



The Effect Of Debt To Equity Ratio, Sales Growth On Profitability With Good Corporate Governance As A Moderating Variable In The Manufacturing Sector Listed On The Indonesian Stock Exchange

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ABSTRACT

This study aims to examine the effect of Sales Growth and Liquidity on Profitability with Good Corporate Governance as a moderating variable. This form of research is Causal Associative research. The data collection technique in this research is a documentary study. The population in this study were manufacturing sector companies listed on the Indonesia Stock Exchange in the 2019-2023 period as many as 172 companies. Sampling in this study is using purposive sampling technique. The method of analysis in this study with ordinary Least Square (OLS) panel data regression EViews 12. The results of panel data regression analysis and Moderated Regressation Analysis (MRA) in this study show that the moderating variable Good Corporate Governance (GCG) has an effect on Debt to Equity Ratio, Sales Growth (SG) has a positive effect on profitability. has no significant effect on profitability. Moderated Regression Test Analysis of DER variables can moderate Good Corporate Governance (GCG) has a positive and significant effect on sales growth. Good Corporate Governance cannot moderate liquidity (CR) has a positive and significant effect on profitability.

INTRODUCTION

The amount company in industry , as well as condition economy moment This has create a fierce competition between company manufacturing . Competition in industry manufacturing make every company the more increase performance for its purpose can still achieved . Goal main companies that have *go public* is increase prosperity owner or the holders share through improvement mark company According to Salvatore (2005), company values are very important . Because reflect performance companies that can influence investor perception of company Sector manufacturing is one of the important pillars in global economy including in Indonesia. In the period 2018-2023, the sector This experience dynamics influenced by various internal and

external factors external , as development technology , change policies , and conditions global economy . Trans globalization and disruption technology since in 2018, the sector manufacturing globally experiencing pressure significant consequence rapid development technology , in particular in implementation automation , intelligence artificial , and industry 4.0. Digital transplantation becomes encouragement main change in the production process , efficiency , and innovation product. Impact recovery post-pandemic start 2022 , sector global and national manufacturing start show recovery , although with level varied growth . Policy government For support industrial sector , such as incentive *fiscal* and *deregulation* , be one of booster main recovery . At the same time , efforts decarbonization and transition going to energy renewable be one of effort For increase Power competition manufacturing with increase quality source Power humans and infrastructure also become priority . Manufacturing industry growth more slow than economy national because of decline request import and export because Power very tight competition . Challenges geopolitics and change global policy in the period this is also marked with increasing tension geopolitics that impact the chain global supply , such as war trade between the US and China, as well as conflict in europe east that influences price global commodities . This is force company manufacturing For adapt strategy they , like diversification suppliers and strengthen domestic production for reduce dependence on imports . Policies taken management in effort improvement prosperity holder share make investors interested with analysis mark company , because analysis mark company will give usefulness information to investors in evaluate prospects company in the future in produce profit . Share companies that have mark good company will give positive signal to the rise price share . Although sector Indonesian manufacturing shows positive growth , there is a number of challenges that need to be overcome . Competition international , fluctuation price material standard , and need For adapt with technology latest become attention main . Besides that , aspect sustainability and impact the environment is also increasingly get attention , requires company For apply practice friendly environment in the production process . Growth economy in Indonesia is not let go from industry processing which contributed 18.67 percent to Product Domestic Gross Domestic Product (GDP). In 2023 , the index production industry manufacturing grow by 2.41 percent which boosted the GDP of the sector manufacturing For grow by 4.64 percent (BPS, 2024d). Sector performance industry manufacturing remain solid and in phase expansion throughout 2023 is also reflected from PMI which is above the 50 percent level (Bank Indonesia, 2024). The role of investment participate determine rate growth sector this , where the sector manufacturing become objective main investment in 2023 , with contribution by 42.0 percent of total investment national or around Rp596.3 trillion (Ministry of Industry, 2024). Although the Ministry of Investment / BKPM noted investment in the sector manufacturing increased by 19.8 percent compared to year previously , trend decline in performance production sector This .

