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Financing Moderation in the Relationship of Investing Activities and the Bank Capital Adequacy Ratio

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Abstract

This study compares the influence of Cash Flow from Financing Activities (CFF) moderation on the relationship between Cash Flow from Investing Activities (CFI) and Capital Adequacy Ratio (CAR) of the big-five commercial banks in Indonesia and Malaysia. The big-five selections consider the banks' leadership in the countries during the first five years post-crisis 2008. The study uses E-view software to analyze the 2009 to 2013 data, including the stages of the data validity test, simple regression, and multiple regression. Two discrete hierarchical Sobel tests were applied to measure the CFF moderation impact on the CFI and CAR relationship applicable to each group of banks. Finally, the study distinguished the discrete Sobel test outputs using a Chow statistic. The Sobel test shows that in both Indonesian and Malaysian banks, the CFF moderation has positive but insignificant effects on the CFI and CAR relationship. Consistent with the conclusions, the Chow statistic shows a significant difference in the CFF moderation effect on the CFI and CAR relationship. These conclusions bring implications to the interest parties to align their concerns with the two countries' contradictive CFI and CFF funding patterns in shaping the CAR.

Keywords: cash flow, financing activities, investing activities, capital adequacy ratio, commercial bank

1. Introduction

For long-term going concerns, banks invest in long-term assets using long-term financing. For such a purpose, a bank might spend and keep money, ensuring the security of profitability, liquidity, and capital adequacy. One measure of a bank's success is maintaining a CAR, guaranteeing the safety of customer funds from market risk, credit risk, and operational risk due to using capital and risk-weighted asset in its formula. Banks might manage their CAR, among others, by arranging cash circulation into CFI and CFF to ensure capital buffer safety.

Each bank entity runs with its internal business strategies and directs derivative actions influencing cash and liquidity corresponding to the business portfolio. In a preliminary review from 2009 to 2013, the CFI of Indonesian commercial banks moved in the opposite direction against the CAR, while Malaysian bank CFI moved in a similar path. On the other hand, the CFF of Malaysian and Indonesian banks parallelly move in the opposite direction against the CAR. The different trends between the banks CFI, CFF, and CAR suggest a different style in using CFF to fund the CFI.

Indonesian and Malaysian commercial banks use money as an element of liquidity in operating the banks. The countries have similarities in geographic locations, economic levels as ASEAN members, and cultural roots in doing business (Chong, 2012). After suffering a severe effect from the 2008 crisis (Kompas, 2010) compared to the Malaysians (Ibrahim, 2010), the CFI, CFF, and CAR graphs show that the greater the expenditure for CFI in Indonesia, the more significant gap against the CAR. In line with Sepehrdoust & Aeini (2014), Bakke & Whited (2010), Baloch et al. (2011), and Molyneux et al. (2014), the trend of Malaysian banks' CF balance showed changes in a similar direction to CAR, but Indonesian banks denote an opposite picture.

Using CFF simultaneously lowers capital and the CFI balance and reduces the CAR but, on the other hand, increases long-term productive assets. Hence, the cash movement raises the question of how financing conversion into long-term investments influences CAR formation in Indonesian and Malaysian banking. In order to explore the issue, this paper compares the CFF moderation effect on the CFI and CAR relationship between the commercial banks in the two countries.

2. Literature Review

2.1 Capital Adequacy Ratio

The relevance of bank capital represents the ability to prevent potential bank failures by maintaining a sum of shareholders' equity and other banks' securities as backups against the financial risks of banks' assets (Eun & Resnick, 2014). In addition, the capital adequacy ratio shows the banks' ability to withstand losses in the value of the assets (Sangmi & Nazir, 2010). Therefore, the pure form of regulatory capital should be eligible for inclusion in the formula of capital ratios, including equity (Adesina & Mwamba, 2016), preferred stock, subordinated debt, and general reserves, all of which are loss-absorbing (Belém & Gartner, 2016) both ongoing basis or in the event of liquidation.

From an accounting perspective, bank capital represents the bank's funds, distinguished into common equity and retained earnings (Farag et al., 2013). The bank's capital adequacy shows the bank's ability to absorb losses, reduce the risk of banking finance, and maintain bank viability (Scannella, 2012). Capital is the bank's net worth (Parrino et al., 2012) after compensating for all obligations to third parties. The common term of capital is the shareholders' equity (Elliott & Elliott, 2017) which contains the funds contributed by the shareholders through their purchases of the bank's stock plus the bank's accumulated retained earnings. The capital is net worth derived from share purchases by shareholders plus the proportion of profit or loss retained during the bank's operations (Hubbard & O'Brien, 2012). Rose & Hudgins (2013) defined capital as long-term funds contributed to a bank or other financial institution primarily by its owner, consisting mainly of stock, reserves, and retained earnings. Capital adequacy regulation not only intends to enlarge the banks' capital, but according to Laiola (2015), it also aims to match the burden of credit losses with a capital buffer to absorb losses.

Mishkin and Eakins (2012) described that the bank's capital is the net worth, which is the difference between the bank's total assets against its liabilities. In addition, bank capital is a cushion against the drop in the value of the assets, which could force the bank into insolvency due to having more liabilities than assets, leading the bank into liquidity shortage and liquidation (Davies, 2015). Dhanda & Rani (2010) defined the CAR as the ratio of capital to total risk-weighted assets. Therefore, bank managers have to decide the amount of adequate capital to maintain and seek to obtain the source of funds at lower costs and risks to ensure the availability of bank capital (Bell & Hindmoor, 2017).

