SIMBA

7th SEMINAR INOVASI MANAJEMEN BISNIS DAN AKUNTANSI

THE EFFECT OF INVESTMENT OPPORTUNITIES, ACCRUAL QUALITY AND FIRM SIZE ON CASH HOLDING WITH LEVERAGE AS A MODERATING

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Abstrak

Penelitian ini menggunakan *Leverage* sebagai variabel moderasi untuk menguji pengaruh *Investment Opportunity Set*, Kualitas Akrual, dan *Firm Size* terhadap *Cash Holding*. Data diperoleh melalui purposive sampling dari 65 annual report perusahaan properti dan real estate yang terdaftar di Bursa Efek Indonesia (BEI) periode 2021–2024. Analisis dilakukan dengan menggunakan regresi linier berganda serta Moderated Regression Analysis (MRA). Hasil penelitian menunjukkan bahwa Cash Holding dipengaruhi secara positif oleh Kualitas Akrual dan Firm Size, namun tidak dipengaruhi oleh Investment Opportunity Set. Selain itu, leverage tidak memoderasi pengaruh Firm Size maupun Investment Opportunity Set, tetapi memoderasi pengaruh Kualitas Akrual terhadap Cash Holding. Penelitian selanjutnya disarankan untuk menambahkan variabel lain yang relevan dan melibatkan sektor industri yang lebih beragam.
Kata Kunci: *Investment Opportunity Set*, Kualitas Akrual, *Firm Size , Cash Holding, Leverage*

Abstract

This study uses leverage as a moderating variable to examine how Cash Holding is impacted by Investment Opportunity Set, Accrual Quality, and Firm Size. Purposive sampling was used to gather data from 65 annual reports of real estate and property companies listed on the Indonesia Stock Exchange (IDX) for the years 2021–2024. Moderated Regression Analysis (MRA) and multiple linear regression were used in the analysis. The findings indicate that Cash Holding is positively impacted by Accrual Quality and Firm Size, but not by Investment Opportunity Set. Moreover, leverage does not mitigate the impact of firm size or investment opportunity set, but it does mitigate the effect of accrual quality on cash holding. Future researchers are advised to include other relevant variables and involve more diverse industry sectors.
***Keywords**: Investment Opportunity Set, Accrual Quality, Firm Size, Cash Holding, Leverage*

A. INTRODUCTION

The dynamic and uncertain business environment requires companies to maintain adequate cash reserves to ensure operational continuity, meet urgent needs, and reduce the risk of financial distress (Putri & Suhendah, 2021). However, excessive cash holdings may lead to opportunity losses, as the funds are not invested to generate additional income (Martínez-sola et al., 2020). In Indonesia, some companies still maintain low cash reserves, making them vulnerable to liquidity problems, especially during crises (Sari & Zoraya, 2021). Adequate liquidity has proven to be essential in supporting operational efficiency and investment, as well as helping companies survive during crises (Khatib et al., 2022). The property sector, which is capital-intensive and relies on long-term financing, is relevant to study as it tends to hold substantial cash reserves to fund long-term projects. For instance, PT Intiland Development Tbk. (DILD) experienced a revenue decline from IDR 3.35 trillion in Q3 2023 to IDR 1.98 trillion in Q3 2024, despite an increase in profit to IDR 285.13 billion, reflecting potential liquidity risks arising from cash flow imbalances (Pratomo, 2024).

1. THEORETICAL REVIEW AND HYPOTHESIS DEVELOPMENT

Agency Theory

The contractual arrangement between principals (owners) and agents (managers) is explained by agency theory. which often creates information asymmetry and conflicts of interest (Panalar & Ekadjaja, 2020). These conflicts may influence cash holding policies, investment decisions, and capital structure. Leverage serves as an external control mechanism that can moderate how the IOS affects, accrual quality, and the firm's cash holdings size.

Pecking Order Theory

According to the pecking order idea, businesses give internal funding—such as cash and retained earnings—priority, before resorting to external funding (Liestyasih & Wiagustini, 2021). Cash functions as a buffer between retained earnings and investment needs, leading firms to retain residual cash from operational activities (Agung & Hadinugroho, 2019).