Figure 1. Average annual growth index industrial production management , 2021-2023

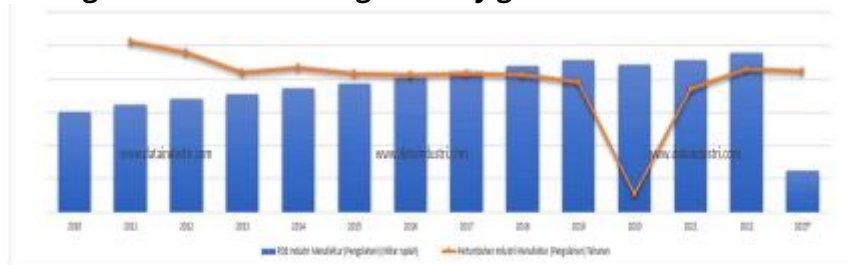


Source : development index manufacturing industry production (2023)

Manufacturing industry growth from 2011 to 2024 is influenced by various factors , including condition global economy , innovation technology , as well as change policy government . After global crisis 2008, manufacturing industry start recover , with growth moderate . Investment and technology and automation increase efficient . Growth sustainable

with a focus on digitalization and industry 4.0. Many company adopt technology new like IoT and AI for increase productivity . Recovery mela happen with focus on sustainability and innovation . Request For product manufacturing decreased in 2023 due to increase cost material standard , disturbance chain supply , policy monetary and demand fluctuating consumer factors . this is what causes decline growth in the sector manufacturing , and companies need adapt For overcome challenge this is so that you can maintain good performance .

Figure 2 Manufacturing industry growth data 2011-2024



Source : industry research data

Investors in do decision investment in the capital market requires information about evaluation shares . There are four type related assessment with shares , namely debt to equity (DER) and *Sales Growth* (SG) Each company founded aiming For to obtain a optimal profit , because profit be one of support continuity life (*Going Concern*) company in the future come . Continuity life company influenced by many matter among other things values company company That Alone .

LITERATURE REVIEW

Debt to Equity Ratio

According to Sasongko (2019) DER is Activity financing is results from acquisition source Power from owner , provide owner with return results on investment they , borrow money and pay return amount borrowed , and earned and repaid source other power from creditors term length . Policy funding in a company must aiming For prosperity together . Funding decisions consider and analyze economical sources of funds for company For company For to finance need routine and investment According to Harahap (2010) defines *Debt to Equity Ratio* as as follows : " Debt or capital ratio or *debt to equity* is a ratio that describes until how far is the owner's capital can cover debt to party outside . The more small ratio This so the more good ". *Debt to equity* (DER) reflects own capital capability used For pay debt . DER is increasing big For about existing equity . According to Kasir (2014) stated that *debt to equity ratio* is ratio used mark assess debt with equity . Ratio This counted with method compare all debts including current debts with all over equity . Ratio This useful For know every rupiah of own capital that is used debt guarantee .

Good corporate governance

According to Arinda (2019) *good corporate governance* has understanding , as a gathering regulations , which are mandatory made into guidelines , with the aim is for each companies that implement it can walk with effective and efficient so that will produce benefit For all related parties with company The National Committee on Governance Policy (2006) has emit Guidelines General *Good Corporate Governance* Indonesia, the basis from *good corporate governance* (GCG) is guide for company in building , implementing , and communicating GCG to stakeholders interests . According to *Forum for Corporate Governance in Indonesia* (FCGI, 2001) *corporate governance* is a set regulations that govern connection between holder shares , company

management (manager) , party creditors , government, employees and the holders internal and external interests other related with rights and obligations they , or in other words a a system that regulates and controls company .

Profitability

Profitability will considered as a barometer of success a company in apply decisions that have been made taken . According to Sartono (2010) Profitability defined is ability company to obtain profit in his relationship with sales , total assets or own capital . Opinion other to reveal that profitability is ability company in to obtain profit According to Saidi (2004) Profitability obtained the company which is results calculation between total income reduced with burden and loss company during period reporting .

Sales Growth

Sales Growth (Growth) is ability company For maintain position the economy is in the middle growth economy and sectors his efforts According to Cashmere , (2013) Ratio growth in essence For know how much big growth achieved by the company in a period time certain and is size success a company in operate his activities . According to Widhi (2021) Growth more companies tall more liked For take profit on investments that have prospects good . More and more big expected sales the more big profitability company . Sales is one of the sources income company. According to Kasmir (2012) stated Ratio growth (*growthratio*) is ratio which describes ability company maintains position its economy in the middle growth economy sector his efforts .

Growth Sale to Profitability

Sale is activity company in sell product or services . Growth sale is amount sale from year to year . According to Sartono (2001) Positive results means happen improvement sale from year previously . Likewise the results negative means happen decline sale from year previously . In calculation profit and loss company , sales be in position top in calculation , then reduced various costs , including tax For produce profit clean . Growth sale reflect ability company in expand the market or increase sale products and services in turn increase profit clean . Growth sale own strategic influence for company Because growth sale marked with increase in market share that will impact on increasing sale from company so that will increase profitability from company (Pagano and Schivardi , 2003). Influence positive and significant growth sale to profitability proven by the results study Hastuti (2010), Jang and Park (2011), Hansen and Juniarti (2014) and Iqbal and Zhuquan (2015). Sunarto and Budi (2009), Nugroho (2011), Santoso and Juniarti (2014) and Sari et al ., found different results that growth sale influential negative and no significant to profitability company

H 1: SG has a positive or negative effect on profitability .

