



CORPORATE GOVERNANCE AND CORPORATE RISK MANAGEMENT ON INDONESIAN AND MALAYSIAN BANKING INDUSTRY PERFORMANCE DURING THE COVID-19 PANDEMIC

Wita Ramadhanti

Jenderal Soedirman University, Indonesia

e-mail: wita.ramadhanti@unsoed.ac.id

ORCID: 0000-0001-5260-1762

Agung Praptapa

Jenderal Soedirman University, Indonesia

e-mail: agung.praptapa@unsoed.ac.id

ORCID: 0000-0002-3954-7412

Eko Suyono

Jenderal Soedirman University, Indonesia

e-mail: ekyo75@unsoed.ac.id

ORCID: 0000-0001-5700-1176

Nor Saidi Mohamed Nasir

Universiti Malaka, Malaysia

e-mail: dr.norsaidi@unimel.edu.my

ORCID: 0000-0002-9151-3092

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Abstract

Research background: The COVID-19 pandemic of 2020–2022 led to economic crises worldwide. Despite the financial risk, financial problems in each institution, banks still have a special task from governments to ease the crises. The risk is higher on countries that use a dual banking system.

Purpose: This research is intended to test the effect of Corporate Governance (CG) and Corporate Risk Management (CRM) on Banks' Performance during the pandemic in emerging country's that used a dual banking system during the COVID-19 pandemic.

Research methodology: This quantitative analysis uses archival data. Samples were taken from banks listed on the Indonesian and the Malaysian Stock Exchange during 2020–2022. Data was then analysed using Partial Least Square regression.

Results: The Indonesia data analysis results show that CRM mediates the relationship between CG effect on Performance. The Malaysia data analysis can conclude that CG affects firms' performance. CG also affects CRM. Hence, CRM do not act as a mediating variable between CG and Performance. This result shows that the COVID-19 pandemic impacted Indonesia's and Malaysia's banking CG, CRM and industry performance. This is consistent with Compliance Theory.

Novelty: This research compares CG and CRM to the monetary conditions within dual banking systems in Indonesia and Malaysia due to the differences in monetary policy during the COVID-19 pandemic.

Keywords: Risk Management, Governance, Performance, Bank

JEL calassification: G01, G21, G28, H12

Introduction

The world has recently ended a significant health crisis, namely COVID-19. This pandemic started in March 2020 and ended in May 2022, changing how businesses operate. Banking research in terms of COVID-19 is important due the health crises that led to a financial and banking crisis (Berger, Demirgüç-Kunt, 2021).

The number of deaths due to this disease has led to social limitations all over the world. The large scale of social limitations has forced all activities from offline to online. This condition creates a new opportunity for banks to grow their business since all transactions have become cashless and thus need banks as financial intermediaries. Hence, if banks fail to see these opportunities, their business will deteriorate because of other financial technology institutions. Migrating from offline to online business provides another challenge. The first is Corporate Governance (CG). There are many considerations about the safety of the bank's system, such as whether this system has easy and user-friendly access, is reliable, and is safe from any breach of customers' personal information and bank institutional data. This condition will raise concerns about how they mitigate a firms risk (Martins, Mamede, Correia, 2022).

While these banks have to adapt to new forms of online business, they still have special duties from their host country's government. A bank is one of the most essential private institutions in the modern macroeconomics theory of a country's government. That is why many governments macroeconomic policies use banks as a major tool; during COVID-19, banks

were given special tasks to mitigate the financial effect of the crises on other businesses. This nature will impact how this double burden, the pandemic, and the government's special task will affect the banks' Performance (Chronopoulous, Wilson, Yilmaz, 2023).

The dual banking system is the macroeconomic system that allows two different forms of banks to operate in one country. One is a general bank, which relies heavily on the market interest rate mechanism. On the other hand, the Sharia Bank system is avoiding entirely the interest rate due to the Islamic faith that banned interest as a form of *riba*. *Riba* is taking a mandatory contract for additional payback money, which is more than the exact amount of money somebody borrows. *Riba* is considered *haram* or cannot be practiced within Muslim society. Due to this term, many traditional Muslims are excluded or do not have savings or loans through formal financial institutions. By having a Sharia bank in a country, the government hopes Muslims will be included in the formal financial economics. Hence, the different natures of these two kinds of banks will create additional complexity as well as stability for the macroeconomic system in a country. This condition is critical to highlight during a pandemic crisis. Dual banking system macroeconomics tends to increase the risk for the bank (Alam, Hamid, Tan, 2019; Ernaningsih, Smaoui, Temimi, 2023).

A previous study on 23 countries, including Malaysia and Indonesia documented that COVID-19 had impacted on both Sharia and Commercial Banks' performance (Alabbad, Schertler, 2022). Further, previous research highlights the difference between the performance of the Sharia and conventional banking system during the pandemic on 6 Organisations of Islamic Cooperation Countries including Indonesia and Malaysia (Ghouse, Ejaz, Bhatti, Aslam, 2022). This research will focus on Indonesia and Malaysia. It is important to make a comparative analysis between Indonesia in Malaysia banking due to its similarity in culture and region (Amran et al., 2017).