The vast capital amount is essential for the banks to overcome business risk changes that are difficult to predict (Maurin & Toivanen, 2015). The banks may issue additional capital or raise the profit from each dollar available to remain competitive (Pasiouras et al., 2011). Therefore, the qualified minimum capital usage makes the banks stable and secure. Unfortunately, conservative banks tend to keep a very high CAR. Consequently, the bank might not fully take economic benefit from its capital (Sangmi & Natzir, 2010). Meanwhile, the CAR and liquidity shortages will cause difficulties for the banks in fulfilling customer payments and potentially lead to market risk (Laeven et al., 2014).

The proposed Basel III aims to strengthen bank capital and liquidity to enhance the effectiveness of capital placement (Ramona, 2013). In the early stages, Basel Committee on Banking Supervision suggests the banks meet the Common Equity Tier 1 to RWAs of 3.5%, Tier 1 capital to RWAs of 4.5%, and total capital to RWAs of 8.0%. The strong capital base significantly determines the risk exposure for the bank. According to Sangmi & Nazir (2010), capital adequacy may affect the bank's performance. In addition, the relatively high cost of equity encourages banks to lower the amount of loan capital to achieve a healthy ratio. Inadequate bank capital to cover bank risk exposure will increase the risk premium and negatively impact economic performance (Scannella, 2012).

Setting the minimum capital remains crucial for all banks because high profit does not guarantee that banks have adequate capital. Therefore, Kishore (2017) classified the core capital ratio as Tier 1 capital/Risk-weighted assets, while the Tier 1 capital ratio consists of the eligible Tier 1 capital/Risk-weighted assets. The value of the minimum capital ratio is the result of dividing total capital by the risk-weighted assets, following the Basel Committee on Banking Supervision provision.

2.2 Risk-Weighted Assets

Banks use the regulatory risk weight coefficient according to the loan quality quantified by external ratings (Klepczarek, 2015). Sufian (2012) found that banking risk positively and significantly impacts profitability. Hence, a capital plan should assess the effect on capital of credit risk, earnings at risk, and liquidity risk (Brew, 2011). Subject to the Basel II supervisory validation and approval (Roy, 2016), the banks simplified the risk categories into credit, market, and operational risks to determine the RWA.

2.2.1 Credit Risk

The term credit line refers to an agreement on lending-borrowing agreed upon by the parties under the terms the bank offers (Mora, 2010). On the other hand, the low credit level distribution indicates that the banks are concerned with running conservatively with lower credit risk (Pasiouras et al., 2011). According to Choudhry (2011), credit risk includes losses from credit migration through credit downgrades. Despite the various ways the banks do to prevent bad debts, in practice, creditors always face credit risks stemming from the failure of customers to repay their debts (Cecchetti & Schoenholtz, 2015). In a bank, the credit risk related to the interest rate is associated with a loanable loan from consumer savings, business savings, government budget surplus, and reserve increase in the money supply (Kidwell et al., 2013).

Arora (2012) explains that in commercial banks, credit risk in lending activities includes the possibility of the borrower failing to repay the loan in a manner and time different from the creditor's expectations. Therefore, attention is essential because such a risk inherent in the customers' failure to repay the debt results in a loss and constitutes a risk for banks (Hassan et al., 2013). Therefore, banks need capital management to avoid failing to fulfill commitments to the creditor (Sardo & Serrasqueiro, 2022).

Basel accord weighs each of these assets with a level of risk regulated by the BCBS to calculate the capital adequacy ratio and gives banks some latitude in setting their capital requirements (Stowell, 2013). On the other hand, customer credit risk relates to loanable funds requirements in the form of consumer credit purchases, business investments, and government budget deficits from economic phenomena (Dedu & Nechif, 2010). The high credit channeling contains the potential losses stemming from the credit risk. Behr et al. (2010) use the average default ratio of the bank's loan portfolio to indicate credit risk.

2.2.2 Market Risk

Market risk is potential loss due to costs incurred regarding the market changes, which includes the threat from the changes in market prices of on and off-balance sheet commodities (Dhanda & Rani, 2010). Market risks are losses in interest charges, and exchange rates are affected by the combination of prevailing interest rates, foreign exchange, and public trust in the securities issuing banks (Sbârcea, 2017). Market risk occurs due to stimulation from both domestic and foreign factors. Market risk is more related to the bank's failure to sell its products, including off-balance sheets, as a result of price changes, should the investors pay (Hussain et al., 2012).

Liquidity risk refers to the liquidity market (Perobelli et al., 2016) and the ease of converting assets into cash (Gideon et al., 2012). Market risk may result in a loss of money due to changes in the value of the traded instrument. The trigger of market risk is more extensive due to the indirect role of the changes in the bank's external factors. According to Rena and Kamuinjo (2022), the reforming rate to sensitivity to market risk policies, capital adequacy policies, and liquidity policy measures can simultaneously be valuable policy tools to minimize liquidity shortages and avoid insolvent banks.

2.2.3 Operational Risk

Operational risk develops due to internal bank failures such as personnel disability, system weakness, lack of technology, and external factors such as natural disasters. In addition, the operational risk may stem from a failure or improper process, resulting in a loss (Dhanda & Rani, 2010). Therefore, the risk boosts the banks' nonperforming loans, and banks should apply a risk management function.

