of 2017

No.	Bank Name	Bank Code	Total Asset (RP Billion)
1	PT Bank Rakyat Indonesia (Persero) Tbk	BBRI	1,076,438,066
2	PT Bank Mandiri (Persero) Tbk	BMRI	978,377,431
3	PT Bank Central Asia Tbk	BBCA	734,705,608
4	PT Bank Negara Indonesia (Persero) Tbk	BBNI	661,658,373
5	PT Bank CIMB Niaga Tbk	BNGA	264,160,781
6	PT Bank Tabungan Negara (Persero) Tbk	BBTN	261,365,267
7	PT Bank Pan Indonesia Tbk	PNBN	196,630,282
8	PT Bank Maybank Indonesia Tbk	BNII	159,899,681
9	PT Bank Danamon Indonesia Tbk	BDMN	153,442,082
10	PT Bank Permata Tbk	BNLI	147,992,131

Source: Bank Indonesia. URL: <https://www.bi.go.id/en/statistik/ekonomi-keuangan/seki/Default.aspx> (accessed on 03.11.2022).

companies are publicly listed on the Indonesian Stock Exchange. Under the Jakarta Stock Exchange Industrial Classification (JASICA), the chosen sector is the financial sector. Within the financial sector, the industry chosen is the banking industry. Data analysis is carried out using SPSS and AMOS to analyze how sustainability and CAMEL influence a bank's performance. The variables in this study are sustainability, CAMEL, and performance. Each of them has indicators as follows: sustainability (economic, environmental, and social); CAMEL (capital adequacy, asset quality, management, earnings, and liquidity); performance (share price, earning per share, and price-earnings ratio). One indicator in the CAMEL ratio is excluded, which is sensitivity, as the study attempts to focus on internal operations, not market conditions.

MAIN FINDINGS

From Table 2 LG (Loan Growth), SP (Share Price), EPS (Earnings per Share), and PE (Price Earnings Ratio) show a relatively high deviation. These indicate that the numbers of the data fluctuate annually, resulting in high variations. LG and the SP do deviate due to the sensitivity of the market. LG is impacted by the demand from the market. The government plays a vital role in loan distribution to MSMEs. These are some factors in the fluctuation of LG. The SP also fluctuates as the stock market price is driven by macroeconomic conditions. Within the period of the study, major

occasions such as political elections and natural disasters occurred in Indonesia and impacted the overall stock exchange, including the banks. We can conclude that changes in SP directly impact EPS and PE.

BG, ED, LG, LQ, SP, EPS, and PE have high variance, meaning that these data vary annually [12]. Banks have nonidentical data annually since banks are highly market-driven and regulations adhere to frequent revisions from the government [13]. The regulations regarding loans to MSME have been revised, causing LG to have a rising trend from 2008 to 2017. This either triggers banks to boost their lending capital or surges the demand for loans for small businesses. The loan is one of the bank's most significant assets, therefore more granted loans impact the bank's LQ (liquidity) and SP (share price).

Kurtosis measures the outliers present in the distributions and describes extreme values in one data set; hence, higher kurtosis indicates more outliers [14]. Evidently, from the data set BG, LG, and PE have the highest outliers. One mutual comprehension amongst these three aspects is that branch growth, loan growth, and price-earnings ratio are impacted by external stakeholders. Thus numbers circulate based on macroeconomic conditions.

As seen in Cronbach's Alpha Based on Standardized Items, the data measures a total of 0.498 out of 1 (Table 2). Referring to the theory data for the sub-variables is 50% acceptable and valid to indicate the variables [15].