This research then investigates further into Corporate Governance (CG), Corporate Characteristics (CC), Corporate Risk (CR), and the Performance of banks in the dual banking systems during the COVID-19 Pandemic. This study will expand the previous works of (Kafidipe, Uwalomwa, Dahunsi, Okeme, 2021). The difference is that this research uses commercial and Islamic banks in Indonesia and Malaysia. Malaysia and Indonesia are part of the ASEAN Economic Community, which has become the third-largest economic region in the world. These two countries have a Muslim-majority population, which embraces a dual banking system. Other Asian countries, such as the Philippines, Thailand, and Singapore, have adopted dual banking systems. Therefore, due to the non-majority of Islam as a religion, only a few Islamic banks operate in the country.

The originality of the study is that we not only compare the effect of CG and Corporate Risk on Bank Performance, but we also check the valid indicators in each also checking whether they were the same or not. This research uses Partial Least Square (PLS) modelling. The PLS model is good for a complex model with many indicators, and a small sample size during nonnormal conditions (Avkiran, Ringle, 2018). The COVID-19 pandemic condition is an anomaly and only lasted for 3 years making data availability limited. This PLS analysis has already been used in Banking research to distinguish between Islamic and Commercial banks in Middle East and North Africa (MENA) countries (Sghaier, Jabeur, Bannour, 2018). This research also adds a test for the Corporate Characteristics (CC) effect as exogenous as well as the control variable for the model.

1. Literature review

Banks, as the financial sector, are crucial for economics; they act as intermediaries between goods, services, and finance for the domestic and international market through money flow and interest rate setting (Samuelson, Nordhaus, 2010). A country's classical monetary policy makes bank interest rates important as macroeconomic tools. In recession conditions or crises such as the COVID-19 pandemic, the government controls the money flow and inflation by lowering interest rates (Samuelson, Nordhaus, 2010). The government hopes people will take their money from bank savings and invest in the real economy to open up employment opportunities. During low-interest rates, people also get incentives to take loans from banks and open new real businesses. On the other hand, when inflation is high, the government will increase interest rates to make people save more in the banks and lower the money supply. A Sharia banking system based on interest-free banks would complicate this monetary policy for a country with a dual banking system (Caporale, Çatik, Helmi, Ali, Tajik, 2020).

Despite its complications, a dual banking system is still adopted for many countries with an Islamic population, due to macroprudential policies. Macroprudential policies ensure that a country has a stable financial system, reducing the systemic financial risk from domestic and international shocks, as well as the effectiveness and efficiency of the financial system (Zulkhibri, 2019). A dual banking system that combines two banking approaches, Islamic and conventional banking, can be an excellent example of macroprudential policy. Sharia and commercial banks have different stability in attaining systemic risk (Ernaningsih, Smaoui, Temimi, 2023; Shabir, et al., 2023).

The government of a country has the authority to regulate the financial sector, such as banking. The compliance theory states that the bank, as a regulated sector, must comply with the regulations. That is because bank compliance means a government safety net for this company (Dill, 2020). Government rule not only restricts the bank from the executive adverse selection and moral hazard, but the government will also help the bank with a bailout if they are suffering from financial distress. The government regulations the banks should follow are CG mechanisms and Risk management.

On the other hand, compliance with government regulations by banks also comes with additional costs (Chronopoulous, Wilson, Yilmaz, 2023). This condition is whether this compliance cost will reduce the bank's performance or whether this cost effectively reduces the risk and raises bank performance. Based on this Compliance Theory, we will examine the relationship between bank CG, risk management, and the performance of Malaysian and Indonesian banks as dual banking system countries. Previous research still needs to be consistent with the signs of the effect between CG, characteristics, risk management, and performance.

The CG system will have an impact on the banks' performance. Previous research documenting this relationship (Kafidipe, Uwalomwa, Dahunsi, Okeme, 2021; Nguyen, Dang, 2022; Tawfik, Alsmady, Rahman, Alsayegh, 2022; Xu, Graves, Shan, Yang, 2022). Hence, it is still inconsistent whether the effect will be positive or negative during the COVID-19 pandemic. The first hypothesis based on these is:

H₁: CG mechanisms affect firm performance

Banks' CG system will create its risk management mechanism. The results are documented by previous studies by (Andries, Mutu, 2016; Calomiris, Carlson, 2016; Brogi, Lagasio, 2023; Gaganis, Lozano-Vivas, Papadimitri, Pasiouras, 2019; Nguyen, Dang, 2022). Previous research still have different results about the positive or negative effect of CG Mechanisms and CRM. The second hypothesis, according to the previous study, is:

H₂: CG Mechanism Has an Effect on CRM

CRM has been built to stabilize banks' performance from various risks. Several studies have already examined the relationship between risk and performance (Kafidipe, Uwalomwa, Dahunsi, Okeme, 2021; Liang, Kuo, Chan, Chen, 2018; Abid, Gull, Hussain, Nguyen, 2021; Nguyen, Dang, 2022). Therefore, previous research is still inconsistent about the effect sign. Based on that, the third hypothesis of this study is:

H₃: CRM affects firm Performance

Bank size, as a measurement of Corporate Characteristics (CC), is reported to affect a company's performance (Terraza, 2015; Kamani, 2018; Kafidipe, Uwalomwa, Dahunsi, Okeme, 2021). This research does not give a sign to this hypothesis due to inconsistent results in previous research. Based on these studies, the fourth hypothesis of this research is:

H₄: CC affect a Company's Performance

Bank characteristics, especially size, affect bank risk management (Terraza, 2015; Kamani, 2018). The size of their assets explains the level of risk (Böhnke, Ongena, Paraschiv, Reite, 2023). Hence there are still inconsistencies about the indicators of the CC as well as its effects on CRM. Based on that, this research has a more specific approach to the level of risk management instead of the risk itself. Based on that, the fifth hypothesis of this research is:

H₅: CC Have an Effect on CRM

The previous research documenting the effect of CG on Performance (Kafidipe, Uwalomwa, Dahunsi, Okeme, 2021; Nguyen, Dang, 2022; Tawfik, Alsmady, Rahman, Alsayegh, 2022; Xu, Graves, Shan, Yang, 2022) as well as CRM (Andries, Mutu, 2016; Calomiris, Carlson, 2016; Brogi, Lagasio, 2023; Gaganis, Lozano-Vivas, Papadimitri, Pasiouras, 2019; Nguyen, Dang, 2022). The other research also found that CRM affected Banks' Performance (Kafidipe, Uwalomwa, Dahunsi, Okeme, 2021; Liang, Kuo, Chan, Chen, 2018; Abid, Gull, Hussain, Nguyen, 2021; Nguyen, Dang, 2022). Based on a mediator relationship (Baron, Kenny, 1986), if CG affects Firm Performance and Risk Management, and Risk Management affects Bank Performance, it can be investigated further that Risk Management is a mediating variable. Based on these, the sixth hypothesis of this research is:

H₆: CRM mediates the relationship between CG and firm performance

Previous research stated that CC affected CRM (Terraza, 2015; Kamani, 2018; Böhnke, Ongena, Paraschiv, Reite, 2023), as well as Bank's Performance (Terraza, 2015; Kamani, 2018; Kafidipe, Uwalomwa, Dahunsi, Okeme, 2021). Thus, Banks' performance affected by CRM (Liang, Kuo, Chan, Chen, 2018; Abid, Gull, Hussain, Nguyen, 2021; Kafidipe, Uwalomwa, Dahunsi, Okeme, 2021; Nguyen, Dang, 2022). Based on mediation relationship (Baron, Kenny, 1986), if CC have an effect on Firm Performance and Risk Management, and Risk Management has an impact on Bank Performance, it can be examined further that Risk Management is a mediating variable. Based on this, the seventh hypothesis of this research is:

H₇: CRM mediates the relationship between CC and Firm Performance

2. Research methodology

This study is quantitative research and the research type is hypothesis testing. Archival data is used in the study.

The population uses the general commercial Sharia bank in Indonesia and Malaysia. The purposive sampling method is used in this research. The purposive criteria for the Indonesian Bank are as follows. First, the general commercial bank is listed on the Indonesian Stock Exchange, while the public Sharia Bank is listed on the Indonesia Stock Exchange or in the Indonesian Bank Lists. This condition is due to Indonesia's low number of general sharia banks. Second, we used complete Annual and Financial Reports from 2020 to 2022. 2020 up to 2022 and are chosen due to the COVID-19 pandemic in www.idx.co.id or on their Company's websites.

Malaysian bank's purposive criteria are as follows. First, the bank is listed on the Malaysian Stock Exchange. Second, public Financial and Annual Reports during the pandemic years in www.bursamalaysia.com or on their Company's websites.

This study has four variables: two exogenous variables and two endogenous variables. Exogenous variables are CG and CC. CG 6 indicators are BM, BI, DOH, BC, BIN, and the BS. CC measurements are Size, Lev, Tan, and Age. The variables' indicators are based on previous research (Kafidipe, Uwalomwa, Dahunsi, Okeme, 2021).

Table 1. Indicators Measurements

Variables	Indicators	Measurements
1	2	3
Corporate Governance (CG)	BM	Board meetings held per year
	BI	The proportions of Independent Directors to the total Boards
	DOH	% number of Directors ownership / total shares
	BC	Number of Board Committees
	BIN	The proportions of Executive Directors to the total Boards
	BS	The total number of Boards
Corporate Characteristics (CC)	Size	Natural Logarithm of Total Assets
	Lev	Leverage = Total Debt / (Total Common stock + Total Debt)
	Tan	Tangibility = Fixed Assets / Total Assets
	Age	Firm Age
Corporate Risk (CR)	ERM	Enterprises Risk Management Index
	BRCS	Size of Board Risk Committee
	BRCM	The number of Board Risk Committee meetings
	BRCI	The number of Independence Directors on the Board Risk Committee

1	2	3
Performance (P)	ROE	Net Income / Equity
	ROA	Net Income / Total Assets
	TOBINQ	$(NBV \text{ Total Assets} - BV \text{ Equity} + MV \text{ Equity}) / BV \text{ Total Assets}$

Sources: Kafidipe, Uwalomwa, Dahunsi, Okeme (2021).

