International Journal of Application on Economics and Business (IJAEB)
Volume 3, Issue 2, 2025. ISSN: 2987-1972

LINEAR AND NON-LINEAR RELATIONSHIP OF CAPITAL STRUCTURE TO FIRM PERFORMANCE WITH AGENCY COST AS MEDIATING AND MODERATING VARIABLE

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Submitted: 27-01-2025, Revised: 19-03-2025, Accepted: 23-04-2025

ABSTRACT

This study was conducted examine both linear and non linear impact of capital structure to firm performance with agency cost as both moderating and mediating variable in capital structure and firm performance relationship in non-cyclical business in Indonesia that registered to Indonesia Stock Exchange for a period on 2021-2023. Purposive sampling is done to gain sample in this research, which result to a total of 54 non-cyclical companies. This study uses STATA 17 as a statistic tools to help in analyzing the multiple regression method. MEDSEM in STATA 17 is also used to analyse the mediation effect in this study. In this study, firm performance is calculated using return on equity (ROE). The capital structure counted using leverage, and agency cost is calculated with a measurement of asset utilization ratio (AUR). The result shows that capital structure has a significant negative relationship effect on firm performance, while agency cost shows a significant positive relationship to firm performance. Capital structure resulted to a significant non-linear effect on firm performance. Capital structure doesn't not have a significant effect on firm performance when using agency cost as moderation. Agency cost doesn't mediate capital structure to effect firm performance. So,the management center it's attention on the achieving optimal capital structure and control the agency cost in order to increase the firm performance.

Keywords: *Agency Cost, Capital Structure, Firm Performance*

1. INTRODUCTION

Indonesia has different type of business such as sole proprietorship, partnership, Commanditaire Vennootschap (CV), firm, and limited companies. In a limited companies, the owner or shareholders may not be the one who managed the companies as shareholders may only put capital on the business, so there is a need management to operates the business activities of the company. Due there are a interest of conflict between management and shareholders, there is a need for monitoring done by the shareholders to make sure that the work of management are in line with the firm goals, which is maximizing the shareholders wealth. So, this is where firm performance takes places in this relationship.

According to Taouab & Issor (2019) [1] firm performance a tool that is used to know the about perception and control of the management to companies. The firm performance allow shareholders to monitor the works of management. Firm performance also can be used by the management to make strategies based on the companies condition, which allow the management to find the suitable strategies to achieve the companies goals. Adetunji & Owolabi (2016) [2] stated that firm performance goal is to maximize the profits earned by the companies. Since, the goal of shareholders and firm performance target the same goals, which is maximizing profit. This lead to firm performance becomes an important variable for the stakeholders to assess.

Company's performance is being impacted capital structure and agency cost factors. Islam & Iqbal (2020) [3] supported the idea, as the research's result is that capital structure give negative effect to firm performance with firm size as moderation. Capital structure able to effect firm performance in non-linear way. As Zeitun and Goaied (2020) [4] claimed that relationship of capital structure and firm perofrmance relationship are not linear. Roonoah and Seetanah (2024) [5] explained that agency cost effected firm performance and capital structure also able to effect firm performance with agency cost as both moderating and mediating variable.

Several studies that are done show an inconsistent result, this result to a need for more result to show consistency of it. In Indonesia, although there are lots of research done on capital structure and firm performance. There still less exposure on topic of non-linearity happening on capital structure and firm performance.There is an existence of capital structure able to influence the alignment of conflict, which able shows varies value of agency cost conflict on company's performance outcome. Therefore, this study are done to research about the linear and non-linear impact of capital structure and firm performance with agency cost as the moderating and mediating effect.

Shareholders Theory

Shareholders theory based on Friedman (1970) [6] stated that companies need to prioritize the shareholders interest in managing the business, by maximizing the shareholders wealth. It is because the management is the agent of shareholders that should help and prioritize the goals of shareholders which is maximizing the shareholders wealth. When focusing on maximizing the shareholders wealth, this allow the management to be more effective and efficient in minimizing the cost and maximizing the revenue, this will increase the profit earned by the company. Hence, the firm performance will increase. This increase of profit, will also increase the shareholders value, this allow the firm performance of the companies to increase. So, in order for the firm performance to be optimal, management need consistent with the shareholders interest to achieve better firm performance.