Table 2

Descriptive Statistics

Descriptive Statistics									
	N	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
		Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic
BG	100	4.69	1.36	13.56	183.79	-0.935	0.241	10.360	0.478
ED	100	39.16	2.77	27.69	766.84	0.616	0.241	-0.906	0.478
LG	100	-4.07	8.56	85.56	7319.86	-5.387	0.241	35.484	0.478
CAR	100	16.68	0.27	2.74	7.53	0.426	0.241	-0.432	0.478
AQ	100	2.49	0.13	1.30	1.70	1.084	0.241	4.276	0.478
MGT	100	6.21	0.18	1.81	3.28	1.174	0.241	0.704	0.478
EA	100	2.27	0.13	1.31	1.72	-1.328	0.241	7.814	0.478
LQ	100	86.00	1.20	12.02	144.50	-0.683	0.241	0.608	0.478
SP	100	3791.87	409.50	4094.98	16768828.78	1.673	0.241	3.290	0.478
EPS	100	290.74	29.15	291.54	84996.76	1.055	0.241	0.405	0.478
PE	100	15.21	3.98	39.79	1583.43	-6.361	0.241	58.385	0.478

Source: Compiled by the authors.

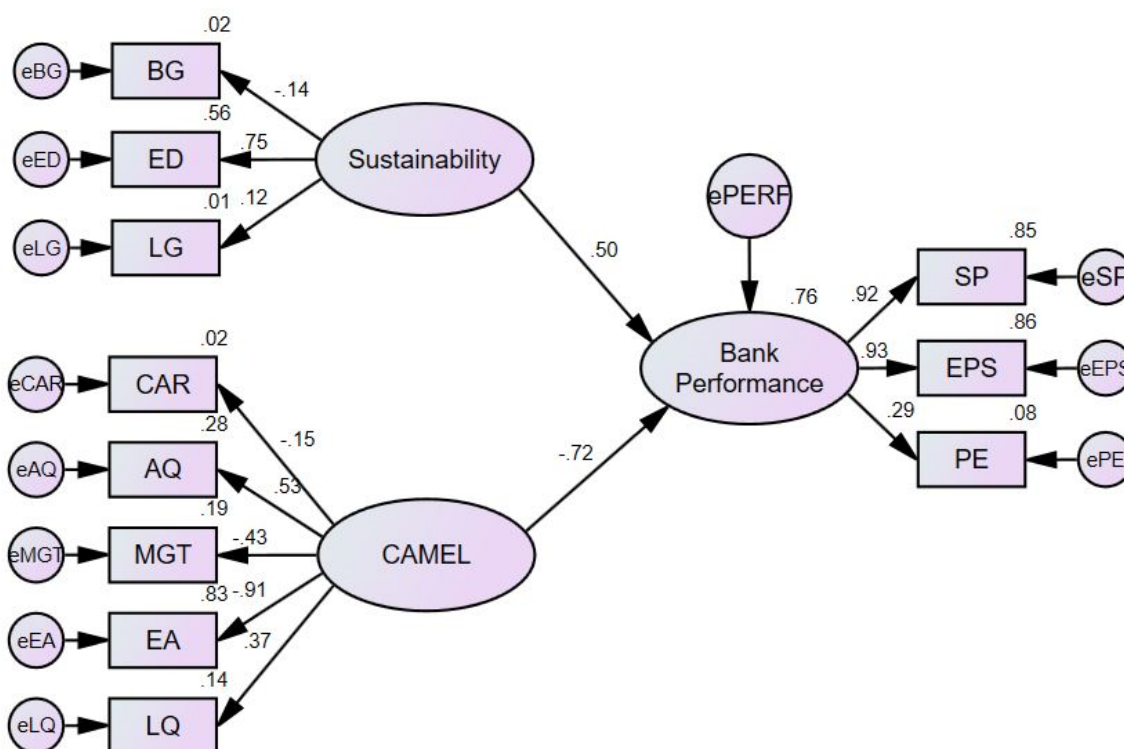


Fig. 1. Path Diagram Result

Source: AMOS result by the authors.

Table 3
Reliability Statistic

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.132	0.498	11

Source: Statistic result by the authors.

Table 4
Validity Statistic

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.587
Approx. Chi-Square	372.044
df	55
Sig.	0.000

Source: Statistic result by the authors.

As seen in the Kaiser-Meyer-Olkin (KMO) Adequacy, the data measures a total of 0.587 out of 1 (Table 3). Referring to the theory, the data for the sub-variables is 59% reliable to indicate the variables and can be accepted.