Chang & Lin (2011) asserted that information asymmetry about the company's internal conditions could lead to a deviation in the achievement of returns from risk management. Ames et al. (2015) pointed out that although severe to measure, operational risks contribute up to 10-30% of the overall banking risk. Therefore, banks might adopt information systems, reporting structures, and compliance monitoring improvements and minimize funding gaps to avoid operational risk (Ersoz & Hirsch, 2010).

As a commercial entity, to minimize such a risk, a bank should emphasize the need for adequate internal controls, quality supervision, adequacy of policies and restrictions, and risk measurement and monitoring (Romney & Steinbart, 2015). Due to the growth of banking risk, Basel II strongly emphasizes the need for risk management functions for credit institutions to overcome the threats.

2.3 Cash Flow from Investing Activities

Kieso et al. (2012) asserted that cash flows from investing involve cash in and out for long-term assets acquisition, loan provision and recollection, and the acquisition and retirement of productive long-term assets. According to Wahlen et al. (2011), the firms acquire such investments by using excess cash from other entities' securities, including stocks, government bonds, private companies, and money market funds, another asset referred to as

financial assets. Hence, cash inflows include the receipts from the collected loans, the sale of bonds and equity securities of other companies, and sales of property, factories, and equipment (Gibson, 2011).

Farag et al. (2013) described that banks hold some assets supporting their investment activities, including liquid assets such as cash, central bank reserves, or government bonds; the bank's buildings and other physical infrastructure; and intangible assets such as brand value. However, according to Dasgupta et al. (2011), investment in long-term assets is sensitive to cash flow because it cannot withstand financial risks every time.

According to Ostergaard et al. (2010), an internal source placement of banks' funds for current investments will automatically reduce future liquidity and investment capability. An entity might buy such assets for investment in the form of fixed assets or inventory investments. The changes in investment value during an accounting period represent the cash flow in from and out for the items (Elliott & Elliott, 2017). In the broader scope, investment activity also means obtaining and disposing of non-cash assets Wahlen et al. (2011). In addition, the bank may set aside funds from free cash flow (Qandhari et al. 2016). The bank made such investments to generate additional revenue, maintain good relationships with the parties, control the investee's business, or expand the product. Singh & Vyas (2011) suggested that banks with a higher risk in their assets portfolio and Capital to Risk-Weighted Assets Ratio enjoy high Return on Assets. Otherwise, such assets' ownership may also be shaped indirectly by trading other securities of an entity through an investment company (Park, 2018).

Investors place their funds in investment by agreeing to some agreements on the timing of the execution, the applicable currency, the interest rate or other compensation, the investment period, and the risks of the payment and its anticipation (Reilly & Brown, 2012). However, in the long run, such assets improve capacity due to the net income (Qin & Pastory, 2012) the banks capitalized in the equity capital.

2.4 Cash Flow from Financing Activities

Financing activities include cash receipts and payments related to long-term debt, such as bonds and receipts from the sale of shares and disbursements for share redundancy and dividends to shareholders (Kieso et al. 2012). In addition, cash flow from financing activities consists of the cash receipts and disbursements of long-term liabilities to creditors and shareholder equity (Siddiqua & Hossan, 2012). An essential factor of cash flow from financing activities is its function in forming the banks' capital (Park, 2018). When cash flow from other activities is insufficient, the subsequent alternatives are debt and even equity as a last resort (Naseem et al. 2017).

According to Schroeder et al. (2016), (Warren et al. 2012), and Subramanyam (2014), cash flow from financing activities explains the acquisition of financial resources from the owner, refunds to owners of their investments, lending activities, and repayment back to long-term creditors. Therefore, cash flow from financing activities reports cash transactions related to cash investments, owner ownership, and loan receipts from third parties and their payments.

An essential factor of cash flow from financing activities is its function in forming the banks' capital (Park, 2018). In conjunction with the net worth, the bank's capital also serves as the cushion for the impairment of assets that can press banks into insolvency (Pervin & Nowreen, 2018). In addition, DeBoeuf (2010) confirmed that free cash flow, a measure of cash available for distribution to a company's shareholders and creditors, is predominantly affected by the operating income and retained earnings. Therefore, management makes decisions about the combination of sources of financing by considering the advantages and disadvantages that influence the cash flow or profitability (Parrino et al. 2012).

Belloumma (2010) found that net liquidity balance is positively associated with increased profitability while working capital requirements are negatively related to corporate capital investment. The banks obtain the funds by selling new shares and retained earnings (Warren et al. 2012) derived from the accumulated profits and losses from operations after deducted by annual dividends. According to Yeh et al. (2013), cash inflows from equity primarily include the sale of equity securities. On the other hand, Ghosh & Moon (2010) asserted that companies relying heavily on debt financing would bear higher borrowing costs. Hence, according to Naseem et al. (2017), managers prefer internal funding sources.

Its cash outflow contains payouts for dividends and the repurchase of outstanding shares (Yeh et al., 2013). The banks paid dividends to the investor from net income besides paying periodic interest to the creditor. According to Subramanyam (2014), a nontrade creditor or debtor provides funding to the company in the hope of earning interest during their credit life, even though it became scarce during the crisis (Strahan, 2012). Regarding the risk and return relationship, banks with a high risk in the asset portfolio are likely to enjoy an increased net interest margin (Singh & Vyas, 2011), and the banks capitalized into equity capital. In the fundraising framework, the banks borrow money by issuing long-term debt securities and obtain cash as an element of liquidity; the banks

reinvest in long-term assets resulting in cash flow from investing activities. On the other hand, the banking authorities require minimum capital regulation as the guidance for the banks (Stowell, 2013). Therefore, financing activities are a primary funding source for a bank (Ross et al. 2013).