Agency Cost Theory

Jensen and Meckling (1976) [7] developed the agency cost theory which explain there are conflict between management, shareholders, and credit that result to a conflict of interest. Agency cost used to be a monitoring tools for the management works which are reflected on the business performance. This theory highlighted that agency cost need to be reduced in order to have an increase of firm performance. It is because agency cost is additional cost that need to be paid due to conflict of interest. So, when the interest between agent and the principal is consistence, cost from agency cost will be reduce, hence more profit earned which increase the firm performance of the company. This allignment of interest can be achieved through the usage of debt. As Kruk (2021) [8] stated that capital structure that are more leaned on the debt will give different result to firm performance. In one way it able to reduce the conflict of interest between shareholders and firm performance, but this will increase the clash of interest between creditors and business performance. There is a need for an optimal capital structure in order to reduce the agency cost happen, hence result to an improved firm performance.

Trade-Off Theory

Trade-off theory consider the existence of the taxes effect and bankruptcy cost in the process of achieving a better firm performance. This theory explain that management able to make use of debt to gain the advantages of taxes benefits, as this allow the companies to reduce the taxes payment due to lower taxable income. This lead to a higher net profit, which able to

increase the share price.Hence, the firm performance of the company also able to increase due to an increase in profit. So, there are a trade-off of the tax benefits compare to the increase of interest rates and cost of bankruptcy, hence improve firm performance. Bilgin and Dinc (2019) [9] In order to gain optimal capital structure, there is a need for leverage ratio between debt's marginal tax advantages is equal to bankruptcy's marginal cost. Therefore, the company need to take advantages of tax benefit with low excessive financial risk, as this will improve the firm performance.

Firm performance

Bolton, Bulter, and Martin (2024) [10] stated that firm performance is a multidimensional construction that are measured to know the business condition and the success rate of the business. Firm performance allow the shareholders and management to know the position of the business, which allow management to make appropriate strategies for the company and allow shareholders to monitor the work of the management. Firm performance can be measured from different aspect as it is multidimensional. The firm performance is calculated using return on equity as its proxy.

Capital Structure and Firm Performance

Capital structure is tools used by company to finance it's operational business activities which can be gained through debt and shareholders equity (Rahma, Hasan, dan Ismawati, 2024) [11]. Optimal capital structure is needed as this able to effect the firm performance of the enterprise. The capital structure contain equity and debt that are owned by the companies to gain it's asset. The composition of equity and debt can be calculated using leverage as the proxy. Abdulah and Tursoy (2019) [12] stated that based on the research result capital structure give positive impact to firm performance. While other study, Nguyen (2020) [13] stated capital structure has negative relationship to firm performance, which also supported by Ronoowah and Seetanah (2024) [5].

Company need to obtained the optimal capital structure to achieve an increase in firm performance. When there are an increase in debt compare to equity. This lead to more interest expense that need to paid, causing the profit to be decreased, hence firm performance becomes lower. This increase in debt makes the company financial to be inflexible for other development of the company, as all the funds are spend on paying the interest and debt. This will hinder the firm performance. Based on the explanation done, it can be conclude that the hypotesis will be:

H1: Capital structure has negative impact on firm performance.

Capital structure able to give both negative and positive impact on firm performance. It is because on one side capital structure able to give positive impact due to payment of debt allow better distribution of cash flow, which reduce the over-investment to happened. Hence, this will increase the firm performance. But, payment of debt can also lead to a cash flow problem because of all the funds are used to pay the debt. This will lead to underinvestment, causing the firm performance to not be in a condition. Ronoowah and Seetanah (2024) [5] agreed that based capital structure and company's performance has a significant non-linear relationship. It shows that low debt lead to a postive relationship and higher level debt lead to a negative relationship. But, Jamil *et al* (2021) [14] shows that there are non-linear relationship, where the low level debt has negative relationship and the high level debt has a positive relationship. Hence, this lead to a hypothesis of:

H2: There is non-linear relationship between capital structure and firm performance.

Agency Cost

Agency cost is cost that appears due to a difference in interest resulted to conflict between shareholders, management, and creditors. Management may not management it's company based on the shareholders interest, which lead to a need of agency cost to control it. Agency cost will increase the expense of the companies, lower profit will be gained. Hence, may lead to a reduction in firm performance. So, management need to maintain and monitor the agency cost and reduce the gaps of conflict of interest to enhance the firm performance. Khuyen (2020) [15] found positive effect on agency cost to firm performance. While other study, Hoang *et al* (2019) [16] and Khan *et al* (2020) [17] found there are negative relationship between agency cost and firm performance.