The structural equation modeling (Fig. 1) explains the correlation of sustainability to the bank's performance and the CAMEL ratio to the bank's performance. This study provides coefficient details among variables and indicators in the structural equation model of this study (Table 4).

Sustainability has a direct effect on a bank's performance of up to 50%. As supported by previous studies by J. Paulík et al. [14] and O. Weber [16] by publishing sustainability reports, banks are disclosing their output. Explicitly disclosed outputs trigger banks to take control of their resources, which impacts cost reduction and risk control. Thus, sustainable actions positively correlate to performance, and this relationship is rated as low as referred to in the Correlation Coefficient Size Rule of Thumb.

The CAMEL ratio has an inverse relation to the bank's performance of up to 72%. It can be addressed by the fact that with an increase in bank performance, CAMEL decreases by 72%. Studies by R. Costa-Climent and C. Martínez-Climent [10] discovered

Table 5
Standardized Regression Weights

Correlation			Estimate
Performance	<---	Sustainability	0.498
Performance	<---	CAMEL	-0.718
LG	<---	Sustainability	0.118
ED	<---	Sustainability	0.75
BG	<---	Sustainability	-0.14
LQ	<---	CAMEL	0.368
EA	<---	CAMEL	-0.913
MGT	<---	CAMEL	-0.434
AQ	<---	CAMEL	0.533
CAR	<---	CAMEL	-0.146
SP	<---	Performance	0.922
EPS	<---	Performance	0.928
PE	<---	Performance	0.285

Source: Statistic result by the authors.

Table 6
Sustainability Indicator Correlation Value

Indicator			Estimates
LG	<---	Sustainability	0.12
ED	<---	Sustainability	0.75
BG	<---	Sustainability	-0.14

Source: Statistic result by the authors.

Table 7
CAMEL Indicator Correlation Value

Correlation			Estimates
LQ	<-	CAMEL	0.368
EA	<-	CAMEL	-0.913
MGT	<-	CAMEL	-0.434
AQ	<-	CAMEL	0.533
CAR	<-	CAMEL	-0.146

Source: Statistic result by the authors.

similar findings. The inverse relationship between the CAMEL ratio and the bank’s performance can be due to one possibility: when the loan increases, the bank is exposed to more risk (uncollectible loans) [17]. To cover this risk, assets are reduced. The asset shortage is covered by capital, thus the inverse relationship.

From Table 5, it is evident that environmental disclosure has the most significant explanatory power (75% in indicating sustainability). Though the calculated result of influence for sustainability is severely minimal, loan growth still has an explanatory power of 12% and branch growth still has explanatory power of 14%, indicating sustainability.

LG (loan growth) has an explanatory power of 12% in explaining sustainability (Table 6). A previous study found that loan growth is a better proxy for macroeconomic conditions because it depends on market demand. A better alternative to indicate, as suggested by O. Weber [16] is the financing grants from banks towards impact investments and environmental-related projects. For banks to be impactful in sustainable development, they must be involved in financing greener projects such as renewable energy and infrastructure development for long-term development, not solely micro, small, and medium enterprises.

ED (environmental disclosure) has an explanatory power of 72% in explaining sustainability. A study by R. Costa-Climent and C. Martínez-Climent [10] explains that disclosed energy usage triggers banks to consume energy wiser. Tracing energy usage enables banks to control expenses and prevent potential risks, according to the study.

BG (branch growth) has the explanatory power of 14% in explaining sustainability; albeit relatively minor, branch growth still has a minor influence on sustainability. This circumstance is supported by the study by G.K. Dzombo et al. [17] where it is discovered that agency (branch) banking has an inverse influence on financial performance. The study suggests that branch expansion may lead to capital expansion, but it exposes more costs and impacts economic sustainability. Concerning the above explanation, it is apparent that sustainability influences the bank’s performance. Therefore, hypothesis 1 has been appropriately addressed.

LQ (liquidity) has an explanatory power of 37% in indicating CAMEL. Based on the rule of thumb, this explanatory power is low (Table 7). A previous study stated that sufficient liquid is required to bear any sort of emergency, so adequate liquidity reflects the bank’s soundness.

