



RESEARCH ARTICLE

Cash Holding's Healthcare Sector in Developing Country During Covid 19

Bulan Nettiary Kelara^{1*}, Mamduh M. Hanafi², Alni Rahmawati³, Arni Surwanti⁴

¹Doctoral Student at the Doctoral Management Program, Muhammadiyah University Yogyakarta, Indonesia

²Professor at the Doctoral Management Program, Universitas Gajah Mada, Indonesia

^{3,4}Senior Lecturer at the Doctoral Management Program, Universitas Muhammadiyah Yogyakarta, Indonesia

ARTICLE INFO	ABSTRACT
Received: Sep 19, 2024	This study aims to provide valuable insights into the financial resilience of the healthcare industry during the COVID-19 pandemic. Quantitative research with the population is the health industry in Indonesia, Malaysia, Thailand, and Vietnam. This study uses purposive sampling techniques. The data analysis technique in this study uses stepwise linear regression and is analyzed using Eviews 13 software. Malaysia is the only country where financial constraints have a negative effect on cash holding, while in other countries this factor is not significant. Financial leverage does not affect cash holdings in all countries studied. Profitability has a positive effect on cash holding in Indonesia and Malaysia, but a negative effect in Thailand, and no effect in Vietnam. Growth opportunity only has a positive effect on cash holding in Thailand, while in Indonesia, Malaysia, and Vietnam, this factor does not have a significant effect. This study contributes by providing new insights into firms in the healthcare sector, which is relatively under-explored in the cash-holding literature. This study was conducted in the post-pandemic period, so its findings also contribute to the literature on the impact of the economic crisis and global uncertainty on corporate decisions. companies to hold cash. This study highlights the importance of a locally tailored approach to corporate financial management, particularly in the healthcare sector in ASEAN countries. Geographic coverage, period, and variables used. With these limitations in mind, future research could explore more deeply the dynamics of cash holdings in other countries, in sectors other than health, and by using a broader and multidimensional approach.
Accepted: Nov 13, 2024	
<p>Keywords</p> <p>Cash Holding COVID-19 Impact Financial Constraints Financial Leverage Growth Opportunity Healthcare Industry Profitability Southeast Asia</p>	
<p>*Corresponding Author: bulannetra@gmail.com</p>	

INTRODUCTION

During the COVID-19 pandemic, many individuals in developed countries have chosen to increase their *cash holding* as a precautionary measure (Alvarez & Argente, 2022) . The uncertainty surrounding the economy and job security has led to a trend of holding more cash to cover essential expenses and unexpected circumstances. With the impact of the pandemic on financial markets and employment, individuals are prioritizing liquidity and building up their emergency funds. This increase in *cash holding* reflects a prudent approach to navigating through the unpredictability of the current situation (Bae & Kang, 2023) . As time went on, the *cash holding* gradually dwindled due to the operational expenses of the company and reduced income. The prolonged impact of the pandemic on the market and employment has caused a strain on the company's financial resources. As a result, companies have to dip into their cash reserves to sustain their operations and cover expenses.

The epidemic has had a major effect on cash holding in a number of sectors, with several seeing a decline in their reserves. However, it is important to note that there is one sector that continues to

maintain high *cash holdings*: the healthcare sector. The heightened focus on healthcare and medical services during the pandemic has led to an increased demand for resources and funding in this sector. As a result, companies and organizations within the healthcare industry have prioritized maintaining ample cash reserves to ensure continuity of operations and meet the escalating needs of healthcare services. The healthcare sector has seen the highest *cash holding* during this time, as the demand for medical resources and funding has surged. (Wei, Wu, & Yang, 2022) .

This research will shift its focus to examining *cash holding* in the healthcare sector in developing countries during the same period. It is imperative to comprehend how the pandemic has affected the monetary reserves of developing countries' healthcare industries, particularly in light of the heightened demand for healthcare resources and services (Gadsden et al., 2022) . The selected countries for this study - Indonesia, Malaysia, Thailand, Philippines, and Vietnam - have distinct healthcare systems and varying levels of economic development, making them ideal candidates for comparison and analysis. These five countries represent the geographic and economic diversity of the Southeast Asia region. Each country has unique characteristics of its economy, health infrastructure, and response to the COVID-19 pandemic (Oum, Kates, & Wexler, 2022).