Agency cost happen due to a conflict of interest, which happened because management prioritize it's interest compare to shareholders. This will caused an inefficiency to happened. In this study, agency cost is calculated by asset utilization ratio, this reflect to management efficiency and effectiveness in managing asset. Higher utilization of asset able to generate more revenue from asset which result to a lower agency cost. This result to an increase in firm performance. As there are better alignment of not symmetry of interest between management and shareholders due to an improved in utilizing the asset. This will lead to an increase in firm performance. So, the hypothesis form from this explanation is:
H3: Agency cost has a significant positive effect on firm performance.

Agency Cost as Moderating Variable
Agency cost able to strengthen the effect on the capital structure impact to business performance. As agency cost happen due to clash of interest in shareholders, management, and creditors. So, when the capital structure is low on debt, the company able to increase it's debt to increase the firm performance, but with agency cost as the moderating variable, it strengthen the positive effect. It is because when capital structure increase it able to reduce it's agency cost due to more inline interest. Hence, the firm performance will be able to excel. So, agency cost give able to give strengthening effect to capital structure and firm performance. Ahmed *et al* (2023) [18] supported that result of agency cost strengthening effect on the capital structure and firm performance, where agency cost change capital structure the negative effect to positive effect to the business performance. But, Sdiq dan Abdullah (2022) [19] research shows that the agency cost give strength to negatively influence capital structure and firm performance relationship. The explanation above result to a hypothesis of:
H4: Agency cost moderate the relationship of capital structure and firm performance.

Agency Cost as Mediating Variable
Agency cost role of mediation variable to capital structure and corporate performance relationship. Low agency cost meaning that the company's able to decrease the problem of conflict of interest which allow the firm performance to increase. An optimal capital structure allow the management to be able to reduce the agency cost, as they able to achieve better alignment of interest and better monitoring function. This will lead to an increase in firm performance. Roonawah and Seetanah (2024) [5] confirm the findings of agency cost role as mediator to capital structure and business performance relationship. However, Hutapea and Sulistyowati (2024) [20] research demonstrate that there are no mediation happening effecting the capital structure and company performance. This explanation will result to a hypothesis of:
H5: Agency cost mediate the relationship of capital structure and firm performance.

Below is the research model for above hypothesis:

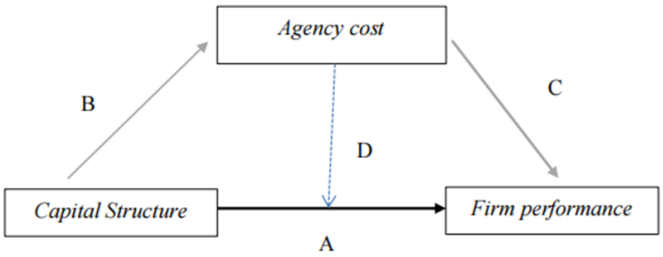

Figure 1. Research Model

2. RESEARCH METHOD

The methodology done for this study is a statistical descriptive method. The data used is a secondary data where all the information gained from Indonesia Stock Exchange (IDX). It is collected using time series and cross section series which will turn the data into a data panel. The process of selecting sample from the population used purposive sampling. This technique allow the researcher to collect sample based on the criteria stated by the researcher. The criteria are: 1) Non-cyclical industry companies listed on Indonesia stock exchange (IDX) from 2021-2023. 2) Non-cyclical industry companies used Rupiah (IDR) currency in financial statement. 3) Non-cyclical industry companies that have done IPO before 2021. 4) Non-cyclical industry companies always published financial statement continuously from 2021-2023 period. 5) Non-cyclical industry companies that have all the information needed to conduct research in 2021-2023 period. The valid sample used in this study were 54 companies in 3 years. The statistics tool used was STATA 17 to help research analyze the data. Descriptive statistics test, classical assumption test, panel data regression model test, ramsay test, regression analysis test, Baron and Kenny's test, and Zhao et al test are done in this research.