3. Methodology

3.1 Conceptual Framework

The literature review discusses the variables' universal definitions and reciprocal relationships. Therefore, this study adopts the essence of being empirically comparable among countries. Thus, Figure 1 below depicts the discrete moderating effect of CFF on the CFI and CAR relationship and its comparison, specifically between Indonesian and Malaysian commercial banks.

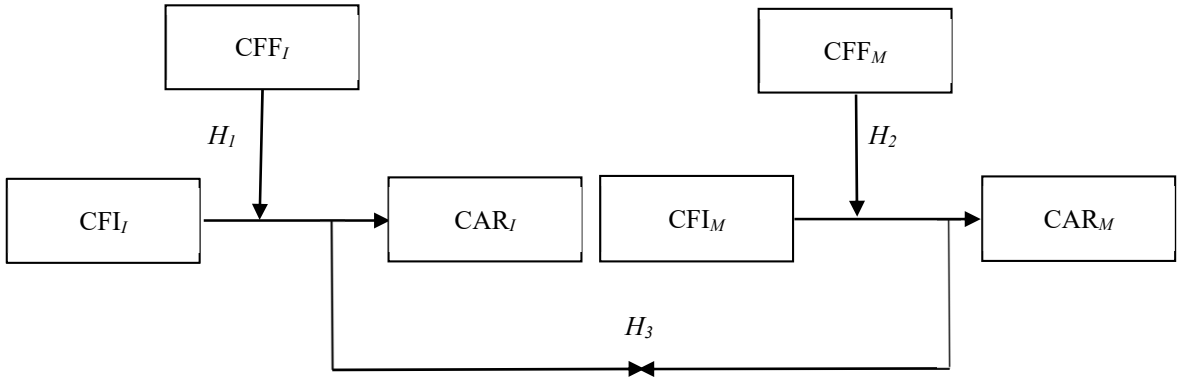

Figure 1. Conceptual Framework

3.2 Research Question, Objective, and Hypothesis

Concerning the literature review and the research problems, this study raises the question of whether there is (i) any positive and significant impact of CFF moderation on the CFI and CAR relationship of Indonesian commercial banks, (ii) any positive and significant impact of CFF moderation on the CFI and CAR relationship of Malaysian commercial banks, and (iii) is there any significant difference between the influence of CFF moderation on CFI and CAR relations between Indonesian and Malaysian commercial banks. Accordingly, this study aims to measure (i) the impact of CFF moderation on the CFI and CAR relationship of Indonesian commercial banks, (ii) the impact of CFF moderation on the CFI and CAR relationship of Malaysian commercial banks, and (iii) the difference between the influence of CFF moderation on CFI and CAR relationship between Indonesian and Malaysian commercial banks. Considering similarities and differences in the qualitative and quantitative characteristics of the two countries' banking environments, this study proposes the following hypotheses:

Hypothesis 1: CFF moderation positively and significantly influences Indonesian Commercial banks' CFI and CFF relationship.

Hypothesis 2: CFF moderation positively and significantly influences Malaysian Commercial banks' CFI and CFF relationship.

Hypothesis 3: CFF moderation impact has an insignificant difference on the CFI and CAR relationship between Indonesian and Malaysian commercial banks.

3.3 Data and Variables

This study was conducted for the big-five banks in Indonesia and Malaysia, considering their total assets' top ranks and leading domestic position in banking market capitalization. In addition, the comparative study considers the similarities between the two countries regarding geographical locations, economic levels, and cultural roots similarities in doing business (Chong 2012).

This study selected the unit of analysis, population, and secondary data purposively to track the first five years of banking performance post the 2008 financial crisis. The data comprise the quantitative value for each dependent variable CAR and, respectively, independent variables of CFI and CFF from 2009 to 2013. Table 1 below explores the variables' characteristics and formulas.

Table 1. The formula of capital adequacy ratio, cash flow from investing activities, and cash flow from financing activities

Variables	Description	Formula
CAR	(Tier 1 Capital + Tier 2 Capital+ Tier 3 Capital)/(Credit Risk+ Market Risk + Operational Risk)	(CAR=$T_1C+T_2C+T_3C$)/(CR+MR+OR)
CFI	Acquisition of Long-Term Assets + Gains from Long-Term Assets Retirement - Loss from Long-Term Assets Retirement	CFI= ALTA+GLTAR- LLTAR
CFF	(Stock Issue – Stock Withdrawals) – Dividend + (Acquisition of Long-Term Debt – Long Term Debt Repayment) + (Capital Gain – Stock and LTD Discounts) + Other Capital	CFF= (ΔCS) - DIV) + ΔCG + ΔOC + ΔLTD