As we delve into the analysis of *cash holding* in the healthcare sector of Indonesia, Malaysia, Thailand, Philippines, and Vietnam, it is imperative to consider the unique economic and healthcare landscape of each country in the Southeast Asia region. The impact of the COVID-19 pandemic on these developing countries has not only resulted in increased demand for healthcare resources but has also posed financial challenges to their healthcare systems, given the relatively lower health expenditure levels compared to the global average (Kaye et al., 2021) . Despite their differences, these countries share a common challenge in healthcare expenditure. According to the World Health Organization, the average global health expenditure was around 9.8% of Gross Domestic Product in 2019. In contrast, the health expenditure in these selected developing countries ranged from 3-4% of Gross Domestic Product in the same year (Gadsden et al., 2022) .

As we explore the *cash holding* dynamics of the healthcare sector in developing countries, it is essential to analyze how the pandemic has impacted their financial strategies and liquidity management. The objective of this research is to offer significant perspectives on the financial fortitude of the healthcare sector under the unparalleled obstacles presented by the COVID-19 epidemic. We can learn more about the financial capability and readiness of developing nations to maintain their healthcare systems during emergencies by looking at the cash holding amounts and financial actions made by their healthcare systems during the COVID-19 pandemic. More precisely, this investigation will clarify if developing nations' restricted capabilities and financial resources have affected their ability to keep enough funds on hand for the healthcare sector throughout the COVID-19 epidemic.

2. LITERATURE REVIEW

Particularly after the 1990s, one of the most studied subjects in the empirical finance literature has been the quantity and factors influencing cash holdings. The majority of earlier research employed data from industrialized nations (Akben-Selcuk & Altiok-Yilmaz, 2017) . In its development, research on *cash holding determinants* has not only been conducted in companies in developed countries, but also in developing countries, such as India (Singh & Misra, 2019) ; Thailand (Thanatawee, 2019) ; Jordan (Shubita, 2020) ; Brazil (Morais, Nave, & Rodrigues, 2019) ; Vietnam (Thu & Khuong, 2018; Nhan et al., 2017) ; and Indonesia (Arfan et al., 2017 ; Yudaruddin, 2019; Suk et al., 2019; Endri et al., 2020 ; Primasari & Wahyuningtyas, 2020) . Research was also conducted by comparing developing and developed countries and a combination of developing countries, such as Indonesia and Singapore (Setiawan & Rachmansyah, 2019) ; Indonesia and the Netherlands (Sudana et al., 2019) ; Brazil, Indonesia, Mexico, Russia, and Turkey (Akben-Selcuk & Altiok-Yilmaz, 2017) .

Previous research has found various variables that are determinants of *cash holding*, one of which is *leverage*. Akben-Selcuk & Altiok-Yilmaz's (2017) research found that *leverage* has a positive effect on *cash holding*. Companies that use higher *leverage* in their capital structure have more cash. Arfan et al.'s (2017) research found that *financial leverage* has a negative effect on *cash holding*. When

financial leverage is perceived as a replacement for cash that businesses can utilize for investments, it can have a negative impact on cash holdings since it causes corporations to keep less cash when financial leverage increases. Companies that find it easier to access the financial markets tend to invest through debt financing, which lowers cash holdings.

Leverage has a negative impact on cash holdings in non-financial firms listed on the Indonesia Stock Exchange (IDX), Singapore Exchange (SGX), and FULL, according to research by Setiawan & Rachmansyah (2019) on non-financial companies listed on these exchanges. Companies with higher debt levels will hold less cash because they are usually more closely monitored when compared to companies with relatively lower debt levels. Companies with higher *leverage* have the ability to obtain external funding more easily and cheaply so that companies can reduce the amount of cash they have.