Debt To Equity against Profitability

Debt to Equity Ratio used For measure ability company in cover part or all his debts Good term long and also term short with funds originating from of total capital compared with the magnitude amount of company debt The company whose funding is more Lots sourced from debt will accept benefit in the form of subtraction interest on debt calculation income hit tax zoom out proportion burden tax so that proportion profit clean become more big or level its profitability the more high (Sartono , 2014:236). Dewi's results (2016) show that DER has an effect positive to profitability . Same conclusion obtained by Marusya and Magantar (2016), namely that DER has an influence positive on profitability . Based on description the so can formulated hypothesis study as following : H2: DER has a positive or negative influence on profitability .

Influence Sales Growth against Good Corporate Governance through profitability

When the sale company grow , income increases , which in turn can increase profitability , provided the profit margin still or increase . High Sales Growth give opportunity For cover cost more permanent and operational large , increasing profit margins clean company . High profitability generally push company For more Serious implementing GCG. company will more capable For allocate source Power use strengthen good governance practices . On the other hand, if improvement sale No accompanied by with improvement profitability (for example , because height cost or marketing strategies that are not effective), then Sales Growth is not will Lots contribute to the implementation of good GCG .

H3: GCG moderates SG's influence on ROE

Influence Debt To Equity to Good Corporate Governance through profitability

Companies with high profitability tend more motivated For implementing good GCG . This is Because high profit allow they allocate source Power For improving governance and meeting expectation stakeholders interests . Besides that , good profitability reduce pressure from creditors , who provide room for company For focus on interests term length . DER can affect GCG in a No direct through profitability . If DER is high cause profitability decreases , then company Possible not enough own incentive or source Power For implementing GCG with good . On the other hand , DER is managed with good and improve profitability can help support more GCG implementation effective , because company own more Lots source power and more A little pressure from creditors .

H4. GCG moderates The effect of DER on ROE

METHODS

Based on method or method obtain data, research This categorized as study evaluation . According to Sugiyono (2013) stated that study evaluation is research that uses systematic way For know effectiveness a program, action or policy or other objects studied when compared to with objective or standards applied . According to data types and analysis , research This including study quantitative with approach method think deductive , namely from method think started from common things going to special . In a study with method quantitative population interpreted different If compared to with method study qualitative . Population in study Qualitative is defined by Sugiyono (2007) as a generalization area consisting of on object or the subject that has quality and characteristics certain conditions set by researchers to be studied Then withdrawn the conclusion whereas simple is a part of population the . Researcher This using the capture technique sample *purposive sampling* . According to Sugiyono (2007) *purposive sampling* is a sampling technique sample with consideration certain so that the sample is manufacturing sector companies listed on the Indonesian stock exchange that meet the requirements criteria taking sample as has been done . There are several criteria in taking sample that is as following :

1. Companies in the manufacturing sector listed on the Indonesian Stock Exchange during period 2019-2023
2. The company reported report finance at BEI during three year consecutive

Sample in study This totaling 134 companies listed on the Indonesian stock exchange with period time observation from 2019-2023 with total observations totaling 670.

Table 1 Operationalization Variables Study

No	Variables Study	Study Theoretical Variables Research	Definition Operational Variables Study	Indicator
1	<i>Debt To Equity (DER)</i>	According to Brigham (2019) <i>debt to equity</i> is tool measure mark the magnitude debt shared total equity holder share .	<i>Debt to equity</i> or debt to equity ratio equity is ratio finance comparing total debt company with equity holder share .	$DER = \frac{\text{Total Utang}}{\text{Total Ekuitas}}$
2	<i>Sales Growth (SG)</i>	According to Sari (2017) <i>Sale Growth</i> is results from sale period year This shared with sale year previously .	<i>Sales Growth</i> or growth sale is size indicating how much fast sale company increase from period to period .	$SG = \frac{\text{Penjualan } t - \text{Penjualan } (t-1)}{\text{Penjualan } (t-1)} \times 100\%$
3	Profitability	According to Sartono (2010) is ability company to obtain profit in connection with sales , total assets or own capital .	ROE is ratio used For measure profit clean after tax with own capital	$ROE = \frac{\text{laba setelah pajak}}{\text{Jumlah Modal Sendiri}} \times 100\%$
4	<i>Good Corporate Governance</i>	According to Wahyudi (2006) Ownership institutional own a very important role in minimize conflict agency that occurs between managers and shareholders share .	<i>corporate governance</i> is one form system , which can control all source Power company , so that it can created a harmony . Source Power the can originate from within the company and also from outside company .	$KM = \frac{\text{Jumlah kepemilikan saham institusional}}{\text{jumlah saham yang beredar}} \times 100\%$