Investment Opportunity Set

Based on agency theory and pecking order theory, firms with a high Investment Opportunity Set (IOS) tend to retain larger sums of money to ensure the availability of internal funds for projects, avoid the costs and risks of external financing, and anticipate potential investment failures. According to Abbas et al. (2020), correlated with cash holdings, as firms require liquidity flexibility to seize investment opportunities and maintain financial stability.
H1: Investment Opportunity Set positively impacts Cash Holding.

Accrual Quality

According to agency theory, accrual quality reflects the accuracy and clarity of financial information presented by management to shareholders, which influences trust and monitoring. High accrual quality, defined as the ability to present accounting data that accurately reflects cash flows Khuong et al. (2020), reduces the need to hold excess cash since it facilitates access to low-cost external financing and lowers information risk. (Anjelina et al., 2023) discovered that businesses with better accrual quality typically have lower cash because transparent reporting enhances investor and creditor confidence.

H2: Accrual Quality has a negative effect on Cash Holding.

Firm Size

Big firms generally have easier access to external financing due to stronger reputation, financial stability, and higher market confidence, reducing the need to hold excess cash. Conversely, smaller firms with limited financing access tend to retain more cash to anticipate urgent needs or financial risks. Prior research by Putri & Suhendah (2021), shows that firm size is negatively associated with cash holdings, as larger firms rely more on external financing and manage liquidity more efficiently.

H3: Firm Size has a negative effect on Cash Holding.

Leverage

Firms with high IOS often retain more cash to finance investment opportunities without depending on external funding. However, leverage may influence this relationship: high leverage restricts cash flexibility due to debt obligations, while low leverage allows firms to hold more cash.

H4: Leverage moderates the effect of Investment Opportunity Set on Cash Holding.

High accrual quality reflects reliable financial reporting, which supports appropriate cash policy decisions. Nonetheless, leverage can affect this relationship: high leverage limits the ability to retain cash due to debt obligations, whereas low leverage provides greater flexibility to manage cash in line with accurate accounting information.

H5: Leverage moderates the effect of Accrual Quality on Cash Holding.

Firm size represents a company's capacity and operational stability. Large firms usually have easier access to financing and thus tend to hold less cash compared to smaller firms. However, under high leverage, large firms may hold more cash to meet debt obligations, while under low leverage they have greater flexibility in managing cash.

H6: Leverage moderates the relationship between cash holdings and firm size.

B. METHOD

Population and Research Sample

The study's population and sample include 65 real estate and property companies that were listed on the Indonesia Stock Exchange (IDX) between 2021 and 2024. The purposeful sampling method is the sample strategy utilized in this investigation. The chosen samples were relevant to the study data because they satisfied the predefined standards. The study's sample criteria include the following :

Table Sample of Property and Real Estate Companies

No.	Criteria	Number
1.	Property and real estate companies listed on IDX in 2021–2024	92
2.	Property and real estate companies not continuously listed on IDX in 2021–2024	(15)
3.	Property and real estate companies that did not publish annual reports on IDX in 2021–2024	(12)
Total Research Sample		**65**
Number of data (4 research periods × 65)		**260**
Outlier data		**(158)**
Final data after outliers		**102**

Source: Data processed using purposive sampling method

Considering the standards for sample selection, the completed study's sample consists of 102 observations, derived from 65 companies over a four-year period.

C. RESULTS AND DISCUSSIONS

Descriptive Statistics

Using SPSS software, The following table presents the descriptive statistics findings test:

Table 1 Results of Descriptive Statistics Test

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Investment Opportunity Set	102	0,0001	0,0276	0,001126	0,0027606
Accrual Quality	102	-0,0939	0,0954	0,007732	0,0407778
Firm Size	102	31,5121	37,5922	34,742424	1,3266093
Cash Holding	102	0,0002	0,0715	0,023334	0,0195608
Leverage	102	0,0023	0,6495	0,312656	0,1735055
Valid N (listwise)	102				

Source: Processed data using SPSS version 24, 2025

1. Investment Opportunity Set (X1)

   The Investment Opportunity Set has a minimum value of 0,0001, a maximum value of 0,0276, a mean of 0,001126, and a standard deviation of 0,0027606, according to the findings of the descriptive statistics.

