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Determinant of Cash Holding in Indonesia

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Abstract

This paper has objective to explore determinant of Cash Holding in Emerging Market. Variable is used to determine cash holding which is Gross Profit Margin, Accounts Receivable and Account Payable, Operational Cost, Exchange Rate and COVID-19. This paper used panel data Model to estimate relationship among variable. Research period is from 2016 to 2023 and 15 Companies. The results found that Gross Profit Margin, Accounts Receivable and Account Payable and COVID-19 significantly affect cash holding.

Keywords: *Cash Holding, Operational Cost, Account Payable, Account Receivable, Gross Margin.*
JEL: E31, M21, M41

Introduction

Cash Holding is blood in the company because cash holding support all activity in the company. Cash holding of company would find as an item at Balance sheet of company. Cash holdings are often used to hedge against future cash shortfalls. Cash holding is used for transaction motive, precautionary motive and store value motive (Blanchard, 2021 and Dornbusch, 2017). Analyst also used cash holding to see the capability company to handle company activity. Manurung (2024a) used cash holding as the capability company how long to operate in the future. Cash holding also is an indicator to invest for increasing value of the company. Some academician said that cash holding reflected firm value. Rashid et.al (2022) discuss cash holding and Profitability. Hapsari and Norris (2022) discuss cash holding in Indonesia. Gracias and Osesoga (2024) studies determinant factors of cash holding in Indonesia. Amess, et al (2015) discuss Corporate of cash holdings regarding causes and consequences. Vuković, et.al (2022) examine cash holding in Balkan Countries.

Cash Holding is still more discussion by researcher, academician and practioner. FAULKENDER and RONG WANG (2006) examine the cross-sectional variation in the marginal value of corporate cash holdings that arises from differences in corporate financial policy. Lotti and Marcucci (2007) found that firm money demand is determined by Cost of Capital and wage. Duchin (2010) studies the relation between corporate liquidity and diversification. The key finding is that multidivision firms hold significantly less cash than stand-alone firms because they are diversified in their investment opportunities. Jebran et.al (2019) investigate determinants of corporate cash holdings in tranquil and turbulent period with evidence from an emerging economy

Source of cash holding provide from sales of product paid by cash, cash from shareholder, and other activity which is increasing inventory paid later. Mostly paper discuss effect cash holding to firm value or as independent variable. Elizabeth et al (2021) examine cash holding on Company Performance. Ozkan and Ozkan (2004) examine cash holding in UK. This paper wants to examine some factor to determine cash holding as dependent variable. The factor will be grouped into Internal Factor and External Factor. This

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paper tries to use Gross Profit Margin, Account Receivable, Account Payable, Operational Cost as internal factor. Exchange rate and Oil Price is used as external factor.

Gross Profit Margin (GPM) is an independent variable to determine cash holding, because GPM is a ratio to raise fund or cash holding in the company. Maryanto and Cahyono (2024) examine effect of profitability, growth opportunity, leverage, and firm size on cash holding. Wahyuni and Setiawan (2023) studied operating cash flow and size company on cash holding, Rokhayati et al (2024) examine net working capital, leverage, firm size, cash flow on cash holding.

Cash Holding also discuss relationship cash holding and other factors. Bliss et. al (2015) investigate Corporate of payout, cash retention, and the supply of credit including Evidence from the 2008–2009 credit crisis. Nguyen et.al (2023) discuss trade payable om cash holding in Vietnam. Peterson and Rajan (1997) explain about theory and Evidence of Trade Credit. Darmawan and Nugroho (2021) discuss the Impact Profitability, Firm Size, Leverage, and Net Working Capital on Cash Holding. Nam and Uchida (2019) studies account payable and firm value for International evidence.

Fluctuation of Cash holding could be also affected by external factor which is Exchange rate and Oil Price and Interest rate and others. This research used Oil Price and Exchange rate as external factor. Tomanova (2016) discuss Exchange Rate Volatility Exposure on Corporate Cash Flows. Pinkowitz and Williamson (2002) discuss exchange rate on cash holding. Wu et.al (2021) examine Cash holdings and oil price uncertainty exposures. Bugshan (2024) studies Oil price uncertainty and corporate cash policy.