3.4 Method of Data Analysis

Data analysis lasted through four stages consisting of (1) descriptive analysis to determine the data feasibility, (2) discrete regression analysis to measure the variables' coefficients, (3) the Sobel test to examine the CFF moderation effect on the CFI and CAR relationship, and (4) the Chow test to distinguish the CFF moderation influence on the CFI and CAR relationship between Indonesian and Malaysian Commercial banks. In addition, as the research stages passage, this study respectively applied the following nine equations:

$$CAR_I = a_I + bCFI_I \quad (1)$$

$$CAR_I = a_I + bCFI_I + bCFF_I \quad (2)$$

$$Sb_I = \sqrt{ab + (sa)(sb) + (sa^2)(sb^2)} \quad (3)$$

$$RSS_I = \sum^{n}_{i=1} (y_i - f(x_i))^2 \quad (4)$$

$$CAR_M = a_M + bCFI_M \quad (5)$$

$$CAR_M = a_M + bCFI_M + bCFF_M \quad (6)$$

$$Sb_M = \sqrt{ab + (sa)(sb) + (sa^2)(sb^2)} \quad (7)$$

$$RSS_M = \sum^{n}_{i=1} (y_i - f(x_i))^2 \quad (8)$$

$$Chow=(1/k*(RSSp-(RSS_I+RSS_M)))/((RSS_I+RSS_M)/(N_I+N_M-2k)) \quad (9)$$

For the Sobel tests, the acceptance criteria are H_0 acceptable if $t_{statstic} < t_{table}$. On the contrary, this study rejects H_0 if $t_{statstic} > t_{table}$. For a Chow test, this study accepts the null hypothesis (H_0) when the $F_{statstic} < F_{table}$ and rejects the alternative hypothesis (H_a). Conversely, the study accepts H_a and rejects the H_0 when the Chow test results in the $F_{statstic} > F_{table}$.

4. Data Analysis and Discussion

4.1 Data Description

The Capital Adequacy Ratio of Indonesian commercial banks from 2019 to 2013 was between 20.87% and 12.20%, with an average of 15.36%. On the other hand, Malaysian banks' CAR was between 17.27% and the lowest of 11.22%, with an average of 14.10%.

Table 2. Summary of Mean, Median, Maximum, Minimum, and observations number of cash flow and capital adequacy ratio of Indonesian and Malaysian commercial banks 2009-2013

	Indonesian Commercial Banks			Malaysian Commercial Banks		
	CAR_I	CFI_I	CFF_I	CAR_M	CFI_M	CFF_M
Mean	15.36	-2283.72	245.280	14.10	-1880.40	888.76
Median	14.96	-2694.00	-1553.00	14.02	-2027.00	130.00
Maximum	20.87	13176.00	14820.00	17.27	4948.00	10275.00
Minimum	12.20	-12569.00	-7070.00	11.22	-8466.00	-2944.00
Observations	25	25	25	25	25	25

The average trend of the capital adequacy ratio of Indonesian banks changed from 14.06% to 15.83% from 2009 to 2013. The trend shows the CAR rose by 1.77 points of 12.56% or an average growth of 2.51 points of 0.35% per year. On the other hand, the CAR of Malaysian banks changes from 14.22% to 13.51% during the same

period. It means the CAR of Malaysian banks decreased by 0.71 points or -4.98%, resulting in an average growth of -0.14 points or -0.1% per year. Figures 2 and 3 show graphs of Indonesian and Malaysian commercial banks' CFI, CFF, and CAR trends from 2009 to 2013.

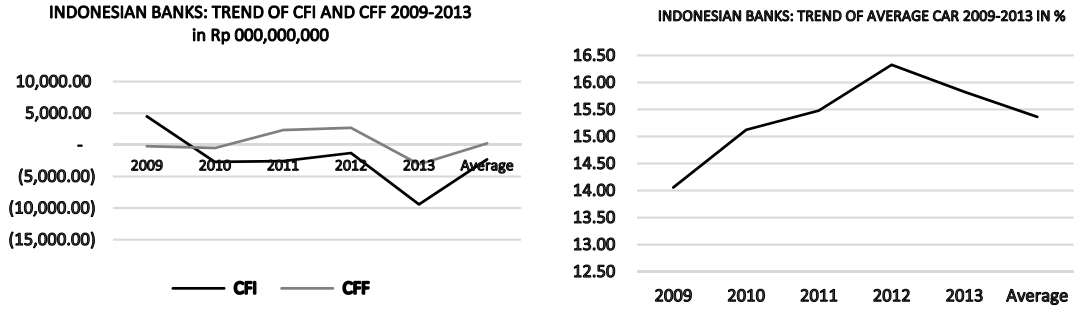

Figure 2. Average CFI, CFF, and CAR of Indonesian Commercial Banks

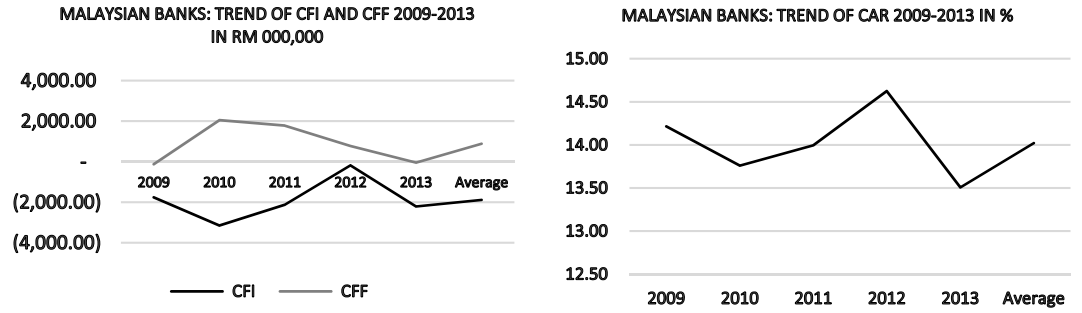

Figure 3. Average CFI, CFF, and CAR of Malaysian Commercial Banks

The results of data validity tests showed no multicollinearity, autocorrelation, or heteroscedasticity. Furthermore, the normality and linearity tests show that all data have a normal distribution, and independent variables are linear with dependent variables. Therefore, all data is suitable for use in further quantitative analysis.