2. Accrual Quality (X2)

   The findings indicate that Accrual Quality has a mean of 0,007732, a standard deviation of 0,0407778, a minimum value of -0,0939 and a maximum value of 0,0954.

3. Firm Size (X3)

   The descriptive results indicate that the minimum value of Firm Size is -31.5121, the maximum value is 37,5922, the mean is 34,742424, and the standard deviation is 1,3266093.

4. Cash Holding (Y)

   The results show that the minimum value of Cash Holding is 0,0002, the maximum value is 0,0715, the mean is 0,023334, and the standard deviation is 0,0195608.

5. Leverage (Z)

   The descriptive statistics indicate that the minimum value of Leverage is 0,0023, the maximum value is 0,6495, the mean is 0,312656, and the standard deviation is 0,1735055.

Classical Assumption Test Results

Table 2 Normality Test Result

One-Sample Kolmogorov-Smirnov Test			
			Unstandardized Residual
N			102
Normal Parameters[a,b]	Mean		0,0000000
	Std. Deviation		0,01839585
Most Extreme Differences	Absolute		0,130
	Positive		0,130
	Negative		-0,078
Test Statistic			0,130
Asymp. Sig. (2-tailed)			0,000[c]
Monte Carlo Sig. (2-tailed)	Sig.		0,055[d]
	99% Confidence Interval	Lower Bound	0,049
		Upper Bound	0,061
a. Test distribution is Normal.			
b. Calculated from data.			
c. Lilliefors Significance Correction.			
d. Based on 10000 sampled tables with starting seed 1573343031.			

Source: Processed data using SPSS version 24, 2025

The value derived from the Monte Carlo Sig. (2-tailed) table is 0.055 > 0.05, indicating that it is more than 0.05. Consequently, the study data or residual values can be said to be regularly distributed.

Table 3. Multicollinearity Test Results

Coefficients[a]			
Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Investment Opportunity Set	0,979	1,022
	Kualitas Akrual	0,984	1,017
	Firm Size	0,903	1,108
	Leverage	0,898	1,114
a. Dependent Variable: *Cash Holding*			

Source: Processed data using SPSS version 24, 2025

The tolerance and VIF values for each variable in the preceding table demonstrate that there is no multicollinearity. The absence of multicollinearity is confirmed by the VIF values being under ten and The values of tolerance for all variables being larger than 0,10.

Table 4. Autocorrelation Test Results

Model	R	R Square	Adjusted R Square	Std. *Error* of the Estimate	Durbin-Watson
1	0,556[a]	0,309	0,294	0,02933	1,919
a. Predictors: (Constant), LAG_Z, LAG_X3, LAG_X2, LAG_X1					
b. Dependent Variable: LAG_Y					

Source: Processed data using SPSS version 24, 2025

According to the preceding table, 4–dU = 2.208, dU = 1.792, and the Durbin-Watson worth is 1.919. It is possible to conclude that autocorrelation does not exist because the Durbin-Watson worth (1.919) is not as large as 4–dU (2.208) and more than dU (1.792).

Table 5. Heteroscedasticity Test Results

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-0,001	0,001		-0,504	0,616
	Investment Opportunity Set	-3,182	0,018	0,000	-0,002	0,999
	Kualitas Akrual	6,042	0,001	0,005	0,049	0,961
	Firm Size	2,014	0,000	0,055	0,511	0,610
	Leverage	-7,657	0,000	-0,027	-0,254	0,800
a. Dependent Variable: res_squared1						

Source: Processed data using SPSS version 24, 2025

It is evident from the preceding heteroscedasticity test table that every variable in this investigation has a value of significance higher than 0.05. Thus, it may be said that the model does not exhibit heteroscedasticity.