Source : Study literature research (2024)

RESULTS

Analysis Statistics Descriptive

Analysis statistics descriptive in study This For give description or description from each variable study Growth Sales , Liquidity as variable dependent Profitability as well as variable moderation that is *good corporate governance* study this . Statistics descriptive show minimum, maximum , mean and standard values deviation . Statistics descriptive from each variable studied is as following :

Table 2 Descriptive statistical analysis test

Date: 11/25/24 Time: 21:31 Sample: 2019 2023				
	ROE	DER	GROWTH	GCG
Mean	0.134100	0.332081	0.046776	0.657680
Median	0.091042	0.696149	0.038230	0.742100
Maximum	4.593986	4.948302	3.109432	1.000000
Minimum	-4.713806	-235.2153	-0.995504	-0.774600
Std. Dev.	0.617677	9.395911	0.329821	0.265863
Skewness	0.387270	-23.67820	2.950173	-1.364832
Kurtosis	25.43476	591.5946	27.65521	5.060105
Jarque-Bera	14067.72	9734158.	17941.86	326.4881
Probability	0.000000	0.000000	0.000000	0.000000
Sum	89.84668	222.4944	31.34020	440.6453
Sum Sq. Dev.	255.2400	59061.42	72.77495	47.28708
Observations	670	670	670	670

Source : Processed data , 2024

Based on From table 2 ROE shows level returns generated by the embedded model by owner company . The average ROE value is quite Good as big as 0.1342, but a negative minimum value indicates existence companies that experience loss . DER shows comparison between debt and equity company . The average DER value is quite height 0.332081 which means company tend more Good Lots using debt in funding . Growth is likely represent level growth company , however need confirmation more carry on about units and definitions growth used . GCG measures Corporate governance quality . An average value approaching 1 indicates how much big company own good GCG practices .

Analysis Test Panel Data Regression

Analysis panel data regression is used For determine the best model in A research . In study This there is Three Techniques Offered in panel data regression , namely *common effect*, *fixed effect* , and *random effect* . In determine the estimation model to be used used in study this , must done a number of testing , namely the Chow Twst and Hausman tests are testing that can used in determine can panel data model regressed with *common effect*, *fixed effect* , and *random effect* models .

Table 3 Random Effect Model Test Results

Dependent Variable: ROE Method: Panel EGLS (Cross-section random effects) Date: 11/25/24 Time: 21:34 Sample: 2019 2023 Periods included: 5 Cross-sections included: 134 Total panel (balanced) observations: 670 Swamy and Arora estimator of component variances				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.131258	0.032182	4.078612	0.0001
DER	-0.006377	0.002428	-2.626643	0.0088
GROWTH	0.106018	0.068541	1.546788	0.1224
Effects Specification			S.D.	Rho
Cross-section random			0.276931	0.2017
Idiosyncratic random			0.550855	0.7983
Weighted Statistics				
Root MSE	0.548963	R-squared	0.012813	
Mean dependent var	0.089129	Adjusted R-squared	0.009853	
S.D. dependent var	0.552927	S.E. of regression	0.550196	
Sum squared resid	201.9117	F-statistic	4.328612	
Durbin-Watson stat	1.857249	Prob(F-statistic)	0.013558	
Unweighted Statistics				
R-squared	0.011579	Mean dependent var	0.134100	
Sum squared resid	252.2845	Durbin-Watson stat	1.486418	

Source : Processed data , 2024

Analysis This using a panel data regression model with effect random effects on cross-section (cross-section random effects) for predict variable dependent ROE (Return on Equity) based on variable independent DER (Debt to Equity Ratio) and GROWTH . Constant (C): The average value of ROE when all variable independent worth zero is 0.131258. This means that if DER and GROWTH are the same with zero , then the average ROE of the company in sample is 13.13%. DER: The DER coefficient is -0.006377 with mark significance 0.0088. This show that there is connection significant negative in a way statistics between DER and ROE. This means that the more tall debt to equity ratio equity (DER), then ROE tends to the more low . GROWTH: The GROWTH coefficient is 0.106018 with mark significance 0.1224. This show that No there is significant relationship in a way statistics between growth and ROE. That is , growth company No in a way significant affects ROE in this model . The resulting regression model has an R-squared of 0.012813 (or 1.28%). This means that only around 1.28% of variation in ROE can explained by variables independent entered in the model. That is , still Lots other factors that are not including in this model which can affect ROE.