Table 1. Operational Variable

Variable	Skala	Pengukuran	Sumber
Return on equity (ROE)	Rasio	$= \frac{Net\ Income}{Total\ Shareholders' Equity}$	https://www.idx.co.id/
Agency cost	Rasio	$= \frac{Annual\ Turnover}{Total\ Assets}$	https://www.idx.co.id/
Capital Structure (CS)	Rasio (Leverage)	$= \frac{Total\ Debt}{Book\ Value\ of\ Equity}$	https://www.idx.co.id/
Growth	Rasio	*Growth opportunities = revenue growth*	https://www.idx.co.id/
Liquidity (LIQ)	Ratio	$= \frac{Current\ Assets}{Current\ Liabilities}$	https://www.idx.co.id/
Age	Nominal	*Number of Years since Listed on IDX*	https://www.idx.co.id/
Size	Ratio	*Size=Ln(Total Asset)*	https://www.idx.co.id/

There are several panel regression models that are used to answer the research question in this study which are:

Model 1: $FP_{it} = \beta_0 + \beta_1 CS_{it} + \beta_2 LIQ_{it} + \beta_3 AGE_{it} + \beta_4 SIZE_{it} + \beta_5 AUR_{it} + \beta_6 GROWTH_{it} + \varepsilon_{it}$

Model 2: $FP_{it} = \beta_0 + \beta_1 CS_{it} + \beta_2 CS_{it} * CS_{it} + \beta_3 LIQ_{it} + \beta_4 AGE_{it} + \beta_5 SIZE_{it} + \beta_6 AUR_{it} + \beta_7 GROWTH_{it} + \varepsilon_{it}$

Model 3: $FP_{it} = \beta_0 + \beta_1 CS_{it} + \beta_2 CS_{it} * AUR_{it} + \beta_3 LIQ_{it} + \beta_4 AGE_{it} + \beta_5 SIZE_{it} + \beta_6 AUR_{it} + \beta_7 GROWTH_{it} + \varepsilon_{it}$

Notes:
FP = Firm performance ; β0 = Constant ; β1-7 = Regression Coefficient; CS = Capital structure; AUR = Asset utilization ratio; CS*CS = Capital structure squared terms;
CS*AUR= Capital structure times asset utilization ratio; LIQ = Liquidity; AGE = Ages; SIZE = Size; GROWTH= Growth ; ε= Error terms

The mediation for this research uses an equation which are designed for the Baron and Kenny's test, and Zhao et al test as following:

Steps 1: $FP_{it}= \beta_0+ \beta_1 CS_{it}+\varepsilon_{it}$

Steps 2: $AC_{it}= \beta_0+ \beta_1 CS_{it}+\varepsilon_{it}$

Steps 3: : $FP_{it}= \beta_0+ \beta_1 AC_{it}+\varepsilon_{it}$

Steps 4: $FP_{it}= \beta_0+ \beta_1 CS_{it}+ \beta_2 AUR_{it}+\varepsilon_{it}$

3. RESULTS AND DISCUSSIONS

Descriptive statistic test result on the data panel test show in the table 2. Based on this result, the dependent variable, which is return on equity (ROE) a mean value of 0.1017025 or 10.17025%, this mean that the non-cylical company able to make profit 10.17025% of it's equity. The independent variables are agency cost and capital structure. The agency cost with proxy of asset utilization ratio (AUR) mean value at 1.26554 or 126.554% meaning that the company able to generate 126.554% revenue from utilizing it's asset. This mean the higher value of asset utilization ratio the lower the agency cost for the business. Capital structure with the proxy of leverage has an average or mean value for capital structure is 0.8069371. This mean the debt size compare to equity ratio for the company in average is 80.69371% for non-cyclical companies in Indonesia.

The control variables used are are growth, ages, liquidity, and size. The mean value of growth is 0.1467012. This mean that non-cyclical companies in Indonesia experience an average growth of 14,67012%. The mean value of ages is 16.66667, which mean that on average the ages of non-cyclical companies in Indonesia is around 16.66667 years, this show that the company in non-cyclical industry has been in the market for quite a long period. The mean value of liquidity is 2.638408, which mean that on average the non-cyclical companies in Indonesia able to pay back it's current liabilities with it's current asset for 2.638408 times. The mean value of size is 28.89035, this mean that the size of the companies on average for non-cyclical companies in Indonesia is Rp 3,523,056,314,592.

Table 2. Descriptive Statistic
Source: Result from Stata 17

Variable	N	Mean	Median	Std. Dev.	Min	Max
ROE	162	0.1017025	0.0979184	0.0916133	- 0.3306191	0.2860044
AUR	162	1.265541	1.105462	0.8323413	0.0352123	4.017761
CS	162	0.8069371	0.652199	0.6416058	0.1028216	4.143712
GROWTH	162	0.1467012	0.102517	0.2948958	-0.8549474	2.472852
AGES	162	16.66667	15	11.49399	1	39
LIQ	162	2.638408	1.892537	2.16618	0.2022296	13.30906
SIZE	162	28.89035	28.80963	1.784347	25.30317	32.85992

For this data panel, the data panel model regression test was done to know the right model to be used for this study. There are common effect model, fixed effect model, and random effect

model. Chow test are done to know whether the data is better in common effect model or fixed effect model. Since the result shows 0.0000. This mean that fixed model effect was chosen from this test. Then, proceed to the hausman test to select between fixed effect model and random effect model, gain an answer of 0.0107, which is less than 0.05. So, fixed effect model was chosen. So, all the regression analysis done on this study uses fixed effect model.