Conversely, Nenu & Vintilă's 2017 study discovered a negative correlation between leverage and cash holding. But when the variable is changed to squared leverage, the link turns out to be significant and positive. This demonstrates that businesses have a tendency to raise cash resources beyond a particular debt threshold in order to avoid certain financial constraints. A review of earlier research also revealed that cash keeping is influenced by profitability. At a significance level of 10%, research by Arfan et al. (2017) discovered that profitability has a favorable impact on the company's cash holdings. The pecking order theory, which holds that a company's cash holdings increase in direct proportion to its profitability, is supported by this data. Businesses tend to retain more cash since they will use their profits to boost liquidity.

The same results are shown by the research of Setiawan & Rachmansyah (2019) which found that the profitability of non-financial companies on the IDX, SGX, and FULL consistently showed a significant positive effect on *cash holding*. Companies with high profits will avoid issuing equity because of the very high issuance costs, so companies are better off providing more cash. The positive effect between profitability and *cash holdings* is in accordance with the prediction of pecking-order behavior.

The opposite is shown by the research of Thu & Khuong (2018) which found that profitability has a negative effect on *cash holding*. When retained earnings are prioritized for debt payments by the company, this causes low *cash holdings*.

Another factor that affects cash holdings is growth or volatility. Research by Arfan et al. (2017), which discovered that growth opportunity favorably affects cash holding, demonstrates this. The study's findings support Keynes' (1936) theory of speculative incentives, which holds that businesses will employ cash for speculative reasons if they find several fresh, lucrative business prospects. Businesses with significant room for expansion frequently buy out other businesses, necessitating big sums of money. Put otherwise, growth prospects are beneficial to cash holdings.

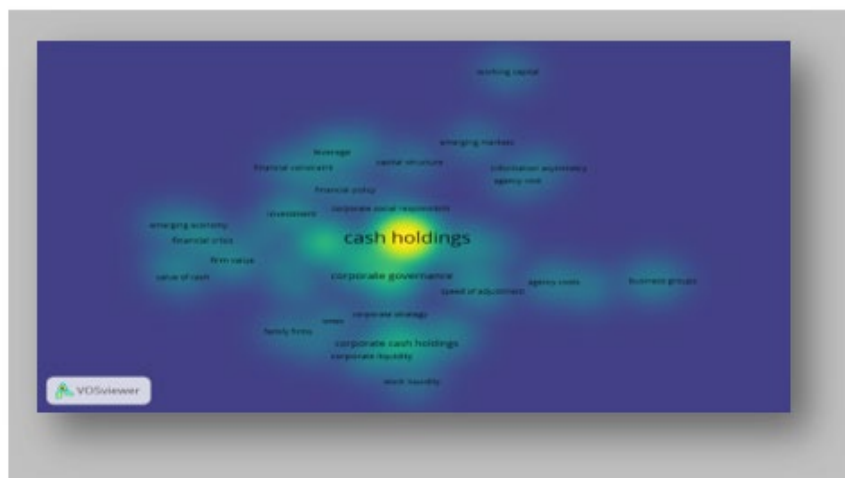


Figure 2.1 VOSviewers Results Factors Affecting Cash Holdings

Researchers used VOSviewers analysis with the keyword *Cash holding Determination Factors* with a period of 2010 - 2024 resulting in 212 articles. The resulting determinant factors are *working capital, emerging markets, leverage, capital structure, financial constraint, information asymmetry, agency cost, financial policy, corporate social responsibility, investment, emerging economy, financial crisis, firm value, value of cash, corporate governance, speed of adjustment, agency costs, business groups, corporate strategy, SMES, family firms, corporate cash holdings, corporate liquidity, and stock liquidity*. There are *financial constraint* factors that still need to be studied if they are related to *Cash holding* .

Platt and Platt (2002) quoted in John Erhan Prasetyo Hermawan & Riko Riandoko, 2021 stated that financial constraints are conditions in which a company's financial condition worsens before reaching bankruptcy or liquidation. Koh & Lee, 2015 explained that companies experiencing financial constraints usually have limited access to external funds. Financial constraints can be caused by internal and external factors. Internal factors occur if a company lacks liquidity to finance its operations so that it tends to go bankrupt and if the company has difficulty financing its investments. External factors come from macroeconomic shocks, such as economic crises, economic contractions, stock market crashes and banking crises .