Table 4 Random Effect Model Test Results

Dependent Variable: ROE Method: Panel EGLS (Cross-section random effects) Date: 11/25/24 Time: 21:34 Sample: 2019 2023 Periods included: 5 Cross-sections included: 134 Total panel (balanced) observations: 670 Swamy and Arora estimator of component variances				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.171133	0.081600	2.097202	0.0364
DER	-0.006406	0.002431	-2.635003	0.0086
GROWTH	0.105899	0.068616	1.543358	0.1232
GCG	-0.060606	0.113923	-0.531992	0.5949
Effects Specification			S.D.	Rho
Cross-section random			0.278047	0.2027
Idiosyncratic random			0.551371	0.7973
Weighted Statistics				
Root MSE	0.548660	R-squared	0.013238	
Mean dependent var	0.088976	Adjusted R-squared	0.008793	
S.D. dependent var	0.552740	S.E. of regression	0.550305	
Sum squared resid	201.6884	F-statistic	2.978305	
Durbin-Watson stat	1.859635	Prob(F-statistic)	0.030899	
Unweighted Statistics				
R-squared	0.012411	Mean dependent var	0.134100	
Sum squared resid	252.0722	Durbin-Watson stat	1.487934	

Source : Processed data , 2024

Analysis This using a panel data regression model with effect random effects on cross-section (cross-section random effects) for predict variable dependent ROE (Return on Equity) based on variable independent DER (Debt to Equity Ratio), GROWTH , and GCG (Good Corporate Governance). Constant (C): The average value of ROE when all variable independent worth zero is 0.171133. DER: The DER coefficient is -0.006406 with mark significance 0.0086. This show that there is connection significant negative in a way statistics between DER and ROE. This means that the more tall debt to equity ratio equity (DER), then ROE tends to the more low . GROWTH: The GROWTH coefficient is 0.105899 with mark significance 0.1232. This show that No there is significant relationship in a way statistics between growth and ROE. GCG: The GCG coefficient is -0.060606 with mark significance of 0.5949. This also shows that No there is significant relationship in a way statistics between quality of governance company (GCG) and ROE. The resulting regression model has an R-squared of 0.013238 (or 1.32%). This means that only around 1.32% of variation in ROE can explained by variables independent entered in the model. That is , still Lots other factors that are not including in this model which can affect ROE.

Table 5 Random Effect Model Moderation Test Results

Dependent Variable: ROE Method: Panel EGLS (Cross-section random effects) Date: 11/25/24 Time: 21:35 Sample: 2019 2023 Periods included: 5 Cross-sections included: 134 Total panel (balanced) observations: 670 Swamy and Arora estimator of component variances				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.227331	0.081966	2.773466	0.0057
DER	-0.140089	0.042013	-3.334430	0.0009
GROWTH	0.962484	0.260005	3.701792	0.0002
GCG	-0.114763	0.112469	-1.020398	0.3079
GCG*DER	0.152818	0.047771	3.198942	0.0014
GCG*GROWTH	-1.215486	0.362780	-3.350478	0.0009
Effects Specification			S.D.	Rho
Cross-section random			0.254484	0.1772
Idiosyncratic random			0.548342	0.8228
Weighted Statistics				
Root MSE	0.546083	R-squared	0.040079	
Mean dependent var	0.093050	Adjusted R-squared	0.032851	
S.D. dependent var	0.557783	S.E. of regression	0.548544	
Sum squared resid	199.7983	F-statistic	5.544740	
Durbin-Watson stat	1.816506	Prob(F-statistic)	0.000052	
Unweighted Statistics				
R-squared	0.049399	Mean dependent var	0.134100	
Sum squared resid	242.6314	Durbin-Watson stat	1.495828	

Source : Processed data , 2024

Based on table on show Constant (C): The average value of ROE when all variable independent worth zero is 0.227331. DER: The DER coefficient is -0.140089 with mark significance 0.0057. This show that there is connection significant negative in a way statistics between DER and ROE. This means that the more tall debt to equity ratio equity (DER), then ROE

tends to the more low . GROWTH: The GROWTH coefficient is 0.962484 with mark significance 0.0002. This show that there is connection very significant positive in a way statistics between growth and ROE. This means that the more tall growth company , then ROE tends to the more high . GCG DER and GCG GROWTH: Coefficient interaction This is also significant , showing that effect from DER and GROWTH to ROE is influenced by the level of governance company (GCG). The resulting regression model has an R-squared of 0.040079 (or 4%). This means that about 4% of variation in ROE can explained by variables independent entered in the model. That is , still Lots other factors that are not including in this model which can affect ROE.

Panel Data Regression Model Selection Test Chow Test

Test Chow is a test to determine the type of model to be used. chosen between common effect model or fixed effect model. Hypothesis in determining the panel data regression model is if the cross value section chi-square < significant value (0.05), then fixed effect model will be selected. On the other hand, if value cross section chi-square > significant value, then common effect model will used and the Hausman test is not required.