This research used period of data from 2016 to 2023 that there is a period called Covid-19 period. Covid-19 period is 2020 to 2022, so this paper put in as dummy variable for 2020 to 2022. The period of COVID-19 is a period which is all countries got it. Sutrisno (2021) discuss period Covid-19 with cash holding company for Indonesia. Suwito and Yanti (2021) studies factor to determine cash holding before and during period COVID-19. Qin et.al (2021) examine COVID-19 Pandemic and Firm-level Cash Holding. Xiong et.al (2020) discuss impact market reaction to the COVID-19. Xu, and Jin (2022) is Exploring the Impact of the COVID-19 Pandemic on Firms' Financial Performance and Cash Holding. This is the reason Why this variable of COVID-19 entered to research model.

Theoretical Review

Cash Holding is item in current assets that it is as tool of payment of company to others (White et.al, 2003). Cash holding should be placed in first item in Current Assets (Manurung, 2024a). Manurung (2024a) stated, cash holding could be affected some variables, that the variables affect cash holding to be comprise by mathematics formula as follows:

$$\pi = (1 - T)\{r * A - (FC + Qv) - iD\} \quad (1)$$

$$\pi - DIV - AR - AP = (1 - T) * \{r * A - (FC + Qv) - iD\} - DIV - AR - AP \quad (2)$$

Then A = D + E, it is substituted to equation (2), so equation (2) become as follows:

$$\pi - DIV - AR - AP = (1 - T) * \{r * (D + E) - (FC + Qv) - iD\} - DIV - AR - AP \quad (3)$$

$$\pi - DIV - AR - AP = (1 - T) * \{(r - i) * D + r * E - (FC + Qv)\} - DIV - AR - AP \quad (4)$$

Furthermore, Equation (4) divide total Equity of Company (E), so Equation (4) to become equation (5) as follows:

$$\frac{CH}{E} = (1 - T) * \left\{(r - i) * \frac{D}{E} + r - \frac{(FC+Qv)}{E}\right\} - \frac{DIV}{E} - \frac{AR}{E} - \frac{AP}{E} \quad (5)$$

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Similar to find Equation (5), If Equation (4) divide Total Asset Company, then Equation (6) become equation (6) as follows:

$$\frac{CH}{TA} = (1-T)\left\{(r-i) * \frac{D}{TA} + \frac{r}{TA} - \frac{(FC+Qv)}{TA}\right\} - \frac{DIV}{TA} - \frac{AR}{TA} - \frac{AP}{TA} \qquad (6)$$

Based on the Equation (5) and (6), Cash Holding affect by tax, Return on Asset (ROA), interest for the loan, amount of Loan, operational cost dividend and sales on credit (account receivable) and Account Payable to supplier.

Methodology

Model Panel Data

This research use Model data Panel to estimate relationship some independent variable to determine Profitability as dependent variable which Return on Asset, Return on Equity and Price Earnings Ratio and Revenue, Current Ratio, Debt to Equity Ratio, Exchange Rate, Oil Price and Covid-19 Era which is all as independent variable. Merger and Acquisition is used as moderating variable. Model Data Panel is appropriate for data small which short time series and small company as sample. Besides that, model data panel also show time and the cross-section as sample. Gujarati (2003), Wooldridge (2002), Greene (2008), Biorn (2017), Sul (2019) and Manurung (2024b) stated model data panel is as follows:

a. Pooled Data Model

Pooled Data Model is model that data combine all together and the model is as follows:

$$Y_{i,t} = \beta_1 + \beta_2 X_{2i,t} + \beta_3 X_{3i,t} + \mu_{i,t} \qquad (7)$$

i = 1, 2, … , k ; t = 1, 2, … , n

X's are non-stochastic and $E(\mu_{it}) \sim N(0, \sigma^2)$

b. Fixed Effect Model

FEM is a model that μ_i and X's are assumed correlated.