4.2 Hypothesis Test and Discussion

4.2.1 Hypothesis 1

This section presents the hierarchical regression consisting of $CAR_I = a + b_2CFI_I$ and the simultaneous equation of $CAR_I = a + b_2CFI_I + b_3CFF_I$. In addition, the equation of $CAR_I = a + b_2CFI_I$ is available to show the individual CFF impact on CAR of Indonesian commercial banks.

CFI and CAR Regression. This section presented the relationship between CAR and CFI in the equation of $CAR_I=a+b_2CFI_I$. The result of the E-views statistical application for the relationship between CFI and CAR of Indonesian banks showed the equation of $CAR_I = 15.0949 - 0.000118*CFI_I$. The negative coefficient of CFI represents the negative relationship between CFI and CAR.

The regression shows the CFI's negative value of -0.000118, portraying that the CAR changed in the opposite direction against the CFI's changes. The regression indicates that when the CFI decreased by Rp 1 billion, the CAR increased by -0.000118% simultaneously. Conversely, when the CFI increased by Rp 1 billion, the CAR decreased by -0.000118% under the constant level of 15.0949. It means the higher the CFI, the lower the CAR; conversely, the lower the CFI, the higher the CAR. The regression also resulted in the statistical residual sum of the square of 48.8885 and $t_{statistik}$ = -2.218. The two-tail *t* distribution table, for n = 25, k=2, and α = 5%, shows that t_{table} = 2.060. Concerning the significance criteria, with $t_{statistic}$ -2.2128 < t_{table} 2.069. the result indicates that CFF has no significant impact on the CAR of Indonesian banks.

CFF and CAR Regression. This session expressed the CAR and CFF relationship with the $CAR_I=a+b_3CFF_I$ equation. E-views statistical application converse the equation into the $CAR_I = 15.36619 – 7.30E^{-06}*CFF_I$ confirmed a negative *b* coefficient for CFF. The regression also resulted in the statistical residual sum of the square of 79.10564 and $t_{statistik}$ = -0.1030. The two-tail *t* distribution table, for n = 25, k=2, and α = 5%, shows

that t_{table} = 2.060. Concerning the significance criteria, with $t_{statistic}$ -0.1030 < t_{table} 2.069. the result indicates that CFF has no significant impact on the CAR of Indonesian banks.

CFI, CFF, and CAR Regression. Data processing by the e-views application resulted in the partial regression of CAR = 15.09492 - 0.000118*CFI_I for the CFI and CAR regression. The CFF mediation on the CFI and CAR relationship yields the multiple regression of CAR = 15.07391 - 0.000133*CFI_I -5.75E^{-05}*CFF_I.

The multiple regressions show the negative coefficients for the CFI of - 0.000133 and CFF of -5.75E^{-05}. Due to the negative coefficient, assuming the CFI is constant, the equation means that each Rp 1 billion increase in the CFF will decrease the CAR by 5.75E^{-05}%. Conversely, when the CFI reduces Rp 1 billion, the CAR will increase by 5.75E^{-05}% over the constant level of 15.07391%. On the other hand, if the CFF is constant, the equation means that each Rp 1 billion increase in the CFI will decrease the CAR by - 0.000133%. Conversely, when the CFI decreases by Rp 1 billion, the CAR will increase by 0.000133% over the constant level of 15.07391%.

Table 3. Summary of CFI, CFF, and CAR Regression of Indonesian Commercial Banks 2009-2013

Description	Equation	t-stat vs. p-value Sb(F-stat) vs F-table	Significant (Yes/No)
CFI and CAR	CAR_I = 15.09492 - 0.000118*CFI_I	0.0393<0.05	Yes
CFF and CAR	CAR_I = 15.36619 – 7.30E^{-06}*CFF_I	0.9190>0.05	No
Sobel Statistic: CFI, CFF, and CAR	Sb_I=√ (-1.18E-04)(-5.75E-03)+ (5.33E-05*6.71E-05)+ (5.33E-05^2)(6.71E-05^2)	3.07E^{-07}<2.074	No

Regarding the CFF impact on the CFI and CAR relationships, this study combined the partial and simultaneous equations into a Sobel statistic. Including data from both equations in the Sobel application yields the $t_{statistic}$ of 3.07E^{-07}. The figure represents the power of the CFF as a moderation variable to influence the CFI and CAR relationship. The two-tail table of *t* distribution, with the RSS of 46.9769, n = 25, k = 3, and α = 5%, show a t_{table} of 2.074 > $t_{statistic}$ of 3.07E^{-07}. Hence, this study concluded that CFF moderation has no significant impact on CFI and CAR's relationship.

4.2.2 Hypothesis 2

This section presents the hierarchical regression consisting of CAR_M = a + b_2CFI_M and the simultaneous equation of CAR_M = a + b_2CFI_M + b_3CFF_M. The equation of CAR_M = a + b_2CFI_M shows the individual CFF impact on CAR of Malaysian commercial banks.