Table 6 Chow test results

Redundant Fixed Effects Tests				
Equation: Untitled				
Test cross-section fixed effects				
Effects Test	Statistic	d.f.	Prob.	
Cross-section F	2.226339	(133,533)	0.0000	
Cross-section Chi-square	296.021490	133	0.0000	
Cross-section fixed effects test equation:				
Dependent Variable: ROE				
Method: Panel Least Squares				
Date: 11/25/24 Time: 21:32				
Sample: 2019 2023				
Periods included: 5				
Cross-sections included: 134				
Total panel (balanced) observations: 670				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.174816	0.063626	2.747549	0.0062
DER	-0.006206	0.002544	-2.440019	0.0149
GROWTH	0.118093	0.072422	1.630631	0.1034
GCG	-0.067175	0.089517	-0.750414	0.4533
Root MSE	0.613354	R-squared	0.012475	
Mean dependent var	0.134100	Adjusted R-squared	0.008027	
S.D. dependent var	0.617677	S.E. of regression	0.615193	
Akaike info criterion	1.872190	Sum squared resid	252.0558	
Schwarz criterion	1.899099	Log likelihood	-623.1837	
Hannan-Quinn criter.	1.882613	F-statistic	2.804503	
Durbin-Watson stat	1.487905	Prob(F-statistic)	0.039004	

Source : Processed data , 2024

Based on from the table above show DER coefficient is negative and significant in a way statistics (p-value = 0.0149), which means improvement debt to equity ratio equity (DER) is linked with ROE decline . GCG coefficient is negative but No significant in a way statistics (p-value = 0.4533), which means No There is sufficient evidence For state that quality of governance company (GCG) in general significant affect ROE after take into account effect still company . GCG*GROWTH interaction : Coefficient interaction this is also not significant , indicating that No There is significant interaction between GCG and growth in affects ROE. The low R-squared value (0.012475) indicates that the model only can explain part small from variation in ROE. This means , it is still Lots other factors that are not entered in the model that affects ROE. The F-statistic value significant (p-value = 0.039004), which means in a way overall regression model significant . This means that at least There is One variable independent who has influence significant on ROE.

Hausman test

Hausman test is a test to determine the type of model that will be selected between fixed effect model (FEM) with random effect model (REM). The hypothesis in determining the panel data regression model is if the cross value section random < significant value (0.05), then fixed

effect model . On the other hand, if cross value section random > significant value (0.05), then random the selected effect model .

Table 7 Hausman test results

Correlated Random Effects - Hausman Test				
Equation: Untitled				
Test cross-section random effects				
Test Summary	Chi-Sq. Statistic		Chi-Sq. d.f.	Prob.
Cross-section random	0.426383		3	0.9347
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var(Diff.)	Prob.
DER	-0.006618	-0.006406	0.000001	0.8025
GROWTH	0.093928	0.105899	0.000480	0.5847
GCG	-0.004991	-0.060606	0.052021	0.8074
Cross-section random effects test equation:				
Dependent Variable: ROE				
Method: Panel Least Squares				
Date: 11/25/24 Time: 21:32				
Sample: 2019 2023				
Periods included: 5				
Cross-sections included: 134				
Total panel (balanced) observations: 670				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.135186	0.169031	0.799769	0.4242
DER	-0.006618	0.002574	-2.570729	0.0104
GROWTH	0.093928	0.072028	1.304049	0.1928
GCG	-0.004991	0.254949	-0.019577	0.9844
Effects Specification				
Cross-section fixed (dummy variables)				
Root MSE	0.491779	R-squared	0.365157	
Mean dependent var	0.134100	Adjusted R-squared	0.203170	
S.D. dependent var	0.617677	S.E. of regression	0.551371	
Akaike info criterion	1.827382	Sum squared resid	162.0374	
Schwarz criterion	2.749019	Log likelihood	-475.1730	
Hannan-Quinn criter.	2.184368	F-statistic	2.254243	
Durbin-Watson stat	2.315059	Prob(F-statistic)	0.000000	

Source : Processed data , 2024

Based on the output you provided , the Hausman test results show chi-square value of 0.426383 with degrees freedom 3 and values probability (p-value) of 0.9347. The p-value > 0.05: Because the p-value is far more big from level significance general (usually 0.05), we fail reject null hypothesis . Hypothesis zero in the Hausman test it states that the effect model random more according to . Based on results this , we can conclude that effect model random more suitable For analyze your data. That is , the differences between company in ROE more Good explained by factors that are not observed (random effects) rather than by factors different specifics For every company .