The assumption classical tests were done in this study. The result show that the data is distributed normally and there are no auto-correlation and multicollinearity. But, since the data contain variable that has a tendency of non-linearity, this make it to be heterogeneity. The data panel can still be proceed to continue to the analysis regression.

Table 3. Result of Multiple Linear Regression (Model 1)
Sources: Result from Stata17

```
Fixed-effects (within) regression               Number of obs     =       162
Group variable: kodeid                          Number of groups  =        54

R-squared:                                      Obs per group:
     Within  = 0.3546                                         min =         3
     Between = 0.0027                                         avg =       3.0
     Overall = 0.0067                                         max =         3

                                                F(6,102)          =      9.34
corr(u_i, Xb) = -0.8994                         Prob > F          =    0.0000
```

roe	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
cs	-.0568751	.0177433	-3.21	0.002	-.0920689	-.0216813
liq	-.0037183	.005091	-0.73	0.467	-.0138162	.0063797
ages	-.0167832	.0055037	-3.05	0.003	-.0276997	-.0058667
size	.0935503	.0562673	1.66	0.099	-.0180556	.2051563
aur	.0792893	.018585	4.27	0.000	.042426	.1161526
growth	-.0163064	.015489	-1.05	0.295	-.0470288	.014416
_cons	-2.363525	1.573054	-1.50	0.136	-5.48367	.7566193

Based on the table 3, this is the result for the model 1 which can will form an equation of:
FP_{it}=-2.363525 -0.568751CS_{it} -0.037183LIQ_{it} -0.167832AGE_{it} +0.935503$SIZE_{it}$ +0.792893AUR_{it} -0.0163064$GROWTH_{it}$ +ε_{it}

Based on the model 1, the result reveals that the constant value is -2.363525, this mean when capital structure, liquidity, ages, size, asset utilization ratio, and growth have a 0 value, the firm performance will be -2.363525. The coefficient nominal of capital structure is -0.568751. This mean that when there are an increase of one unity of capital structure when the other independent variables and controlling variables are constant, the firm performance will have a decrease of 0.568751. The coefficient of asset utilization ratio is 0.792893. It shows that when the asset utilization experience an increase in one unity, while the other independent variable and controlling variables are constant. This will cause the firm performance to experience an increase of 0.792893.

Table 4. Result of Multiple Linear Regression (Model 2)
Sources: Result from Stata17

```
Fixed-effects (within) regression               Number of obs     =       162
Group variable: kodeid                          Number of groups  =        54

R-squared:                                      Obs per group:
     Within  = 0.4307                                         min =         3
     Between = 0.0015                                         avg =       3.0
     Overall = 0.0007                                         max =         3

                                                F(7,101)          =     10.92
corr(u_i, Xb) = -0.8314                         Prob > F          =    0.0000
```

roe	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
cs	.1062399	.0474467	2.24	0.027	.0121184	.2003614
c.cs#c.cs	-.0381325	.010378	-3.67	0.000	-.0587197	-.0175452
liq	.001477	.0050088	0.29	0.769	-.0084591	.011413
ages	-.0119773	.0053567	-2.24	0.028	-.0226035	-.001351
size	.0567384	.0540438	1.05	0.296	-.05047	.1639467
aur	.0675545	.0178296	3.79	0.000	.0321854	.1029235
growth	-.0251442	.0148156	-1.70	0.093	-.0545344	.0042459
_cons	-1.468866	1.504535	-0.98	0.331	-4.45346	1.515727

Based on table 4, model 2 is made to solve the non-linearity research question, thie model will form an equation to be:

FP_{it}= -1.468866 + 0.1062399CS_{it} -0.381325CS_{it}*CS_{it} +0.001477LIQ_{it} -0.119773AGE_{it} +0.0567384$SIZE_{it}$ + 0.0675545AUR_{it} -0.0251442$GROWTH_{it}$ +ε_{it}

From the result of table 4, it is identified that the constant value is -1.468866. This mean that when all the determining variables and controlling variables have a value of 0. The firm performance will have a value of -1.468866. When the capital structure experiencing an increase in one unity, while the other independent variables and controlling variables are constant. The firm performance will have an increase of 0.1062399. When the CS*CS has an increase in a one unity, while the other independent variables and controlling variables are constant. The firm performance will experience an decrease of 0.381325. When the asset utilization ratio increase in one unity, when other independent variables and controlling variables are constant. The firm performance experience an increase of 0.0675545.