Companies facing *financial constraints* may tend to maintain higher levels of *cash holdings as emergency reserves*. This may be due to higher uncertainty in obtaining additional funds in the future or difficulty in accessing competitive financial markets. By maintaining high levels of *cash holdings* , companies can ensure sufficient liquidity to deal with potential urgent needs or investment opportunities that arise. (X. Chen & Wang, 2022) . The above explanation produces the following framework of thought:

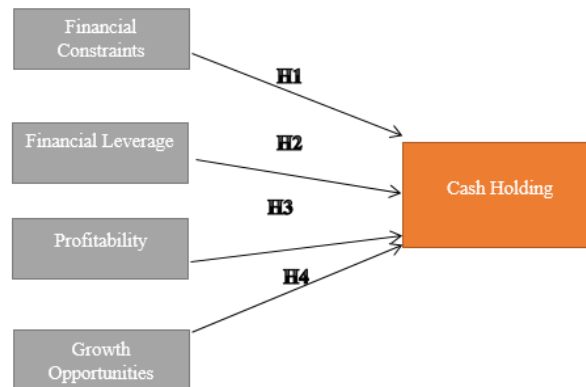


Figure 2.2 Framework of Thought

2.1 The influence of *financial constraints* against *Cash Holding*

A company facing financial constraints may have limited access to internal or external sources of funds . In this situation, the company may tend to use less debt to finance its operations or invest in new projects. Financial constraints may limit a company's ability to bear interest expenses or additional risks associated with using debt. (Wieczorek-Kosmala, Błach, & Trzęsiok, 2018)

A recent paper on cash holdings and financial constraints suggests that financially constrained firms have more cash and find it difficult for them to improve their performance (Nguyen, Nguyen, & Le, 2016) . Firms facing *financial constraints* may tend to maintain higher levels of *cash holdings as emergency reserves*. This may be due to higher uncertainty in obtaining additional funds in the future or difficulty in accessing competitive financial markets. By maintaining high levels of *cash holdings* , firms can ensure sufficient liquidity to deal with potential immediate needs or investment opportunities that arise.

Zhang, Zhang, Zhou, & He's research , 2020, revealed that by measuring the level of a company's financial constraints, the stronger a company's financial constraints, the higher its cash flow sensitivity. The company's investment activities rely more on internal funding . D. Zhang, Tong, & Li's

research , 2020, which examined the industrial sector, stated that companies experiencing financial constraints are more likely to use cash to smooth out financial constraints to finance pollution investments, and that internal cash flow can only support pollution investments in companies experiencing financial constraints .

So based on the explanation above, the hypothesis that can be developed is as follows:

H₁ : *Financial Constraints* have a significant positive effect on *cash holding*

The Influence of Financial Leverage against Cash Holding

Cash holdings can affect a company's decision about the level of leverage. Companies with high cash holdings may tend to have a lower need to borrow money, because they have sufficient internal sources of funds to finance their operations and meet their financial obligations. Conversely, companies with low or negative cash holdings may tend to rely more on debt to finance their operations and investments. Based on the explanation above, then the hypothesis that can be taken is:

H₂ : *Financial leverage* has a significant negative effect on *cash holding*

Profitability Influence against Cash Holding

The company with the highest income will be able to maintain its liquidity level. This is because a company with a high level of *profitability* will be able to accumulate the cash flow it generates. So, to control investment, these companies must have a high level of *cash holding* (Guizani, 2017) . Companies with high profitability implement a policy of holding cash and storing it as retained earnings. The cash from retained earnings is used by the company to pay off previous debts that have matured. Ultimately, it will reduce the value of the cash balance held. Profitability has a negative effect on cash holding in manufacturing companies because when profitability is negative, the company will spend funds from the cash it has. The company will spend funds to reduce debt or to spend funds to guarantee finances, so that the cash it has will decrease (Prawitasari, 2023) . In addition, more efficient companies can reduce cash holding because they can reduce operating costs and optimize expenses. This will reduce the need for funds that need to be stored in cash . (Muaja, Maramis, & Jan, 2023) . Based on the explanation above, So the hypothesis that can be taken is:

H₃ : *Profitability* has a significant negative effect on *cash holding*

The Influence of Growth Opportunities against Cash Holding

Osiichuk & Mielcarz, 2020 stated that when a company has large cash reserves, there is a risk that management may misuse or allocate these funds, which causes agency costs and decreases the value of the company. As a result, companies with significant growth opportunities may choose to minimize cash holdings to mitigate agency costs and demonstrate efficient financial management to investors and stakeholders. Additionally, the nature of growth opportunities and the associated risks may also play a role in the negative correlation to cash holdings. High *growth opportunities* often require companies to take on additional risk, which can cause them to prioritize investing in growth projects over having excess cash. The dynamic and competitive nature of industries with significant growth potential also encourages companies to allocate resources to pursuing growth opportunities rather than maintaining high cash reserves. (Trisanti, & Lestari, 2022) . Based on the explanation above, So the hypothesis that can be taken is:

H₄ : *Growth Opportunities* have a significant negative effect on *cash holding*

3. METHODS

This research is a quantitative research. The population in this study is the health industry in Indonesia, Malaysia, Thailand, and Vietnam. This study uses *purposive sampling* techniques . The sample in this study is the health industry which (1) Publish complete annual reports periodic since 2019-2021 (2) Registered on the capital markets of Indonesia, Malaysia, Thailand, the Philippines ,

and Vietnam (3) Using internal and external funding sources, in the form of debt (4) Having positive profits during the 2019-2021 period.

In this study, the Dependent is *Cash holding*. *Cash holding* refers to the amount of cash held by a company that can be used to invest in physical assets (Romadhoni, Kufepaksi, & Hendrawaty, 2019). In accordance with the literature (Harford et al., 2008; Kuan et al., 2012) in (Yun, Ahmad, Jebran, 2021), *cash holding* is measured as the ratio of cash and cash equivalents divided by total assets.

$$\text{Cash Holding} = \frac{\text{Cash atau Setara Cash}}{\text{Total Asset}}$$

The independent variables in this study are financial constraints, *leverage*, *profitability*, and growth opportunities. Financial constraints are conditions in which a company's financial condition deteriorates before reaching bankruptcy or liquidation (John Erhan Prasetyo Hermawan & Riko Riandoko, 2021). *Financial Constraints* are divided into two categories, namely *financially constrained* (FC) and *non-financially constrained* (NFC). This study uses the Debt to Equity (DER) indicator referring to Hidayat's research, nd. Companies with *financially constrained* (FC) are companies with a DER ratio value ≥ 1 and are expressed by a dummy variable notated 1. Companies with *non-financially constrained* (NFC) are companies with a DER ratio value < 1 and are expressed by a dummy variable notated 0.

Leverage is the ability of a company to use assets or funds that have fixed costs to increase the level of income for the company's owners. The use of *leverage* is intended to increase the company's profitability (Cheryta, Moeljadi, & Indrawati, 2018). The *Leverage* proxy in this study is Debt to Assets (DAR) referring to Kasmir (2017:156)

$$\text{DAR} = \frac{\text{Total debt}}{\text{Total equity}}$$

Profitability reflects a company's capability in gaining profit through all potentials and assets owned, such as sales, cash liquidity, capital, number of employees, branch network, and other factors (Harahap, 2016). *Profitability* proxy uses net profit margin referring to research (Malikussaleh, Khaddafi, & Malikussaleh, 2016)

$$\text{Net Profit Margin} = \frac{\text{Laba Bersih}}{\text{Penjualan Bersih}}$$

Growth opportunity describes the company's potential for future growth (Liestyasih & Wiagustini, 2017). In the context of financial analysis and research, research has shown that changes in the amount of a company's assets can provide a useful indication of the company's growth opportunities. Therefore, research often uses changes in total assets as a proxy to represent or measure the company's growth potential. *Profitability* proxy uses changes in total assets referring to Pangulu & Maski's research, 2014:

$$\Delta A = \frac{\text{TAt-TAt-1}}{\text{TAt-1}}$$

The data analysis technique in this study uses stepwise linear regression, and is analyzed using *Eviews 13 software*. The panel data estimation method consists of three approaches, namely:

Common Effect Model (CEM)

CEM is the simplest panel data model approach and only combines time series and cross section data. The time and individual dimensions are not considered in CEM, so this model assumes that the behavior of company data is the same in various time periods (Basuki & Yuliadi, 2015). The regression equation in this study:

$$\text{CASH}_{it} = \beta_0 + \beta_1 \text{CON}_{it} + \beta_2 \text{LEV}_{it} + \beta_3 \text{PROF}_{it} + \beta_4 \text{GOP}_{it} + \varepsilon_{it}$$

Information:

$$\text{CASH}_{it} = \text{Cash Holding}$$

CON_{it} = Financial Constraints

LEV_{it} = Leverage

$PROF_{it}$ = Profitability

GOP_{it} = Growth opportunity

ε = error

i = cross sectional unit

t = time series units

β_0 = Constant

$\beta_1, \beta_2, \beta_3, \beta_4$ = Regression coefficients

Fixed Effect Model (FEM)

In FEM, the intercepts in the regression model are allowed to differ across individuals to reflect the unique features of the individual units. This is done by using dummy variables. FEMs that use dummy variables are known as *least squares dummy variable models* (LSDV). FEMs are appropriate in situations where the individual-specific intercepts can be correlated with one or more regressors. A disadvantage of LSDV is the large number of degrees of freedom when N (the number of cross-sectional units) is very large. (Gujarati, 2012). The equation used is as follows:

$$CASH_{it} = \beta_0 + \beta_1 CON_{it} + \beta_2 LEV_{it} + \beta_3 PROF_{it} + \beta_4 GOP_{it} + \beta_5 D_{1i} + \beta_7 D_{2i} \dots + \beta_j D_{ji} + \varepsilon_{it}$$

Information:

D = Dummy variable

Random Effect Model (REM)

In the random effect model, β_{0i} is no longer fixed (non-stochastic) but is random so that it can be expressed in the form of the following equation:

$$\beta_{0i} = \bar{\beta}_0 + \mu_i$$

$\bar{\beta}_0$ is an unknown parameter that shows the average population intercept and μ is a random disturbance variable that explains the differences in individual company behavior (Widarjono, 2007). Based on this, the equation used in this study is:

$$CASH_{it} = \bar{\beta}_0 + \beta_1 CON_{it} + \beta_2 LEV_{it} + \beta_3 PROF_{it} + \beta_4 GOP_{it} + v_{it}$$

Where $v_{it} = \varepsilon_{it} + \mu_i$

Next, it is necessary to select the right panel data estimation model to be used in hypothesis testing. The selection of the panel data estimation model is carried out as follows:

Significance test of fixed effect model

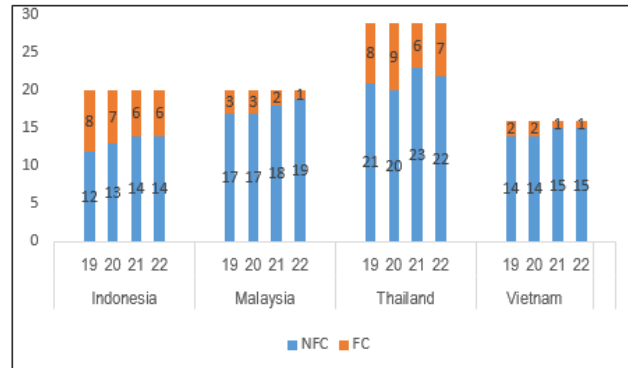
The significance test of the *fixed effect model* was carried out using the Chow test, namely to find out whether the panel data regression technique with fixed effects is better than the panel data regression model with *common effects*. (Widarjono, 2007). The null hypothesis in this study is that the *common effect model* is better than the *fixed effect model* (Basuki & Yuliadi, 2015).