Lagrange Test Multiplier (LM)

Lagrange Test Multiplier is a test to determine the type the model to be selected between common effect model with random effect model . Lagrange Test This multiplier was developed by Breusch Pagan, this test based on the residual value of the common method effect model . LM test based on the Chi- Square distribution with degrees of freedom equal to the number of independent variables. If the LM value is greater than the critical value of Chi- Square , then the right model is random effect model , on the other hand if the LM value is greater smaller than the Chi- Square value , then the appropriate model is common effect model .

Table 8 LM Results

Lagrange Multiplier Tests for Random Effects			
Null hypotheses: No effects			
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided (all others) alternatives			
	Cross-section	Test Hypothesis Time	Both
Breusch-Pagan	51.53500 (0.0000)	0.276246 (0.5992)	51.81125 (0.0000)
Honda	7.178788 (0.0000)	-0.525591 (0.7004)	4.704521 (0.0000)
King-Wu	7.178788 (0.0000)	-0.525591 (0.7004)	0.708789 (0.2392)
Standardized Honda	7.316702 (0.0000)	-0.205417 (0.5814)	-2.796710 (0.9974)
Standardized King-Wu	7.316702 (0.0000)	-0.205417 (0.5814)	-2.362167 (0.9909)
Gourieroux, et al.	--	--	51.53500 (0.0000)

Source : Processed data , 2024

Based on results various LM tests for detect existence effect individual . Each row represents a different test , and each column represent dimensions time and cross- section . The values in brackets is p- value . Breusch-Pagan the most common test used For detect existence effect individual . The p-value is very small (0.0000) for dimensions cross section show existence proof strong that There is variations that are not can explained by variables explanation at level Individual . Other Tests (Honda, King-Wu, Standardized Honda, Standardized King-Wu): is variation from the Breusch-Pagan test and in general give similar results . Gourieroux , et al .: This test also showed same result with the Breusch-Pagan test.

DISCUSSION

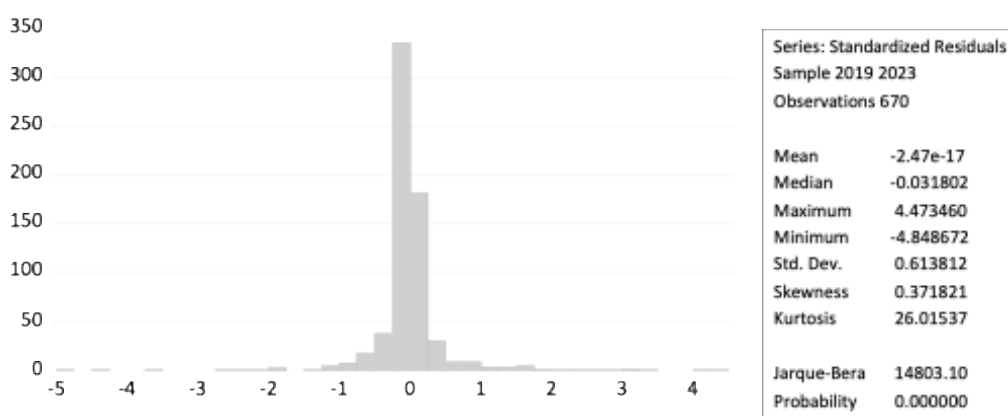
Assumption Test Classic

appropriate panel data regression model For estimate connection profitability using *random effect* model with effect individual . In the random effect model, there is no need assumption test is carried out classic , because assumed that method estimate *Generalized Least Square* (GLS) can say heteroscedasticity and autorelation . Analysis panel data regression , need done testing For assumption classic that is :

Normality Test

Normality test used For test what is the regression model in study This have residuals that are normally distributed or no . Indicators of a good regression model is have normally distributed data .

Table 9 Normality test results



Source : Processed data , 2024

In the normality test This histogram tend to tilt to right (positive). This indicates that part large residual has small value or negative , but There is some residuals that have mark very large positive . Mean: Almost zero , this show that on average the model has capable predict mark with Enough good . Median: Middle value from the residual, showing point middle distribution . Standard Deviation : Show how much spread the residual data from its mean . The more big mark standard deviation , the more big residual data distribution . Skewness: Positive skewness values show skewed distribution to right . Kurtosis: Large kurtosis values indicates that distribution own thick tail and sharp crest . Jarque- Bera : This test used For test whether the residual data is normally distributed . A very small probability value (0.000000) indicates that the residual data is not normally distributed .