CFI and CAR Regression. This study presents the relationship between CAR and CFI in the equation of CAR_M=a+b_2CFI_M. E-views statistical application for the relationship between CFI and CAR of Malaysian banks showed the regression of CAR_M = 14.53147 + 0.000229*CFI_M.

Respecting the CAR spreading of Malaysian banks, it is noticeable that CFI and CAR's growth changes in the same direction. In the CAR and CFI regression, the skewness of these growths represented the positive *b* coefficient of 0.000229%. The positive CFI represents the CFI's changes shifted in a similar direction as the CAR. It means the higher the CFI, the higher the CAR. Conversely, the lower the CFI, the lower the CAR. The equation indicates that each RM 1 million rises in the CFI, it pushes the increase in the CAR of 0.000229% over the constant level of 14.53147%. Contrary, a decrease of RM 1 million in CFI will decrease the CAR by 0.000229 %. The regression also resulted in the Residual Sum of Square of 21.6193 and $t_{statistic}$ = *2.8594*. The two-tail table of *t* distribution for n = 25, k=2, and α = 5% shows that t_{table} = 2.069 referring to the significance criteria, with $t_{statistik}$ = *2.8594*, > t_{table} 2.069 indicating a significant CFF influence on CAR of Malaysian banks.

CFF and CAR Regression. This study expressed the CFF and CAR relationship with the CAR_M=a+b_3CFF_M equation. E-views application conversed the equation as the CAR_M = 14,16103 - 6.73E^{-05}*CFF_M represents a negative correlation between CFF and CAR of Malaysian commercial banks. The regression also resulted in the Residual Sum of Square of 21.6193 and $t_{statistic}$ = – *0.6704*. The two-tail table of *t* distribution for n = 25, k=2, and α = 5% shows that t_{table} = 2.069 referring to the significance criteria, with $t_{statistic}$ – *0.6704* < t_{table} 2.069 indicating an insignificant CFF influence on CAR of Malaysian banks.

CFI, CFF, and CAR Regression. Data processing by the e-views application for the first equation results in the partial regression of CAR_M = 14.53147 + 0.000229*CFI_M. Based on the second equation for CFI and CAR

relationship with the CFF moderation, the E-views application yields the multiple regression of CAR_M = 14.52671 + 0.000251*CFI_M + 5.31E^{-05}*CFF_M. The equation showed that the CFI coefficient is 0.000251 and CFF of 5.31E^{-05}, over the constant level of CAR of about 14.52671%. Using the Sobel Test, the $t_{statistic}$ for the CFF moderation in the relationship between CFI and CAR is 2.39E^{-08}.

The equation means that if the CFF is constant, for each change of RM 1 million in the CFI, the CAR changes by + 0.000251%. Due to the positive coefficient of CFI, each RM1 million increase in CFI will increase the CAR by + 0.000251 % and, conversely, decrease it by 0.000251%. If the CFI is constant, then for each change of RM1 million in the CFF, the CAR changes by 5.31E^{-05}%. Due to the positive coefficient, each RM 1 million increase in CFF will increase the CAR by 5.31E^{-05}%. Conversely, it decreases the CAR by 5.31E^{-05}%.

Table 4. Summary of CFI, CFF, and CAR Regression of Malaysian Commercial Banks 2009-2013

Variable Relationships	Equation	t-stat vs. p-value Sb(F-stat) vs F-table	Significant (Yes/No)
CFI and CAR	CAR_M = 14.5315 + 0.00023*CFI_M	0.0100<0.05	Yes
CFF and CAR	CAR_M = 14,1610 - 6.73E^{-05}*CFF_M	0.5107>0.05	No
CFI, CFF, and CAR	Sb_M = √(2.29E-04)(0.000053100)+ (8.00E-05*9.70E-05)+ (8.00E-05^2) (9.70E-05^2)	2.39E^{-08}<2.074	No

With the residual sum of square (RSS) of 16.7629, using the two-tail table of t distribution, with n = 25, k=3, and α = 5%, it was found that t_{table} = 2.074. Accordingly, the $t_{statistic}$ = 2.39E^{-08} < t_{table} = 2.074. Concerning the results, this study concluded that the CFF has no significant impact on the relationship between CFI and CAR. This calculation indicates that the gain capitalization from investing activities into the equity does not considerably affect the CAR of Malaysian commercial banks.

4.2.3 Hypothesis 3

This section provides an analysis to prove the hypothesis about the similarities or differences between the CFI's impact on CAR with CFF moderation between Indonesian and Malaysian banks. For this purpose, this study conducted a series of calculations using the Chow Statistics. In essence, the test compares the Residual Sum of Squares (RSS) derived from the relevant regression for the pooled data and the RSS for Indonesian and Malaysian commercial banks' discrete regressions.

Each RSS represents the error variances for the relevant regression. With n = 25 and a significance level of 5%, the equation for Indonesian banks is CAR_I = 14.796 - 0.0185*CFI_I + 0.006*CFF_I, resulting in an RSS_I of 46.9769. The equation for Malaysian banks is CAR_M = 14.263 + 0.002*CFI_M - 0.004*CFF_M, resulting in an RSS_M of 16.7629. Furthermore, with n = 50, the pooled Indonesian and Malaysian banks' regression resulted in the Residual Sum of Squares (RSS) of 78.7583.