Multiple Linear Regression Analysis Test

Table 6. Results of Multiple Linear Regression Analysis

Coefficients[a]				
Model		Unstandardized Coefficients		Standardized Coefficients
		B	Std. Error	Beta
1	(Constant)	-0,061	0,054	
	Investment Opportunity Set	-0,426	1,631	-0,060
	Kualitas Akrual	0,119	0,103	0,249
	Firm Size	0,002	0,002	0,155
	*Investment Opportunity Set*Leverage*	1,545	9,323	0,039
	Kualitas Akrual**Leverage*	-0,014	0,285	-0,010
	*Firm Size *Leverage*	0,000	0,000	0,114
a. Dependent Variable: *Cash Holding*				

Source: Processed data using SPSS version 24, 2025

The equation can be created as follows using the regression analysis table above:

$Y=\beta0 + \beta4X1*Z + \beta5X2*Z + \beta6X3*Z + \epsilon$

Y= -0,061 + 1,545 (*Investment Opportunity Set* * *Leverage*) + -0,014 (Kualitas Akrual * *Leverage*) + 0,000 (*Firm Size* * *Leverage*) + ϵ

Hypothesis Testing Results

Table 7. F-Test Results

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0,004	4	0,001	3,168	0,017[b]
	Residual	0,034	97	0,000		
	Total	0,039	101			
a. Dependent Variable: *Cash Holding*						
b. Predictors: (Constant), *Leverage* , Kualitas Akrual, *Investment Opportunity Set* , *Firm Size*						

Source: Processed data using SPSS version 24, 2025

The F-value in these findings is 3,168, and the significance level is 0,017. One could draw the conclusion that all independent factors concurrently possess a substantial influence on the dependent variable because the significance value is less than 0,05.

Table 8. Results of the Coefficient of Determination Test

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,340[a]	0,116	0,079	0,0187713
a. Predictors: (Constant), *Leverage* , Kualitas Akrual, *Investment Opportunity Set* , *Firm Size*				

Source: Processed data using SPSS version 24, 2025

As is seen from the table above, the R Square value is 0.116, meaning that the separate factors have an 11,6% influence on the dependent variable, with o additional factors not covered in this research accounting for the other 88,4%.

Table 9. Results of t-Test

Coefficients[a]			
Model		t	Sig.
1	(Constant)	-1,591	0,115
	Investment Opportunity Set	-,373	0,710
	Kualitas Akrual	2,509	0,014
	Firm Size	2,055	0,043
a. Dependent Variable: *Cash Holding*			

Source: Processed data using SPSS version 24, 2025

The following interpretation of the results may be made from the above table:

1. The Investment Opportunity Set variable has a significance level of 0.710 > 0.05. H1 is rejected.
2. The Accrual Quality variable has a significance level of 0.014 < 0.05. H2 is accepted.
3. The significance level for the Firm Size variable is 0.043 < 0.05. H3 is approved.

Table 10. Results of Moderation Interaction Test

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0,017	0,004		4,347	0,000
	*Investment Opportunity Set*Leverage*	-1,617	30,945	-0,041	-0,410	0,683
	Kualitas Akrual**Leverage*	0,286	0,129	0,216	2,218	0,029
	*Firm Size *Leverage*	0,001	0,000	0,183	1,809	0,074
a. Dependent Variable: *Cash Holding*						

Source: Processed data using SPSS version 24, 2025

The following interpretation of the results may be made from the above table:

1. The interaction variable between Investment Opportunity Set and Leverage has a significance level of 0.683 > 0.05. **H4 is rejected.**
2. The interaction variable between Accrual Quality and Leverage has a significance level of 0.029 < 0.05. **H5 is accepted.**
3. The interaction variable between Firm Size and Leverage has a significance level of 0.074 > 0.05. **H6 is rejected.**

D. CONCLUSIONS

Considering the findings, Accrual Quality and Firm Size have a favorable and noteworthy impact. on Cash Holding, indicating that companies with higher financial reporting quality and larger business scale tend to retain more cash to maintain liquidity, while the Investment Opportunity Set does not show a significant effect, suggesting that investment opportunities are

not yet a primary factor influencing cash holding policies in the real estate and property industry. Furthermore, According to the results of the moderation test, leverage strongly moderates but does not moderate the link between accrual quality and cash holdings between Investment Opportunity Set or Firm Size and Cash Holding, implying that debt-based financing structures do not play a role in strengthening or weakening the influence of these variables on corporate cash holding policies. Future researchers are advised to consider other factors that may affect cash holding policies, expand the study to more diverse industrial sectors, and include additional relevant variables.

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