Multicollinearity Test

Multicollinearity test used For test whether a regression model research there is correlation between variable independent (free). A good regression model is the one that is not happen correlation between variable independent and free from symptom multicollinearity

Table 10 Multicollinearity Test Results

Correlation

	ROE	DER	GROWTH
ROE	1.000000	-0.087617	0.054641
DER	-0.087617	1.000000	0.091874
GROW	0.054641	0.091874	1.000000

Source : Processed data , 2024

ROE and DER: Coefficient correlation between ROE and DER is -0.087617. This value approaching 0, which indicates No There is significant linear correlation between ROE and DER. This means that changes in the debt to equity ratio equity (DER) no in a way significant influence level return on equity (ROE) in this data . ROE and GROWTH: Coefficient correlation between ROE and GROWTH is 0.054641. This value is also close to 0, which indicates No There is significant linear correlation between ROE and growth . This means that growth company No in a way significant influence level return on equity (ROE) in this data . DER and GROWTH: Coefficient correlation between DER and GROWTH is 0.091874. This value is also close to 0, which indicates No There is significant linear correlation between debt to equity ratio equity (DER) and growth company .

Heteroscedasticity Test

Heteroscedasticity test aiming For test whether in the regression model happen inequality of variance of residuals one observation to other observations (Ghozali , 2018:120).]

Table 11 Heteroscedasticity Test Results

Dependent Variable: ABS(RESID) Method: Panel EGLS (Cross-section random effects) Date: 12/22/24 Time: 19:36 Sample: 2019 2023 Periods included: 5 Cross-sections included: 134 Total panel (balanced) observations: 670 Swamy and Arora estimator of component variances				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.201808	0.025062	8.052279	0.0000
DER	0.000163	0.001560	0.104293	0.9170
GROWTH	-0.041147	0.043909	-0.937098	0.3490
Effects Specification			S.D.	Rho
Cross-section random			0.243899	0.3305
Idiosyncratic random			0.347162	0.6695
Weighted Statistics				
Root MSE	0.346357	R-squared	0.001316	
Mean dependent var	0.107364	Adjusted R-squared	-0.001679	
S.D. dependent var	0.346844	S.E. of regression	0.347135	
Sum squared resid	80.37511	F-statistic	0.439381	
Durbin-Watson stat	1.809776	Prob(F-statistic)	0.644621	
Unweighted Statistics				
R-squared	0.002272	Mean dependent var	0.199937	
Sum squared resid	119.8647	Durbin-Watson stat	1.213543	

Source : Processed data , 2024

Constant (C): The average value of ABS(RESID) when all variable independent worth zero is 0.201808. This means that , on average, the value absolute of the residual is 0.201808. DER: The DER coefficient is -0.000163 with mark significance 0.9170. This show that No there is significant relationship in a way statistics between DER and ABS(RESID). This means that the change in the debt to equity ratio equity (DER) no in a way significant influence mark absolute from residual. GROWTH: The GROWTH coefficient is -0.041147 with mark significance 0.3490. This also shows that No there is significant relationship in a way statistics between growth and ABS(RESID). That is , growth company No in a way significant influence mark absolute from residual.

F Test

Simultaneous test For show as big as big influence simultaneous all over independent variables and explain variable dependent . Based on table 4.8 can be seen mark *F- statistic* of 2,773,466, while mark profitability (F- Statistic) of 0.0000. This is means that the model used show SG, DER, GCG variables simultaneous own influence on ROE.

T-test

Partial test aiming For show how much big the influence of each independent variable and explain variable dependen . Next results tester partial (t-test), namely :

Table 12 t-Test Results

Connection Variables		Coefficient	problem	results
DER	ROA	-0.140089	0.0009	H ₁ Rejected
GROWTH		0.962484	0.0002	H ₂ Accepted
GCG		-0.114763	0.3079	H ₃ Rejected

Source : Processed data , 2024

Based on thick on can concluded that Connection Variables Show variable independent in progress analyzed its influence to ROE. Coefficient Show strength and direction connection between variable independent with ROE. Coefficient positive means when variable independent increases , ROE also tends to increases , and vice versa . **Prob** Represents p-value, which is used For test significance statistics from coefficient . A small p-value (usually not enough from 0.05) shows that connection between variable independent and significant ROE in a way statistics . Results Show decision whether hypothesis zero rejected or accepted . Hypothesis zero usually state that No There is connection between variable independent with ROE. If the p-value is small , then hypothesis zero rejected , which means There is sufficient evidence For state that There is significant relationship .

CONCLUSION

Based on The above table can be concluded that the Relationship Variable Indicates the independent variable that being analysed for its effect on ROE. Coefficient Shows the strength and direction of the relationship between the independent variable and ROE. The coefficient positive means that when the independent variable increases, ROE also tends to increase, and vice versa. Prob Represents the p-value, which is used to test the statistical significance of the coefficient. A small p-value small (usually less than 0.05) indicates that the relationship between the independent variable and ROE is statistically significant. Result Indicates the decision whether the null hypothesis is rejected or accepted. The null hypothesis usually states that there is no relationship between the independent variables and ROE. If the p-value is small, then the

null hypothesis is rejected, which means there is sufficient evidence to that there is a significant relationship.

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