Endogenous variables are Corporate Risk and Performance. Corporate risk is measured using ERM, BRCS, BRCM, and BRCI. Performance measurements are ROE, ROA, and TOBINQ. The complete formula for the variable operational definition can be seen below in Table 1. Data was then analysed using Partial Least Square SEM (PLS-SEM). One of PLS-SEM advantages for social sciences research is when data are nonnormally distributed (Hair, Jr., Hult, Ringle, Sarstedt, 2014). This data is derived from the COVID-19 period, where the world was in a health crisis which ultimately led to economic crises. Hence, data will most likely to be nonnormally distributed.

3. Results

3.1. Overview of research objects

There is a sample of 49 Indonesian Banks used in this research over a three year period. This data consists of 38 commercial banks and 11 Islamic Banks. A total of 147 pooling data is analysed.

This study used 44 Malaysian banks, which consist of 16 Sharia banks and 28 Conventional Banks. For the three year period, the total pooling data is 132.

Table 2. Samples

Countries	Indonesia	Malaysia
Conventional Banks	38	28
Sharia Banks	11	16
N	49	44
Year	3	3
$n \times \text{years}$	147	132

Sources: data analysis.

3.2. Statistical test results for Indonesia banks

3.2.1. Outer model test results

a. Validity Tests

We used Convergent validity and discriminant validity. Convergent Validity Tests can be seen from the loading factors of indicators to their variables. If the number of samples (n) exceeds 120, the loading factor should be more than 0.50 (Hair, Black, Babin, Anderson, 2014). If the loading factor for an indicator to its variable is less than 0.5, it cannot pass the convergent validity test.

Discriminant validity tests can be seen by comparing indicator loading factors and cross-loadings. If the loading factor of an indicator to its variables is more than the cross-loadings between indicators to other variables, then they pass the discriminant validity test. Some of the indicators in this initial model do not pass the discriminant validity test and must be removed from the revised model. The indicators in this study that do not pass convergent validity also do not pass the discriminant validity. Hence, these indicators should be removed.

The model is mainly reconstructed by erasing nonvalid indicators from the initial model. The indicators that do not pass the convergent and discriminant validity and needed to be erased are as follows. The deleted indicators for variable CG are BS, BIN, and DOH. The eliminated indicators for CC are Lev and Tan. The erased indicator for CR is ERM. Finally, the deleted measurement for P is TobinQ.

Table 3. Validity test of Indonesia's revised model results

		CG	CC	CR	P
CG	BC	0.7^{1,2}	-0.1	0.0	-0.2
	BI	0.8^{1,2}	0.1	-0.1	0.0
	BM	0.6^{1,2}	0.0	0.0	0.2
CC	SIZE	0.0	0.8^{1,2}	-0.2	-0.2
	AGE	0.0	0.8^{1,2}	0.2	0.2
CR	BRCS	-0.2	0.1	0.7^{1,2}	0.2
	BRCI	0.6	-0.1	0.8^{1,2}	0.0
	BRCM	0.6	0.0	0.5^{1,2}	-0.3
P	ROA	-0.1	0.0	0.0	0.9^{1,2}
	ROE	0.1	0.0	0.0	0.9^{1,2}

¹ Loading factors > 0.5 (n ≥ 120).

² Loading factors > Cross Loadings.

All indicators remain in the new model, when they have all passed convergent and discriminant validity. The validity test results for revised model can be seen in Table 3.

b. Reliability Test

The Reliability Test can be seen from Cronbach alpha or composite reliability. The variables passed the reliability test if Cronbach's alpha or composite reliability is more than 0.6. After removing all invalid indicators' variables, all variables have a composite reliability of more than 0.6. This means that all of the variables are reliable.

Table 4. Reliability of Indonesia's revised outer model test

Variable	Cronbach Alpha	Composite Reliability
Corporate Governance (CG)	0.491	0.747**
Corporate Characteristics (CC)	0.507	0.802**
Corporate Risk (CR)	0.424	0.720**
Performance (P)	0.677*	0.861**

* Cronbach Alpha > 0.6.

** Composite Reliability > 0.6.

Sources: data analysis.

3.2.2. Indonesia's inner model test results

a. Structural model

The structural model test shows that almost all models fit and quality indices are accepted. Only the SSR (Statistical suppression ratio) is not accepted.