Table 5. Result of Multiple Linear Regression (Model 3)
Sources: Result from Stata17

```
Fixed-effects (within) regression               Number of obs     =       162
Group variable: kodeid                          Number of groups  =        54

R-squared:                                      Obs per group:
     Within  = 0.3677                                         min =         3
     Between = 0.0030                                         avg =       3.0
     Overall = 0.0078                                         max =         3

                                                F(7,101)          =      8.39
corr(u_i, Xb) = -0.8860                         Prob > F          =    0.0000
```

roe	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
cs	-.0998652	.0346049	-2.89	0.005	-.168512	-.0312183
aur	.0536371	.0256364	2.09	0.039	.0027814	.1044928
c.cs#c.aur	.0286645	.0198469	1.44	0.152	-.0107063	.0680354
liq	-.0033443	.0050707	-0.66	0.511	-.0134033	.0067146
ages	-.0157422	.0055219	-2.85	0.005	-.026696	-.0047883
size	.0808881	.0566526	1.43	0.156	-.0314955	.1932717
aur	0	(omitted)				
growth	-.0115969	.0157485	-0.74	0.463	-.0428377	.0196438
_cons	-1.979562	1.587169	-1.25	0.215	-5.128079	1.168955

From the table 5, this used to know the answer about the moderation variable research queation, thus this will make the equation to be:

FP_{it}= -1.979562 -0.0998652CS_{it}+ 0.0286645CS_{it} * AUR_{it} -0.0033443LIQ_{it} -0.0157422AGE_{it}+ 0.0808881$SIZE_{it}$+ 0.0536371AUR_{it} -0.0115969$GROWTH_{it}$ +ε_{it}

Table 5 show that the constant value is -1.979562. This mean that when all the predictor variables and controlling variables have a value of 0. The firm performance will have a value of -1.979562. When the capital structure experiencing an increase in one unity, while the other independent variables and controlling variables are constant. The firm performance will have an decrease of 0.0998652. When the CS*AUR has an increase in a one unity, while the other independent variables and controlling variables are constant. The firm performance will experience an increase of 0.0286645. When the asset utilization ratio increase in one unity, when other independent variables and controlling variables are constant. The firm performance experience an increase of 0.0536371.

Table 7. Simultaneous Test
Sources: Result from Stata17

Regression equation	Prob. F-statistic
1	0.0000
2	0.0000
3	0.0000

All the regression equation in the table 7 shows that the probability is 0.0000. This mean that all the independent variables and controlling variables when examined jointly, they will influence effect on the dependent variable, which is return on equity (ROE) in this study. So, this shows that all the regression equation model can be used to analyse the result for this research.

Table 7. R-Squared Within
Sources: Result from Stata17

Regression equation	R- squared Within
1	0.3546
2	0.4307
3	0.3677

The R-squared within for the regression equation 1 has a value of 0.3546. This mean that capital structure, liquidity, ages, size, asset utilization ratio, and growth give effect to the firm performance for 35,46% while the other 64.54% is influence by other variables that are not being researched in this study. For the regression equation 2 it has adjusted R-squared value of 0.4307, this shows that capital structure, liquidity, capital structure *capital structure, ages, size, asset utilization ratio, and growth to give impact to firm performance for 43.07%. The other 56.93% are impacted by other variable that are not researched in this study. The regression equation has a R-squared value of 36.77%, this mean capital structure, liquidity, capital structure * asset utilization ratio, ages, size, asset utilization ratio, and growth influence the firm performance for 36.77%. While the other 63.23% are influence by other variables that are not listed on this study.

Partial test (T-Test)

The equation regression of model 1 used to know the linear relationship of capital structure and agency cost with a proxy of asset utilization ratio to firm performance with return on equity as a proxy. From table 3 shows that the probability of capital structure to return on equity (ROE) is 0.002, this mean that the capital structure give a significant effect to return on equity. The coefficient value is -0.568751, which mean there are negative relationship. So, capital structure has a significantly negative effect on business performance, hence H1 is accepted.