EA (earnings) has an explanatory power of –91% in indicating CAMEL. This inverse relation is due

Table 8

Performance Indicator Correlation Value

Correlation			Estimates
SP	<---	Performance	0.922
EPS	<---	Performance	0.928
PE	<---	Performance	0.285

Source: Statistic result by the authors.

Table 9

Modification Indices Table

Indicator			M.I.	Par Change
eEPS	<- ->	ePE	5.115	-1213.646
eCAR	<- ->	Sustainability	13.532	12.386
eAQ	<- ->	Sustainability	7.153	3.742
eMGT	<- ->	eEPS	6.572	59.723
eMGT	<- ->	eAQ	14.284	0.703
eLQ	<- ->	eSP	8.064	-6387.621
eLQ	<- ->	eCAR	7.373	8.29
eEC	<- ->	eCAR	5.63	15.652
eEC	<- ->	eAQ	8.383	7.935
eEC	<- ->	eEA	5.337	4.757

Source: Statistic result by the authors.

to the logical sense that high earnings (return on asset) indicate higher loans. Thus, when earnings are higher, banks are granting bigger loans, eventually exposing the bigger risks of uncollectible loans. For this reason, it is logical that the relationship between EA and CAMEL is inverted.

MGT (management) has an explanatory power of –43% in explaining CAMEL. MGT is translated through the net interest margin. It shows that the volatility of a bank’s NIM is caused by vulnerabilities in the banking sector. Vulnerability in this case refers to the amount people deposit and the amount of credit granted. The balance between these two determines the soundness of banks, thus making the correlation of MGT to CAMEL inverse. In other words, the more banks grant bigger credits while acquiring low deposits, the lower the net interest margin is generated.

AQ (asset quality) has an explanatory power of 53% in explaining CAMEL. This degree of influence appears to be logical since the collection of loans results in higher interest, thus giving the bank a bigger safety margin [18].

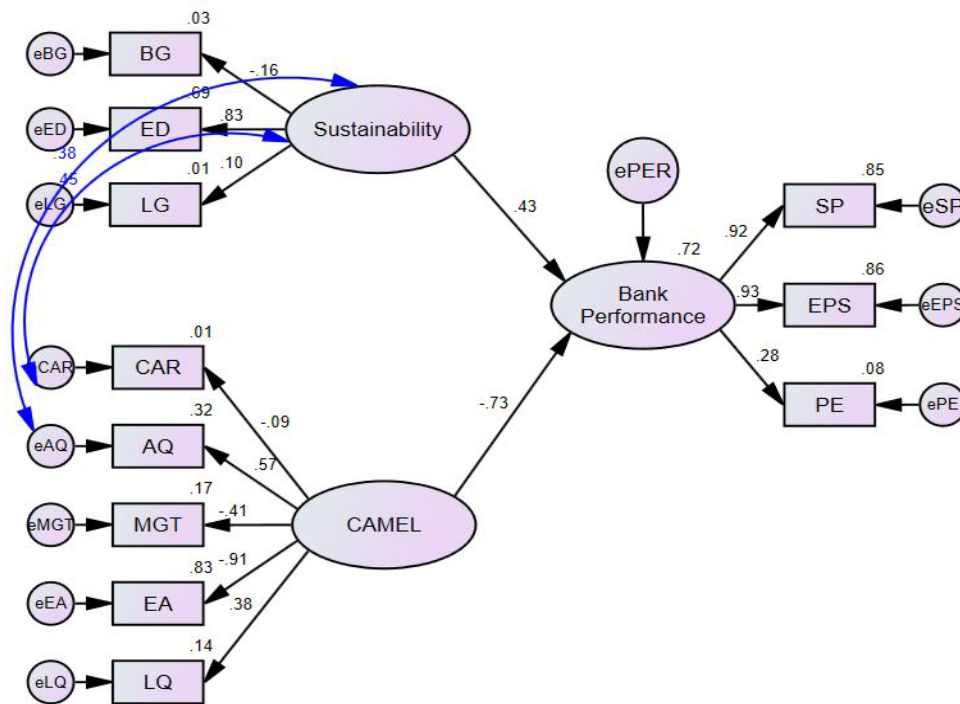


Fig. 2. Modified Path Analysis

Source: AMOS result by the authors.