Table 5. Model fit dan quality indices results for Indonesia's banks

Indices	Value	P	Notes
1	2	3	4
APC (Average Path Coefficient)	0.340	<0.001*	Accepted (P-value ≤ 0.05) Overalls model's latent variables have predictive power
ARS (Average R-squared)	0.251	<0.001*	Accepted (P-value ≤ 0.05) All model's latent variables have explanatory power
AARS (Average Adjusted R-squared)	0.237	<0.001*	Accepted (P-value ≤ 0.05) After adjustment with spurious increase in R^2 due to the predictor that adds no explanatory value, overalls model's latent variables have explanatory power

1	2	3	4
AVIF (Average Block Value Inflation Factor)	1.075*		Accepted and ideal (value ≤ 3.3)
			No multicollinearity in the overalls model
AFVIF (Average Full Collinearity Variance Inflated Factor)	1.388*		Accepted and ideal Accepted and ideal (value ≤ 3.3)
			No multicollinearity that can lead to misleading results in the overalls model
GoF (Tenenhaus Goodness of Fit)	0.388*		Model's Explanatory Power
			Accepted and big (value ≥ 0.36)
SPR (Simpson's Paradox Ratio)	1*		Accepted and ideal (value = 1) $\rightarrow$ model is free from Simpson's paradox instances
			Simpson's paradox occurs when a path coefficient and a correlation associated with a pair of linked variables have different signs or causality problems
RSCR (R-squared Contribution Ratio)	1*		Accepted and ideal (value = 1) $\rightarrow$ model is free from negatif R^2 contribution due to linked variables
SSR (Statistical Suppression Ratio)	0.600		Do not Accepted (value < 0.7)
			Only 60% of the model is free from material statistical suppression (possible indication of causality problems, hypothesized path may be reversed)
NLBCDR (Nonlinear Bivariate Causality Direction Ratio)	1*		Accepted (value ≥ 0.7)
			Supported hypothesized direction of causality

*Accepted.

Sources: data analysis (Kock, 2015; Kock, 2024).

b. Hypothesis testing

Hypothesis testing results can be seen below in Figure 1. CG does not affect performance with beta -0.04 (P-value $0.30 > 0.05$ two-tailed). It means that null Hypothesis 1 is cannot be rejected.

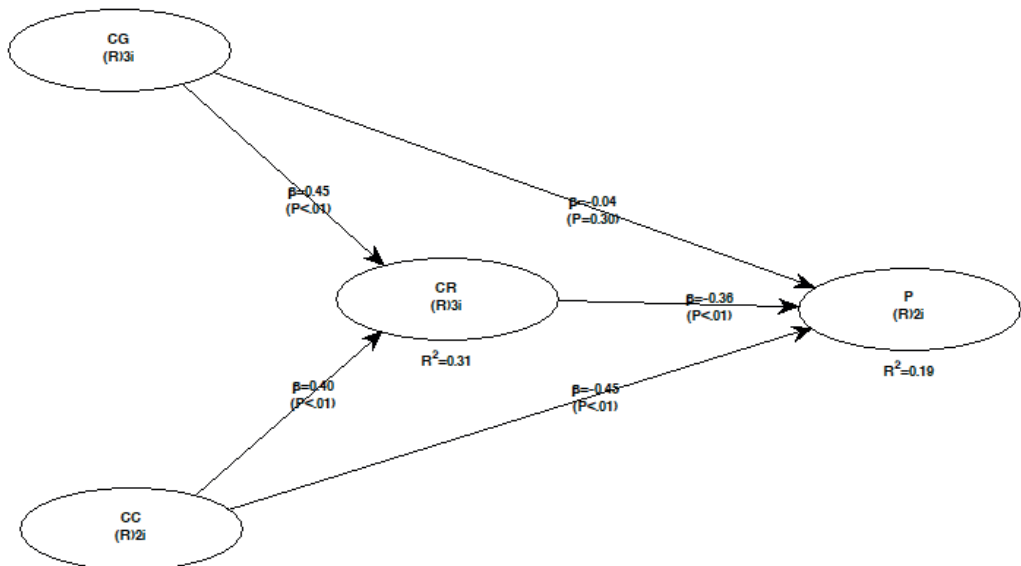
CG has a positive effect on Corporate Risk. It can be seen that the beta is 0.45 (P-value $< 0.01 \leq 0.05$ two-tailed). It can be concluded that alternative hypothesis 2 **cannot be rejected**. The higher CG, the better CRM.

Corporate risk has a negative effect on performance given a beta equal to -0.36 (P-value $< 0.01 \leq 0.05$ two-tailed). Thus, alternative Hypothesis 3 **cannot be rejected**. The higher CRM the lesser performance.

CC have a negative effect on performance with beta -0.45 (P-value $< 0.01 \leq 0.05$ two-tailed). Hence, alternative Hypothesis 4 **cannot be rejected**. The bigger the company will lead to lesser performance.

CC positively affect Corporate Risk, as seen from beta 0.40 (P-value $<0.01 \leq 0.05$ two-tailed). Hence, alternative Hypothesis 5 **cannot be rejected**. The higher the company it will lead to a higher CRM.

Based on these results, there is a mediation relation between variables. Corporate risk fully mediates the effect of CG on Performance. It can be concluded that alternative Hypothesis 6 **cannot be rejected**. Corporate risk partially mediates the impact of CC on Performance. It can be concluded that alternative Hypothesis 7 **cannot be rejected**.