Table 3 also shows that probability of asset utilization ratio is 0.000, this mean that asset utilization ratio has a significant effect on return on equity, with the coefficient of 0.792893. This show a positive relationship of asset utilization ratio to capital structure. This mean that asset utilization has a significantly positive effect on firm performance. So, the H3 is accepted.

The equation regression of model 2 used to know the non-linear relationship of capital structure to business performance. From table 4 it display the capital structure has a probability of 0.027, which shows that the capital structure has a significant effect on return on equity (ROE). The coefficient of 0.1062399. This is show a positive relationship, which conclude that capital structure has significantly positive impact to return on equity. The squared term of capital structure shows that it has a probability of 0.0000. This mean that the squared term of capital structure also resulted to significant effect to return on equity. The coefficient is -0.381325, which show a negative relationship. This mean that the squared term of capital structure bring an answer of significant negative impact to return on equity. As, capital structure shows a significantly positive and negative effect on return on equity, this shows that capital structure and business performance has a non-linear connection. This lead to H2 being accepted.

The equation regression of model 3 used give explanation on the research problems of the role of agency cost as moderating variable to capital structure and business performance. From table 5 it provided that that the capital structure has a probability of 0.005, which shows that the capital structure effect on return on equity (ROE) is significant. The coefficient of -0.0998652. This is show a negative relationship, hence capital structure has a significantly negative effect on return on equity. The capital structure times asset utilization ratio shows that it has a probability of 0.152. This mean that the capital structure times asset utilization ratio don't show significant effect to return on equity. The coefficient value is + 0.0286645, which show a positive relationship. Hence, this can be conclude that the agency cost with asset utilization as a proxy will doesn't have a moderating influence on capital structure and firm performance relationship. This make H4 to be rejected.

Table 7. Baron and Kenny's Tes
Sources: Result from Stata17

Significance testing of indirect effect (unstandardised)

Estimates	Delta	Sobel	Monte Carlo
Indirect effect	0.000	0.000	0.000
Std. Err.	0.001	0.001	0.001
z-value	0.498	0.498	0.377
p-value	0.618	0.618	0.707
Conf. Interval	-0.001 , 0.002	-0.001 , 0.002	-0.002 , 0.003

```
Baron and Kenny approach to testing mediation
STEP 1 - aur:cs (X -> M) with B=0.060 and p=0.554
STEP 2 - roe:aur (M -> Y) with B=0.007 and p=0.355
         As either STEP 1 or STEP 2 (or both) are not significant,
         there is no mediation!

Zhao, Lynch & Chen's approach to testing mediation
STEP 1 - roe:cs (X -> Y) with B=-0.056 and p=0.000
         As the Monte Carlo test above is not significant and STEP 1 is
         significant you have direct-only nonmediation (no mediation)!

RIT  =   (Indirect effect / Total effect)
         (0.000 / 0.056) = 0.008
         Meaning that about  1 % of the effect of cs
         on roe is mediated by aur!

RID  =   (Indirect effect / Direct effect)
         (0.000 / 0.056) = 0.008
         That is, the mediated effect is about 0.0 times as
         large as the direct effect of cs on roe!
```

The Baron and Kenny's test are used to analyse the function of agency cost as the mediation variable to capital structure and company's performance relationship. From table 7, the probability of capital structure effecting asset utilization ratio is 0.554, this mean that there are no significant effect in this path. While the asset utilization ratio effecting return on equity shows a probability of 0.355, this mean that there are no significant shows to effect between asset utilization ratio and business performance. Hence, giving result of no mediation of agency cost to capital structure and company performance. The Zhao test in table 7, also shows that as the monte carlo are not significant at 0.707, this shows there is a direct effect between capital structure and business performance, but there are no indirect effect with agency cost as it's mediation. Hence, H5 is rejected.

Table 8. Hyopothesis Test Result

	Coefficient / Confidence Interval	**Probability**	**Result**
CS -> FP	-0.568751	0.002	H1 Accepted
CS ->FP	0.1062399	0.027	H2 Accepted
CS*CS -> FP	-0.381325	0.000	
AUR -> FP	0.792893	0.000	H3 Accepted
CS -> FP	-0.0998652	0.005	H4 Rejected
CS*AUR -> FP	0.0286645	0.152	
CS -> AUR -> FP	-0.001, 0.002	0.618	H5 Rejected

Effect of Capital Structure on Firm Performance

The capital structure has a significant negative effect to firm performance. This happen because when the debt in percentage higher than the capital, this lead to the company to have higher debt to be paid. More debt to be paid, leading to an increase in expense that caused the profit of the company to decreased. Hence, this caused the firm performance to decreased.