Table 5. Residual Sum of Square of the Relationship of Cash Flow and Capital Adequacy Ratio of Indonesian and Malaysian Commercial Banks 2009-2013

CF and CAR Relationship; Equation	Residual Sum of Square		
	Indonesian Banks	Malaysian Banks	Indonesian and Malaysian Banks
CFI against the CAR; CAR=a+b_2CFI	48.8885	17.0420	80.5201
CFF against the CAR; CAR=a+b3CFF	61.4536	23.8125	85.6414
CFI and CFF against the CAR; CAR=a+b_2CFI+b_3CFF	46.9769	16.7629	78.7583

Furthermore, the three RSS are fitted into Table 6 below to answer the ultimate research question. The end section of the table adopts the $F_{statisc}$ and the F_{table} of the previous Sobel tests to distinguish the CFI's impact on CAR with the CFF moderation between the bank groups.

Table 6. Chow Test for the Cash Flow from Investing Activities Impact on Capital Adequacy Ratio with Cash Flow from Financing Activities Moderation

	Indonesian Banks	Malaysian Banks	Pooled Model
Residual Sum of Square	46.9769	16.7629	78.7583
N	25	25	50
Chow Test ($F_{statistic}$)			3.4558
$F_{table\ (0.05,3,44)}$			2.8165

Consistent with the 5% significance level regression, the Chow Test results in a greater $F_{statistic}$ of 3.4558 compared to the F_{table} of 2.8165. According to the proposed criteria, this study rejected H_0, accepted H_a of Hypothesis 3, and concluded that the CFF moderation impact in the CFI and CAR relationship significantly differs between Indonesian and Malaysian banks.

4.3 Discussion

In Indonesian banks, discrete CFI and CFF regressions showed negative correlations. The CFI has a significant impact, while CFF's impact is insignificant on CAR. In the multiple regression CFI, CFF, and CAR of Indonesian commercial banks, the CFI and CFF still show negative correlations with CAR. It means that the two independent variables, CFI and CFF, show a decrease when CAR shows an increase. The CFI, CFF, and CAR trend in Figure 2 ensures that the negative relationship was mainly caused by significant growth during CAR increasing from 2009 to 2013. In Malaysian banks, the CFI showed a positive correlation with CAR, while the CFF showed a negative correlation. In the multiple regression CFI, CFF, and CAR of Malaysian commercial banks, the CFI and CFF still show negative correlations with CAR.

After including the CFF as a source of funds for CFI, the equations still show a negative relationship between the two cash flows against the CAR in Indonesia. But on the contrary, all variables correlate positively with the CAR in Malaysian banks in the CFI and CAR equations after placing the CFF moderation. The result shows that the strong influence of CFI on CAR even forces a positive correlation between CFF and CAR.

Further E-view statistics analysis shows that the coefficient of determination of simultaneous CFI and CFF on CAR of Indonesian banks is 0.6191, while Malaysian banks lie at 0.5248. The CFF moderation in the CFI and CAR relationships of Indonesian banks tends to strengthen the difference in the increase of 1.55%, while Malaysian banks showed stronger influences of 0.79%. Hence, the CFF moderation enhances the coefficient of determination in the CFI's impact on CAR for Indonesian and Malaysian commercial banks.

Concerning some previous studies such as Sepehrdoust and Aeini (2014), Singh and Vyas (2011), Molyneux et al. (2014), Gatchev et al. (2010), Fatma and Chichti (2011), Baloch et al. (2011), and Gibbard and Stevens, (2011) indicated the reciprocal relationships closeness between the financial performance refers to the banks' liquidity, operating, efficiency, and banks' leverage in shaping the CFI, CFF, and the CAR. However, on the other hand, this study provides the explicit cash flow and capital relationship in the form of statistical pattern differences between CFF and CFI in shaping the CAR in Indonesian and Malaysian commercial banks during the first five years post-crisis 2008.

5. Conclusion and Implication

5.1 Conclusion

This study concludes a significant difference in the CFF moderation impact on the CFI and CAR relationship between Indonesian and Malaysian commercial banks. In addition, the discrete Sobel tests showed insignificant CFF moderation impact on CFI and CAR for each bank cluster in the two countries. Therefore, the difference primarily comes from the respective contradictory positive and negative CFI and CAR correlations between Indonesian and Malaysian commercial banks. However, on the other hand, the CFF moderation statistically enhances the coefficient of determination of the CFIs' influence on CAR.

5.2 Implication.

The uniqueness of this study lies in using the cash information directly to map banking activities in shaping the capital adequacy ratio. Therefore, this study shares the following research practice, theoretical, and managerial implications. (i) *Practical implication.* The insignificant CFF moderation influence on the CFI and CAR relationship reinforces an understanding that CFF is not a single source for funding the CFI of Indonesian and Malaysian commercial banks. In addition, both countries' contradictory CFI and CAR behavior require strategic

alignment to match investment asset utilization and financing policy. Under a typical environment, each bank entity needs to enact an in-depth analysis concerning its risk-sensitive characteristics to optimize capital formation. (ii) *Theoretical implication.* This study provides empirical evidence concerning the different patterns of cash flow and the banks' CAR post-financial crisis of 2008. Regarding the insignificant CFF moderating and the CFI's significant effects on CAR in the countries, banking scientists require further study to investigate the role of individual CFF, CFI, and other environmental determinants in shaping the CAR. (iii) *Managerial implication.* Concerning the above findings and implications, the banks' managers need intelligent managerial control to meet the CFI, CFF, and CAR equilibrium to achieve the best tradeoff to keep pace with the banks' sound CAR and liquidity.

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