$$Y_{i,t} = \beta_{1i} + \beta_2 X_{1i,t} + \beta_3 X_{2i,t} + \mu_{i,t} \qquad (8)$$

i = 1, 2, … , k ; t = 1, 2, … , n

c. Random Effect Model (REM)

REM is a model that ε_i and X's are assumed uncorrelated.

$$Y_{i,t} = \beta_{1i} + \beta_2 X_{1i,t} + \beta_3 X_{2i,t} + \mu_{i,t} \qquad (9)$$

$$\beta_{1i} = \beta_1 + \varepsilon_i$$

i = 1, 2, … , k ; t = 1, 2, … , n

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μ_i is a random error with a mean value of zero and variance of σ_ε^2.

Judge (1982), Wooldridge (2002), Biorn (2017), Sul (2019) and Manurung (2024b) stated that how we choose FEM or REM as follows:

- When T (number of time series data) is large and N (the number of cross-sectional units) is small, FEM may be preferable.
- When N is large and T is small, if we strongly believe that the individual, or cross-sectional, units in our sample are not random drawings from a larger sample, FEM is appropriate. If the cross-sectional units in the sample are regarded as random drawings, the REM is appropriate.
- When individual error component ε_i and one or more regressors are correlated, FEM is an unbiased estimator.
- REM estimators are more efficient than FEM Estimators, when N is large and T is small and if the assumptions underlying REM hold.

Operastional Variable

This sub-section will explain the concept of Operational Variable in this research.

Definition of Variable is in this research as follows:

$$Cash\ Holding = \frac{Cash\ and\ similar\ to\ Cash}{Total\ Asset} \quad (10)$$

Manurung (2024a) define Gross Profit Margin (GPM) as follows:

$$\text{GPM} = \frac{Laba\ Kotor}{Revenue} \quad (11)$$

and also Account Receivable (ACP) as follows:

$$ACP = \frac{Account\ Receivable}{Total\ Asset} \quad (12)$$

and also Account Payable (APP) as follows:

$$APP = \frac{Account\ Payable}{Total\ Assets} \quad (13)$$

and also Operational Cost (OC) as follows:

$$OC = \frac{Operational\ Cost}{Total\ Assets} \quad (14)$$

Concept of Definition of Variable is in this variable according by Altman (1968) which is all variable divide by Total Assets.

Sources of Data

Unit Analysis this research is retailing company that listed in Indonesia Stock Exchange. There are 15 of Retailing company which is taking purposively using retailing company has annual repot from 2016 to 2023. Data is collected from some sources. Data mostly is in yearly for period 2016 to 2023. Data, Cash holding, Gross Profit Margin, Account Receivable Collection, Account Payable Collection and Operational Cost are

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collected from annual report of Company that it found in Company Website. Data of Oil Price and Exchange Rate is collected from Central Bank of Indonesia.

1. Discussion

In this section will explain three discussion such as Descriptive Statistics, Coefficient of Correlation and Causalities. This explanation starts by Descriptive Statistics, and followed by Coefficient of Correlation and at the end by Causalities.

Descriptive Statistics

This sub-section will explain descriptive statistic research variable which Cash Hoding, Gross Profit Margin (GPM), Account Receivable (ACP), Account Payable (APP), Operational Cost (OC), Exchange Rate (ER) and Oil Price (OP). The Statistic Descriptive appear at Table 1. On below.

Tabl1 1. Descriptive Statistic Research Variable

	CH	GPM	ACP	OC	APP	ER	OP
MINIMUM	0.007871	-0.06244	0.001787	0.020873	0.004126	11818.87	39.65159
MAXIMUM	0.664108	0.681856	0.152404	252.6396	7.197707	14499.4	92.82331
AVERAGE	0.17769	0.237897	0.039826	15.57017	0.354341	13586.37	58.1876
STDEV	0.153882	0.198599	0.042623	56.93249	0.867267	864.5746	17.0848
SKEWNES	1.156961	0.698785	1.193194	3.552837	5.961596	-1.24928	1.222333
KURTOSIS	0.641325	-1.02705	0.107745	10.89435	40.03223	1.751334	1.644995
Jarque Bera	-38.8394	-316.77	-92.4963	2712.364	254638.2	1.431966	1.162852
Sumber: Diolah Penulis							

Cash holding as item in balance sheet is blood in company which is every activity need it. Cash holding has varying value which is minimum value of 0.0079, maximum value of 0.6641, average value of 0.1777 and standard of deviation of 0.1539. This data show that data cash holding around nearly to minimum value and small standard of deviation.