CAR (capital adequacy ratio) has an explanatory power of -15% in explaining CAMEL. This correlation is considered minor. Evidently, from the data for this study, the CAR ratio fluctuates from year to year. Fluctuating CAR is caused by changes in the risk-weighted asset (uncollectible loans). Granted loans are recorded as potential income, but when the likelihood of collection is minimal, banks record it as a loss, hence the fluctuation. Concerning the above explanation, it is apparent that CAMEL influences the bank's performance. Therefore, hypothesis 2 has been appropriately addressed.

Capital adequacy reflects safety protection for stakeholders and denotes the overall financial position of a bank. Bank Indonesia describes the capital adequacy ratio (CAR) as the comparison between the number of capital and risk-weighted assets. This ratio reflects the minimum acceptable level of capital for banks to operate. Found that the bank has sufficient capital to compensate for unexpected losses.

SP has an explanatory power of 92% in explaining bank performance. This correlation is highly significant (Table 8). It shows how performance is strongly reflected through share price. The share price signals the market valuation of the company's stock, stimulated by the signaling theory based on the company's performance. The study further explains that when the public receives information

containing a positive value, the market will react positively.

EPS has an explanatory power of 93% in explaining bank performance. This correlation is highly significant. EPS has the most significant correlation in explaining performance. According to one of the previous studies, EPS is one of the most frequently used factors in making investment decisions. Essentially, this ratio reflects the amount of additional wealth for investors from each share purchased. EPS is highly regarded; it will become a key driver of share prices in the upcoming time. For this reason, EPS indicates the bank's performance is the strongest.

The price-earnings ratio has an explanatory power of 29% in explaining bank performance. This correlation is minor compared to previous indicators. D. Trainer further explains that PE in the banking industry is relatively low in the market due to riskier investments as banks grant loans to generate income [19].

Referring to Table 9, eEPS to ePE can be modified with a par change -1213. Theoretically speaking, these indicators reflect the share price and its earnings. The negative correlation can be explained by the fact that EPS is the denominator of the price-earnings ratio.

Another suggested modification is eLQ to eSP with a par change of -6387. This highly significant change is theoretically acceptable. Supported by previous

studies that the more liquid the stock is, the lower the return. The study implies that holding a longer period of stocks increases the net expected return from illiquid assets.

Another alternative is proposed on the Modification Indices to address the H_2 . The eCAR and eAQ can correlate to sustainability for a more significant model relation. CAR is appropriate to indicate sustainability because, with capital adequacy, banks can embrace risks. Based on studies, adequate capital enables a bank to become stable over the long run, or, in other words, economically sustainable [20].

AQ is capable of explaining sustainability. AQ, which is measured by non-performing loans, signals the possibility of uncollectible loans. As studied by P. Melich, M. Civelek [21] for banks to be sustainable, they must possess adequate reservations to operate and AQ indicates the possibility of uncollected loans that impact a bank's cash flow. Essentially, a good non-performing loan ratio is one approach to reflect better cash flow. Banks with better cash flow are therefore more sustainable.

Referring to Modified Path Analysis, the influence of CAMEL on bank performance increases by -1% while the influence of sustainability on bank performance is reduced to 43% (Fig. 2).

Referring to the diagram above (Fig. 3), banks can prioritize their environmental disclosure, as it is evident to have the most significance in indicating sustainability. This elaborates on the purpose of the sustainability report as it takes into account environmental factors for the bank's operations. Numerous approaches are possible in enhancing environmental disclosure; allocating costs for recording outputs, regulating firms to be transparent in resource usage, and providing human resources training to increase knowledge regarding environmental awareness are some possible approaches, as examined by M. Bhatia [22].

While branch growth and loan growth to MSME have minor significance, they still depict a degree of influence. Branch growth and loan growth to MSME are not prioritized for banks to be more sustainable. Referring back to the study by M. Bhatia and O. Weber another alternative to enhancing a bank's sustainability is focusing on renewable energy financing, infrastructure financing, and credits for community development [16, 22].