Notes: CG (Corporate Governance); CR (Corporate Risk Management); CC (Corporate Characteristics); P (Performance); β (path coefficient); P (P-value); (R)2i or (R)3i (the number of a variable's indicators is 2 or 3); R² (R-squared).

Figure 1. Hypothesis Testing Model for Indonesia

Sources: data analysis.

3.3. Statistical test results for Malaysia

3.3.1. Malaysia's outer model results

a. Validity test

The validity test for the Malaysian Initial Model can be seen in Table 6. Some of the indicators have not passed convergent and discriminant validity. These variables should be removed in the revised model, as follows. Variables CG indicators that are nonvalid are BC,

BI, DOH. Lev and Tan are nonvalid measurements of CC. ERM is a nonvalid indicator for CR. TobinQ is an indicator for P that needs to be removed. After removing these invalid indicators, all of the other indicators are passed as having convergent and discriminant validity.

Table 6. Validity Test of Malaysia's Revised Outer Model Results

		CG	CC	CR	P
CG	BC	0.6 ^{1,2}	0.0	0.9	0.0
	BIN	0.9 ^{1,2}	0.0	-0.2	0.0
	BM	0.9 ^{1,2}	0.0	-0.4	0.1
CC	SIZE	-0.1	0.8 ^{1,2}	0.2	0.0
	AGE	0.1	0.8 ^{1,2}	-0.2	0.0
CR	BRCS	-0.1	0.0	0.9 ^{1,2}	-0.1
	BRCM	0.0	0.0	0.9 ^{1,2}	0.0
	BRCI	0.1	0.0	0.9 ^{1,2}	0.1
P	ROA	0.2	-0.3	-0.3	0.7 ^{1,2}
	ROE	-0.2	0.3	0.3	0.7 ^{1,2}

¹ Loading factors > 0.5 (n ≥ 120).

² Loading factors > Cross Loadings.

Sources: data analysis.

b. Reliability Test

The Reliability Test can be seen from Cronbach alpha or composite reliability that are more than 0.6. After removing all of the nonvalid indicators, all variables for Malaysia passed the reliability test with composite reliability that are more than 0.6.

Table 7. Reliability of Malaysia's initial model test

Variable	Cronbach Alpha	Composite Reliability
Corporate Governance (CG)	0.744*	0.856**
Corporate Characteristics (CC)	0.445	0.783**
Corporate Risk (CR)	0.934*	0.958**
Performance (P)	-0.123	0.640**

* Cronbach Alpha > 0.6.

** Composite Reliability > 0.6.

Sources: data analysis.

3.3.2. Malaysia's inner model results

a. Structural model & hypothesis testing

This model is fit, and the quality indices are good. The results can be seen in Table 8.

Table 8. Model fit dan quality indices results for Malaysia's banks

Indices	Value	P	Criteria
APC (Average Path Coefficient)	0.263	<0.001*	Accepted (P-value ≤ 0.05)
			Overalls model's latent variables have predictive power
ARS (Average R-squared)	0.330	<0.001*	Accepted (P-value ≤ 0.05)
			All model's latent variables have explanatory power
AARS (Average Adjusted R-squared)	0.316	<0.001*	Accepted (P-value ≤ 0.05)
			After adjustment with a spurious increase in R^2 due to the predictor that add no explanatory value, overalls model's latent variables have explanatory power
AVIF (Average Block Value Inflation Factor)	1.148*		Accepted and ideal (value ≤ 3.3)
			No multicollinearity in the overalls model
AFVIF (Average Full Collinearity Variance Inflated Factor)	1.513*		Accepted and ideal Accepted and ideal (value ≤ 3.3)
			No multicollinearity that can lead to misleading results in the overalls model
GoF (Tenenhaus Goodness of Fit)	0.469*		Model's Explanatory Power
			Accepted and big (value ≥ 0.36)
SPR (Simpson's Paradox Ratio)	0.800*		Accepted and ideal (value = 1) → model is free from Simpson's paradox instances
			Simpson's paradox occurs when a path coefficient and a correlation associated with a pair of linked variables have different sign or causality problems
RSCR (R-squared Contribution Ratio)	0.999*		Accepted and ideal (value = 1) → model is free from negatif R^2 contribution due to linked variables
SSR (Statistical Suppression Ratio)	0.800*		Do not Accept (value < 0.7)
			Only 60% of the model is free from material statistical suppression (possible indication of causality problems, hypothesized path may be reversed)
NLBCDR (Nonlinear Bivariate Causality Direction Ratio)	0.800*		Accepted (value ≥ 0.7)
			Supported hypothesized direction of causality

* Accepted.

Sources: Data Analysis (Kock, Mayfield, 2015; Kock, 2024).

b. Hypothesis testing

Hypothesis testing results for Malaysia can be seen below in Figure 2. CG has a negative effect on performance with beta -0.17 ($P\text{-value } 0.02 \leq 0.05$ two-tailed). It means that alternative Hypothesis 1 **cannot be rejected**. It means the better CG the worse the banks performance.