Ratio Gross Profit Margin (GPM) show the company capability to raise fund which is first profit for operational cost company. Ratio GPM has minimum value of -0,0624, Maximum value of 0.6819, average value of 0.2379 and standard of deviation of 0.1986. This data appeared that all GPM nearly around minimum value and deviation among GPM is very small. These data also showed that some companies has experience negative GPM. This negative GPM is mostly in period of COVID-19.

Account Receivable is an item in balance sheet to show mostly selling product by credit. Account receivable has minimum value of 0,0018, Maximum value of 0.1524, average value of 0.0398 and standard of deviation of 0.0426. The data Account receivable is very closed to each other comparing to data GPM and Cash holing. The data average is closed to minimum value. The deviation of data is very small.

Operational Cost (OC) is company expenditure to pay operational company activity. The data of operational cost has minimum value of 0.0209, maximum value of 252.6396, average value of 15.5702 and standard of deviation of 56.9325. The data of Operational cost shows the Operational cost has high varying among sample unit analysis. On the other hand, the data has highly deviation among sample unit analysis.

Account payable is an item in Credit position of balance sheet to show how big the supplier give credit to the company. Account payable has minimum value of 0,0041, Maximum value of 7.1977, average value of 0.3543 and standard of deviation of 0.8673. The variation data is very high that could show by standard of deviation. The central data which is average value nearly close to minimum value.

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Exchange rate (ER) is a macroeconomic variable and external variable to the company. This exchange rate data has minimum value of Rp. 11,819 to convert to $1, Maximum value of Rp. 14.499, average value of Rp. 13,586 and standard of deviation of 864.5746. This data shows the variation among data is very high. Exchange rate has trend to increase for the research period.

Oil Price (OP) is also macroeconomic variable and also external variable to the company. This Oil Price variable entered to research to show how impact this variable to Cash holding which is Oil Price as big factor to all economic activity. This Oil Price data has minimum value of US$ 39,6516 to buy 1 barrel oil, Maximum value of US$. 92.8233, average value of US$ 58.18766 and standard of deviation of 17.0848. This data shows the variation among data is very high which is average value near to minimum value. The Oil Price has trend to increase for the research period.

Correlation Coefficient

This sub-section will explain Coefficient of Correlation among research variable which is Cash Holding, Gross Profit Margin, Account Receivable, Account Payable, Operational Cost, Exchange Rate and Oil Price that is showed Table 2 at below.

Table 2. Coefficient of Correlation Among Research Variables.

	CH	GPM	ACP	OC	APP	ER	OP
CH	1	0.3575***	-0.4246***	-0.2859**	0.3683***	-0.05892	0.03274
GPM		1	-0.3461***	-0.11001	-0.11048	-0.00116	0.022626
ACP			1	0.5451***	-0.15383	0.044298	-0.04534
BO				1	-0.04143	0.01135	-0.0074
APP					1	-0.04189	-0.02457
ER						1	-0.61154
OP							1
Source: Process by Researcher							