Referring to the diagram above (Fig. 4), earnings (EA) have the biggest explanatory power of CAMEL. As elaborated in the literature review, earnings are calculated by the net interest margin. Net interest margins are determined by the bank's management

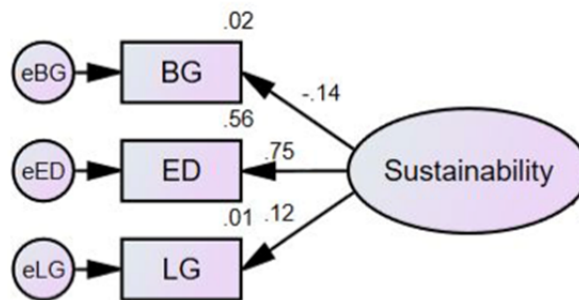


Fig. 3. Sustainability Indicators

Source: AMOS result by the authors.

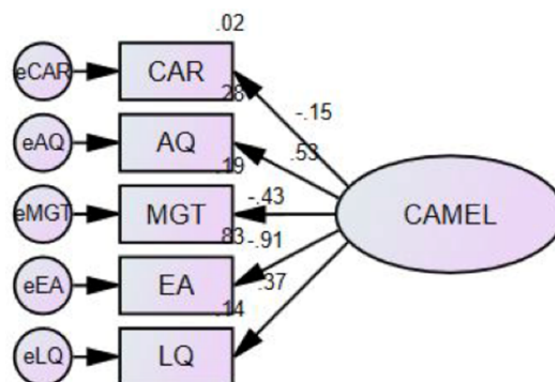


Fig. 4. CAMEL Indicators

Source: AMOS result by the authors.

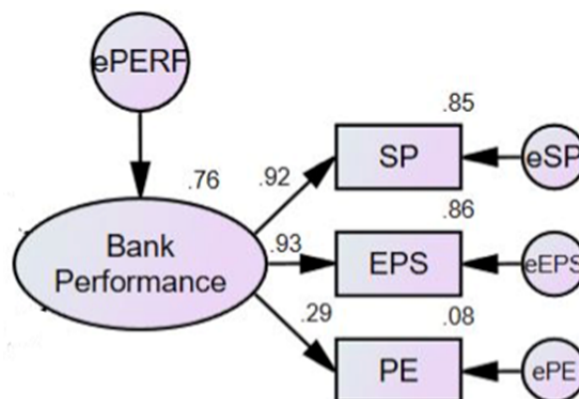


Fig. 5. Bank Performance Indicator

Source: AMOS result by the authors.

decisions in regulating interests given to depositors and creditors. This income is crucial because an extensive portion of the bank's income is through interest. Banks may rate themselves as "sound" when their income is sustaining. For this logic, it is believed that a bank's strategy in regulating interest is vital for the soundness of the bank. The right amount of interest will stimulate more depositors, eventually giving banks more reserved capital. While the unattractive rate of interest can hinder depositors

and even hinder collectible loans, eventually forcing banks to record losses.

The vitality of interest rates is indisputable; hence, the government has established limits for banks to set their interest rates. Banks compete with one another by offering different interest rates to sustain customers.

It is apparent from the figure above (Fig. 5) both share price and earnings per share have substantial and significant explanatory power, indicating the bank's performance. A positive reaction will increase the demand for a stock, which then decreases the supply, and the share price will increase. Share price movement is a great motivation for companies to maintain good performance because the price can be driven by public opinion. Thus, good performance stimulates the public's opinion. One of the national economies that is most open to innovation and the shifting socioeconomic system's architecture is the banking sector. The banking institution's conflicting business objectives in the context of digitalization help to understand this [23].

For the banking industry, PE is highly driven by macroeconomics. During an economic expansion, demand for loans increases and bad debt declines, thus impacting the bank's earnings. Essentially, PE is derived from share price, not a direct reflection of performance.