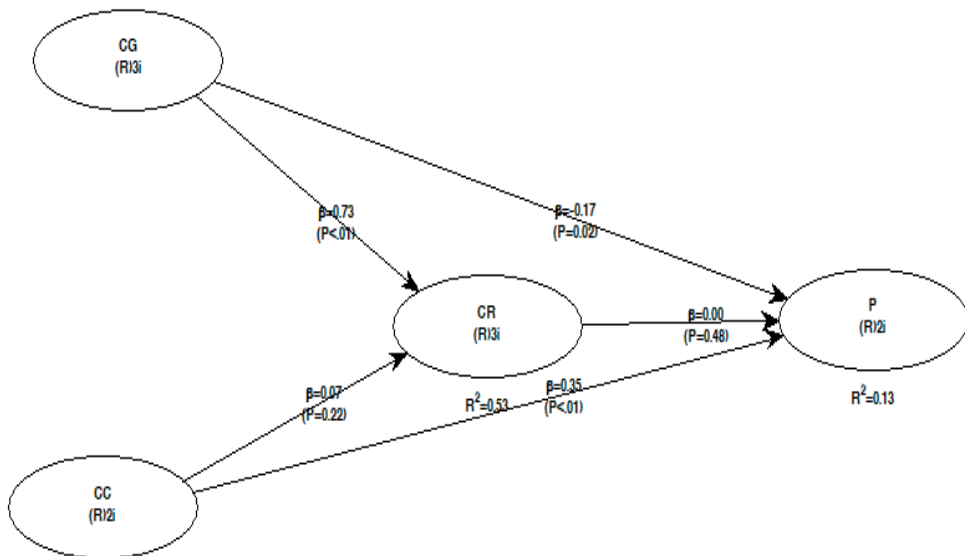
CG has a positive effect on Corporate Risk. It can be seen that the beta is 0.73 ($P\text{-value } <0.01 \leq 0.05$ two-tailed). It can be concluded that alternative Hypothesis 2 **cannot be rejected**. The higher CG, the better CRM.

Corporate risk has no effect on performance given a beta equal to 0.00 ($P\text{-value } 0.48 > 0.05$ two-tailed). Thus, null Hypothesis 3 **cannot be rejected**.

CC have a positive effect on performance with beta 0.35 ($P\text{-value } <0.01 \leq 0.05$ two-tailed). Hence, alternative Hypothesis 4 **cannot be rejected**. The bigger company the better the performance.

CC do not affect corporate risk, as seen from beta 0.07 ($P\text{-value } 0.22 > 0.05$ two-tailed). Hence, null Hypothesis 5 **cannot be rejected**.

Based on these results, there is no mediation relation between variables. Corporate risk is not a mediating variable. It can be concluded that null Hypothesis 6 and null Hypothesis 7 **cannot be rejected**.



Notes: CG (Corporate Governance); CR (Corporate Risk Management); CC (Corporate Characteristics); P (Performance); β (path coefficient); P (P-value); (R)2i or (R)3i (the number of a variable's indicators is 2 or 3); R^2 (R-squared).

Figure 2. Hypothesis testing model results for Malaysia

Sources: data analysis.

4. Discussion

There are differences between Indonesia and Malaysia. The difference is in valid indicators and the hypothesis model testing results.

The valid indicators for CG are different in Indonesia, which is BI, and in Malaysia, they are BIN along with BC and BM. The proportion of independent directors to the total number of boards (BI) in Indonesia is significant in determining CG. This proportion is due to the conditions that most of the company's majority ownership is on the boards. The public, only through the stock market, has little or no control over companies. Malaysia values the proportion of executive directors to the total number of boards (BIN). This condition is due to diverse ownership, primarily through the stock market, which makes it essential for Executives to gain control over boards to make decisions about the company.

The model results for Indonesia and Malaysia are different. Only the second hypothesis had similar results between Indonesia and Malaysia. The more CG mechanisms are in the banking sector, the better the CRM (Nguyen, Dang, 2022). The CG mechanism has an impact on corporate risk. Hence, a company with excellent CG will create a sound risk management system (Andries, Mutu, 2016; Brogi, Lagasio, 2023).

Outside of the second hypothesis results, another result for the Indonesian model is as follows. First, CG in Indonesia does not affect performance. Sometimes banks' characteristics are better explained by their country's government level of regulation rather than the banks' size (Böhnke, Ongena, Paraschiv, Reite, 2023).

Second, CRM has a negative effect on Firm Performance in Indonesia. There are two reasons for this situation: compliance cost and stability definitions. The high compliance cost for conducting CG regulation from the Indonesian government exceeded the bank Income during the pandemic (Chronopoulous, Wilson, Yilmaz, 2023). Another alternative explanation for these results is that CG has more of a function to maintain a stable bank performance in the long run rather than increase it in the short run (Nguyen, Dang, 2022). Further research needs to be invested into this phenomenon.