Table 2 shows that the results are mixed for correlation among research variables. The Coefficient of correlation is varying between 0.006959 to 0.5451. Two coefficients of correlation had more than 0.5. It means that this highest coefficient of correlation has strong correlation. Account Receivable and operational cost has the highest coefficient correlation and significantly correlated at level of significant of 1%. Cash holding significantly correlated to by Gross Profit Margin at level of significant of 1%. The coefficient of Correlation of Cash holding with Gross Profit Margin is average relationship by showing of number of Coefficient of Correlation of 0.3575. Account Receivable has coefficient of Correlation to Cash holding by 0.4246 that it average relationship. Relationship account receivable and cash holding is significantly relationship at level of significant of 5%. Cash holding and Operational cost has coefficient of Correlation of 0.2859. This coefficient correlation is weak relationship, but it significantly correlated at level of significant of 5%. Account Payable has correlated to cash holding by 0.3683 and significantly correlated at level of significant of 1%. This coefficient of correlation could be stated as average or medium correlation. Gross Profit Margin also negatively correlated with account receivable by -0.3461 and significant at level of significant of level of 5%. This coefficient of correlation could be stated as weak correlation. The other correlation among variables is small or weak correlation and do not significant correlate at level of significant of 10%.

This result will impact to choose model for further analysis. Based on the result, the research will use model panel data.

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This sub-section will explain factor affected cash holding that is shows at equation (9). The result was processed by eviews program.

The model of Cash holding is found as follows:

$$Ch_{i,t} = 0.1078 + 0.2473\ GPM_{i,t} - 0.6167\ ACP_{i,t} - 0.00038\ OC_{i,t} + 0.0610\ APP_{i,t}$$

$$(0.0001) \qquad (0.0796) \qquad (0.1137) \qquad (0.000023)$$

$$+ 0.0190\ OP_t - 0.0827\ ER_t + 0.0430\ COVID\text{-}19_t + e \qquad (15)$$

$$(0.6042) \qquad (0.8144) \qquad (0.0813)$$

R^2= 62.07%, F_{test} = 10.028, p value in brackets.

This equation (15) has coefficient of determination by 62.07%. It means that together all variables could explain the fluctuation of data of cash holding is about by 62.07%, the rest is by other variable. The equation (15) has good of fit Model that show by value of F-test.

In the equation (15) shows GPM, ACP, BO, APP, OP and ER on Cash holding. Covid-19 also entered as an independent variable to cover COVID-19 for research period.

GPM has positively impact on cash holding. It means that GPM increase by 1 unit, it will impact increasing cash holding by 0,2473 unit. GPM significant affect Cash holding at level significant of 1%. This result finding state that the empirical research support to the theory of GPM on cash holding. This research supported the previous research such as Maryanto and Cahyono (2024), Wahyuni and Setiawan (2023) and Rokhayati et al (2024) and Ozkan and Ozkan (2004).

Account Receivable (ACP) have negatively affected on cash holding. It means that ACP increase by 1 unit, it will impact decreasing on cash holding by 0.6167 unit. ACP significant affect Cash holding at level significant of 10%. This result finding state that the empirical research support to the theory of ACP on cash holding. This research supported the previous research such as Bliss et. al (2015), Nguyen et.al (2023), Peterson and Rajan (1997), Darmawan and Nugroho (2021) and Ozkan and Ozkan (2004).

Account Payable (APP) have positively affected on cash holding. It means that APP increase by 1 unit, it will impact increasing on cash holding by 0.0610 unit. APP significant affect Cash holding at level significant of 10%. This result finding state that the empirical research support to the theory of APP on cash holding. This research supported the previous research such as Bliss et. al (2015), Nguyen et.al (2023), Peterson and Rajan (1997) and Darmawan and Nugroho (2021) and Ozkan and Ozkan (2004) and Nam and Uchida (2019).

COVID-19 have positively affected on cash holding. It means that OC increase by 1 unit, it will impact increasing on cash holding by 0.0430 unit. COVID-19 significant affect Cash holding at level significant of 10%. This result finding state that the empirical research support to the theory of COVID-19 on cash holding. This research supported the previous research such as Sutrisno (2021), Suwito and Yanti (2021) and Qin et.al (2021) and Xiong et.al (2020) and Xu, and Jin (2022).

This Research found that Operational Cost, Exchange Rate and Oil Price did not affect on cash holding at level of Significant of 10%.

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Conclusion

This research has conclusion as follows:

- Gross Profit margin significantly affect Cash holding
- Account Receivable significantly affect cash holding
- Account Payable significantly affect cash holding
- Period of COVID-19 significantly affect cash holding.

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