CONCLUDING REMARKS

The degree of influence of the bank's sustainability on its share price and earnings per share is positive. As concluded from the data analyses, the most significant factor indicating a bank's sustainability that correlates with performance is environmental disclosure. Environmental disclosure controls various risks in advance, as banks are transparent in their operations. Consequently, by disclosing the environmental aspects, banks can control costs and be mindful of leaving footprints. These cost controls will impact the company's bottom line, which determines the company's profit distributed to shareholders (share price and

earnings per share). Evidently, by focusing more on environmental disclosure, banks are expected to have better performance. Branch growth and loan to MSME growth have minor explanatory power in indicating the bank's sustainability, that correlates to performance. It is suggested that banks prioritize disclosing environmental outputs to enhance performance through sustainability without neglecting branch growth and loans to MSMEs.

The degree of influence of the bank's CAMEL ratio on its performance is inverse. Although not all sub-variables correlate negatively, the reason behind this, as explained by previous studies, is that the objective of CAMEL is to maintain the bank's soundness. Thus, CAMEL does not indicate the bank's profitability, but CAMEL is to ensure the bank's safety and prudence. The health of banks is related to the extent to which they can cover any immediate risks without disrupting their current operations. For this reason, banks need to reserve adequate capital to strengthen their readiness to face various risks.

From these two answers, it is clear that sustainability and CAMEL ratios are two forms of risk management. Sustainability manages risks through operational transparency and long-term decisions making, while CAMEL ratios are safety barriers required to be abided by the central banks. For the banking industry, the business philosophy of "high-risk high expected return" is undesirable due to the high dependency of the economy on the banking sector. Publicly listed banks in Indonesia are prudent and compliant with regulations.

This study proves how the CAMEL ratio has an inverse relation to a bank's performance. Simply put, the more the bank is sound, the less the performance is. This implies that regulations are not aiming for profitability. It is understood that for an industry with a substantial stake, stability and longevity are favored compared to profit. In ensuring the bank's soundness, future studies can use more ratios in indicating each CAMEL component for a more thorough and holistic explanation of soundness.

REFERENCES

1. Rowland M. Sustainability reporting in Indonesia. Moores Rowland Indonesia. 2021. URL: <https://www.moore-rowland.com/articles/SustainabilityReportinginIndonesia> (accessed on 03.08.2022).
2. Embuningtiyas S. S., Puspasari O. R., Utama A. A.G.S., Ardianti R. I. Bank financial soundness and the disclosure of banking sustainability reporting in Indonesia. *International Journal of Innovation, Creativity and Change*. 2020;10(12):237–247. URL: https://www.ijicc.net/images/vol10iss12/101218_Sandra_2020_E_R.pdf
3. Balyuk I.A., Balyuk M.A. The problem of asymmetric development of the global financial market. *Finance: Theory and Practice*. 2022;26(6):72–87. DOI: 10.26794/2587-5671-2022-26-6-72-87