Third, the larger the bank is, results in the lesser Performance of Indonesian banks. This statement is consistent with a previous study, which states that the size of a bank affects performance, but a positive or negative effect depends on the bank's condition (Terraza, 2015).

Fourth, Indonesian bank size character has a positive effect on Risk Management. The larger the bank is the more likely it will be subject to comply with the CRM regulation. This is consistent with the Compliance Theory (Chronopoulous, Wilson, Yilmaz, 2023).

Fifth, based on previous hypothesis testing, we continued the mediation testing for variable CRM according to (Baron, Kenny, 1986). The results for the Indonesia sample show that CR fully mediates the effect of corporate government on CR. Hence, CR partially mediates the effect of Firm Size as a Corporate Characteristic Performance Measurement. It means that Risk Management played an important role in Indonesia, especially during the COVID-19 Pandemic crisis. Without proper risk management, banks will perform poorly, and Indonesia's macroeconomics conditions will be worsened.

Outside the second hypothesis results, another result for the Malaysia model is as follows. First, CG in Malaysia has a negative effect on performance. This also raises the question of whether compliance costs were too high to bear during the pandemic (Chronopoulous, Wilson, Yilmaz, 2023) or whether the effects are for long-run stability (Nguyen, Dang, 2022). Further research needs to be investigated in this phenomenon.

Second, CRM does not affect Malaysian Banks' Performance. This hypothesis is documented by previous research which found that risk management does not always have an effect on stability performance (Shabir et al., 2023).

Third, CC in terms of size positively affects Malaysian Banking performance. This hypothesis is consistent with an older study (Terraza, 2015).

Fourth, firm size as a measurement of CC does not affect Malaysian Banking's Risk Management. Bank risk management is based on mandatory compliance with the country's government regulation rather than the banks' size (Böhnke, Ongena, Paraschiv, Reite, 2023).

Fifth, CG is not a mediating variable for the Malaysian sample. This condition is because CRM does not affect performance, so the mediation test criteria cannot be fulfilled (Baron, Kenny, 1986).

This result is consistent with the Compliance Theory. When the government, as a macroeconomic regulator, sets mandatory standards of corporate government for banking companies, they should follow the rules. They keep following them even though it will hurt their performance in the short term. This Compliance Theory is more remarkable, especially in an era such as the COVID-19 pandemic. In this kind of crisis, the country's government is the primary source of a bailout for banks with financial problems.

The implication of this research is the importance of Government Intervention during crises. A company will form CG as well as CRM due to the regulation. Hence, in the times of crises this will lead to additional costs for the company. In the crises such as COVID-19, the Government needed to lose some acts in order to helps bank to retain their performance. One of these are minimizing the Compliance Cost (Carletti, Claessens, Fatás, Vives, 2020).

The contribution of the research is that of adding the empirical results for the dual banking performance research during the COVID-19 Pandemic. This is also adding evidence about the Compliance Theory as a dual banking system still creates an additional dilemma for the regulator (Foglie, Boukrami, Vento, Panetta, 2023) especially in financial crises.

Conclusions

The result for the Indonesia case is as follows. First, CG does not affect a bank's performance. Second, the more CG, the better the CRM. Third, the more compliance with CRM, the lower the bank's performance. Fourth, the bigger the firm size, the lesser the performance. Fifth, the bigger the firm size, the better the CRM. Sixth, CRM partially mediates the relationship between CG and Bank Performance. Seventh, CRM fully mediates the relationship between CC and Bank Performance.

The results for Malaysia are as follows. First, CG has a negative effect on Bank Performance. Second, CG has a positive impact on CRM. Third, CRM does not affect Bank Performance. Fourth, the larger the firm size, the better the performance. Fifth, firm size has no effect on CRM. Sixth, Risk Management does not mediate the relationship between CG and Performance. Seventh, CRM does not mediate the relationship between CC and Bank Performance.

The results for the Indonesian and Malaysian samples are consistent with the Compliance Theory. The banks implemented CG and CRM due to mandatory compliance from the country's government rather than to optimize performance. The compliance theory states that the bank is a regulated sector that must comply due to its importance as one of the government's safety net systems (Dill, 2020).

There are several limitations to this research. First, this research uses a mixed sample of commercial and Sharia banking and does not see the split effect of this dual banking system due to a limited number of samples. Further research suggested adding the number of samples and splitting it into commercial and Sharia banking.

Second, Indonesia has limited Sharia banks listed on the stock market; this research added non-listed national Sharia banking. Further research could make a distinction between public and non-public banks.

Third, this study observed only banks during the COVID-19 pandemic. Further research can compare this data with before or post-COVID data to understand more about the effects of the pandemic on dual banking countries.

The policy recommendation for governments is that a dual banking system has proven to be resilient in facing financial crises such as the COVID-19 pandemic. This is consistent with (Kasri, Indrastomo, Hendranastiti, Muhammad, 2022). Thus, this system can be continued in Indonesia and Malaysia. Further, the government should encourage the Islamic bank, especially in Indonesia, to list their share on the stock market to enhance Corporate Governance (Alzarooni, Al-Shboul, Maghyereh, 2024).

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