Not only more money is used to pay debt, the company will experience inflexible usage of money as all the money is saved to pay the debt. The return on income for equity will also be reduce. Hence, the overall firm performance will experience a reduction. This result in line with Ronoowah & Seetanah (2024) [5] but not in line with Abdulah dan Tursoy (2019) [12].

Non-linearity Effect of Capital Structure on Firm Performance

The capital structure and business performance has a non-linear connection of a relationship. This mean that when the capital structure has lower debt ratio it can influence positively to company's performance, but when it reach to high level of debt it change to negatively influence the firm performance. This indicate that during a low level debt, increasing debt able to improve the return on equity. But, when the debt grow bigger, this lead to the disadvantages outweighs the advantages, due to higher financial distress caused by higher interest paid. This lead to the higher debt causing a negative impact to return on equity. This shows that the capital structure should have an optimal threshold to increase the firm performance of the company. Ronoowah & Seetanah (2024) [5] agreed to this research but not supported by Jamil *et al* (2021) [14].

Effect of Agency Cost on Firm Performance

The agency cost uses asset utilization ratio as it's proxy. The result indicate agency cost has a significant positive impact to firm performance. This mean that when the asset utilization increase it shows that management utilize it's asset to be more efficient and effective. This lead to an alignment in management and shareholders conflict of interest, hence reduce the agency conflict. Improved alignment of conflict between shareholders and management minimizes potential cost to happen, which resulted to an increase in firm performance. This result is supported by Ronoowah & Seetanah (2024) [5] and Khuyen (2020) [16], as the research shows a agency cost has signficant positive impact on firm perfromance. But, Hoang et al (2019) [16] disagree with the result, as agency cost has a significant negative relationship to firm performance.

Moderating Effect of Agency Cost to Capital Structure and Firm Performance Relationship

Agency cost does not a sign of significant impact on the moderating impact on capital structure and firm performance relationship. This implies that capital structure able to influence firm performance independently in any level of agency cost. This agency cost may not enhance the effect of capital structure on firm performance, nature of non-cyclical company which has more stable stream of revenue, which able to reduce the financial risk, that allow better alignment in conflict of interest. The high mean asset utilization ratio of 1.265541 represent the management ability to generate 126.5541% revenue from it's asset. High management efficiency in utilizing asset, reflect to a low agency cost which result to a further improved alignment of conflict of interest. This result to agency cost to be less pronounced in the relationship. So, agency cost does not significantly enhance or weakened capital structure and firm performance relationship. Sdiq and Abdullah (2023) [21] stated that the level of significant of the agency cost role are vary based on the industry and market condition. While Ronoowah & Seetanah (2024) [5] stated that agency cost has a significant moderating effect on capital structure to influence business performance.

Mediating Effect of Agency Cost to Capital Structure and Firm Performance relationship

The agency cost does not have a mediating effect in significant way on the capital structure and firm performance relationship. This means that capital structure able to influence firm performance independently, without being influenced by agency cost as an bridge variable to business performance. This is because the characterized capital structure in this study, which is non-cyclical company tend to have more moderate approach in debt financing in terms of debt to equity ratio. It is reflected by the mean value of capital structure at 0.8069371. This allow company to take advantages of debt benefits, without gaining high pressure from debt financing. Hence, minimize agency cost. Low agency costs are further represent by the mean asset utilization ratio at 1.265541, showing high efficiency and effectiveness in managing asset to generate revenue. This quite low debt pressure allows management to focus on shareholders' interests, hence minimize potential conflict of interest happened between shareholders as in investor and management. As a result, agency cost does not significantly mediate capital structure and firm performance relationship. This result are supported by Hutapea dan Sulistyowati (2024) [20], but not Ronoowah & Seetanah (2024) [5].

4. CONCLUSIONS AND SUGGESTIONS

This research give evidence that capital structure able to significantly give negative impact on business performance and capital structure has a significant non-linear impact on firm performance. This evidence strengthen the need of management to be able to gain an optimal value of capital structure needed to enhance and improved the firm performance. The agency cost give significant positive impact to firm performance. So, in this case the management able to increase it's asset utilization ratio by becoming more efficient and effective in utilizing the assets, this will reduce agency cost and enhance the firm performance.

This research only uses 3 years time series with 2 independent variables. The next research done may add more years and independent variable for the next research understand better about firm performance. The heterogeneity also happened in this data, due to the non-linear effect in the capital structure. This limitation may be improved for the next research.

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