4. Barquin S., de Gantès G., Vinayak H. V., Shrikhande D. Digital banking in Indonesia: Building loyalty and generating growth. McKinsey & Company. Feb. 11, 2019. URL: <https://www.mckinsey.com/industries/financial-services/our-insights/digital-banking-in-indonesia-building-loyalty-and-generating-growth> (accessed on 05.04.2019).
5. Kenton W. Circular flow of income. Investopedia. 2019. URL: <https://www.investopedia.com/terms/circular-flow-of-income.asp> (accessed on 04.07.2019).
6. Sironi A. The evolution of banking regulation since the financial crisis: A critical assessment. *SSRN Electronic Journal*. 2018. DOI: 10.2139/ssrn.3304672
7. Ayadurai C., Eskandari R. Bank soundness: A PLS-SEM approach. In: Avkiran N., Ringle C., eds. *Partial least squares structural equation modeling*. Cham: Springer-Verlag; 2018:31–14. (International Series in Operations Research & Management Science. Vol. 267). DOI: 10.1007/978-3-319-71691-6_2
8. Kim R. K., ed. *Banking regulation 2019: Getting the deal through*. London: Law Business Research Ltd; 2019. 16 p. URL: <https://www.wlrk.com/webdocs/wlrknew/AttorneyPubs/WLRK.26403.19.pdf>
9. Kagan J. CAMELRS rating system: What it is, how it is calculated. Investopedia. 2019. URL: <https://www.investopedia.com/terms/c/camelrating.asp> (accessed on 04.08.2019).
10. Costa-Climent R., Martínez-Climent C. Sustainable profitability of ethical and conventional banking. *Contemporary Economics*. 2018;12(4):519–530. DOI: 10.5709/ce.1897-9254.294
11. Lotto J. The empirical analysis of the impact of bank capital regulations on operating efficiency. *International Journal of Financial Studies*. 2018;6(2):34. DOI: 10.3390/ijfs6020034
12. Rimbo D., Nagoya R., Solihin I., Mongay J. Perceptions of consumers in the airline industry using a qualitative data analysis methodology: An applied research under an international orientation. *International Business Research*. 2017;10(5):22–28. DOI: 10.5539/ibr.v10n5p22
13. Kusumawardani A. Analisis Perbandingan Tingkat Kesehatan Bank Dengan Menggunakan Metode Camels Dan Rgec Pada Pt. Bank Xxx Periode 2008–2011. *Jurnal Ilmiah Ekonomi Bisnis*. 2014;19(3):16–22. URL: <https://www.neliti.com/publications/6012/analisis-perbandingan-tingkat-kesehatan-bank-dengan-menggunakan-metode-camels-da#id-section-content>
14. Paulík J., Sobeková Majková M., Tykva T., Červinka M. Application of the CSR measuring model in commercial bank in relation to their financial performance. *Economics & Sociology*. 2015;8(4):65–81. DOI: 10.14254/2071-789X.2015/8-4/5
15. Taber K. S. The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in Science Education*. 2018;48(6):1273–1296. DOI: 10.1007/s11165-016-9602-2
16. Weber O. The financial sector and the SDGs: Interconnections and future directions. CIGI Papers. 2018;(201). URL: <https://www.cigionline.org/static/documents/documents/Paper%20No.201web.pdf>
17. Dzombo G. K., Kilika J. M., Maingi J. The effect of branchless banking strategy on the financial performance of commercial banks in Kenya. *International Journal of Financial Research*. 2017;8(4):167–183. DOI: 10.5430/ijfr.v8n4p167
18. Rumsery D. J. How to interpret standard deviation in a statistical data set. *Dummies*. 2018. Sep. 07, 2021. URL: <https://www.dummies.com/education/math/statistics/how-to-interpret-standard-deviation-in-a-statistical-data-set/> (accessed on 30.05.2019).
19. Johnston M. A brief history of U.S. banking regulation. Investopedia. 2018. URL: <https://www.investopedia.com/articles/investing/011916/brief-history-us-banking-regulation.asp> (accessed on 30.04.2019).
20. Zainotz C. Symmetry, skewness and kurtosis. *Real Statistics Using Excel*. 2018. URL: <http://www.real-statistics.com/descriptive-statistics/symmetry-skewness-kurtosis/>
21. Lelissa T. B., Mohammed Kuhil A. Empirical evidence on the impact of bank-specific factors on the commercial banks performance: A case of Ethiopian banks. *Researchers World: Journal of Arts Science & Commerce*. 2018;9(3):71–83. DOI: 10.18843/RWJASC/V9I3/08
22. Sujarwo A. A. The impact of Indonesia's banks performance towards banks' stock price (listed in Indonesia Stock Exchange from 2011–2013) using CAMEL analysis. *iBuss Management*. 2015;3(2):9–18. URL: <https://media.neliti.com/media/publications/183363-EN-the-impact-of-indonesias-banks-performan.pdf>
23. Trainer D. P/E ratios are misleading... especially right now. *Forbes*. Nov. 19, 2018. URL: <https://www.forbes.com/sites/greatspeculations/2018/11/19/pe-ratios-are-misleading-especially-right-now/#2f04ee812281> (accessed on 22.05.2019).

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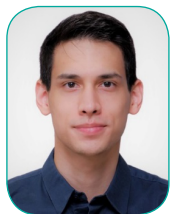
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