Test the significance of the random effect model

The *random effect* significance test was conducted to determine whether the *random effect model* is better than the *common effect model*. The *random effect significance test* was conducted using the Lagrange Multiplier (LM) test. The null hypothesis in this study is that the *common effect model* is better than the *random effect model*. effect (Widarjono, 2007).

Significance test of *fixed effect* or *random effect model*

Random effect significance test is conducted to determine whether the *fixed effect* or *random effect model* is better. The test is conducted using the Hausman test. The null hypothesis in this study is that the *random effect model* is better than the *fixed effect model* (Widarjono, 2007) .



4. RESEARCH RESULTS

4.1 Description Research Data

Financial constraints data from the research results can be described in the following bar chart:

Figure 4.1 *Financial Constraints* Bar Chart of Healthcare Industry Companies in Indonesia, Malaysia, Thailand, and Vietnam 2019 – 2022

Figure 4.1 shows that in Indonesia, in 2019 there were 8 health industry companies that experienced *financial constraints* . In 2020, it decreased to 7 companies, and decreased again to 6 companies in 2021 to 2022. In Malaysia, in 2019 and 2020 there were 3 health industry companies experiencing *financial constraints* , and decreased in 2021 to 2 companies and decreased again to 1 company in 2022. In Thailand, in 2019 there were 8 health industry companies experiencing *financial constraints* , and increased to 9 companies in 2020. In 2021 the number of health industry companies experiencing *financial constraints* decreased to 6 companies, and increased again in 2022. Meanwhile, in Vietnam in 2019 and 2020, there were 2 health industry companies experiencing *financial constraints* , and in 2021 it decreased to 1 company and remained until 2022.

If you look at the graph above, it can be seen that healthcare industry companies experienced the most *financial constraints* in 2019 and 2020. The number of companies experiencing *financial constraints* has started to decline in 2021. The fluctuating condition is only shown in the healthcare industry companies in Thailand, where there was an increase in 2020 and again in 2022.

Leverage data from the research results can be described in the following graph:

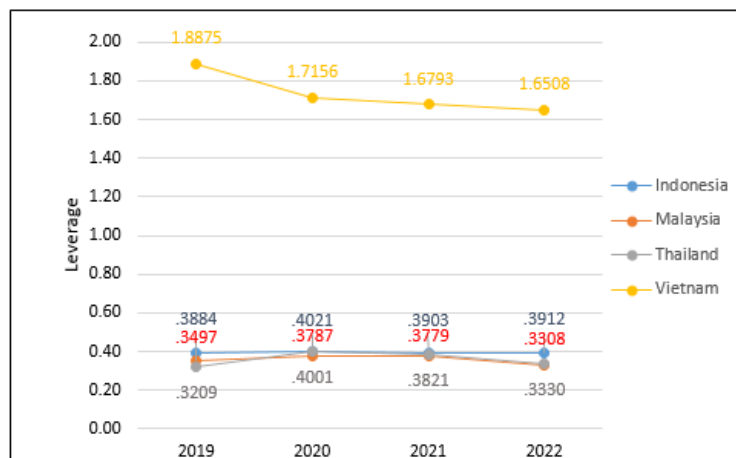


Figure 4.2 Graph of Average Leverage Value of Healthcare Industry Companies in Indonesia, Malaysia, Thailand, and Vietnam 2019 – 2022

Figure 4.2 shows that in healthcare industry companies in Indonesia, in 2019, the average leverage value was 0.3884, increased to 0.4021 in 2020, and decreased in 2021 to 0.3903. In 2022, the average leverage value increased again to 0.3912. In healthcare industry companies in Malaysia, in 2019, the average leverage value was 0.3497, increased to 0.3787 in 2020, and decreased to 0.3779 in 2021 and 0.3308 in 2022. In healthcare industry companies in Thailand, in 2019, the average leverage value was 0.3209, increased to 0.4001 in 2020, and decreased to 0.3821 in 2021 and 0.3330 in 2022. In healthcare industry companies in Vietnam, in 2019, the average leverage value was 1.8875, and then decreased in the following years, namely to 1.7156 in 2020, to 1.6793 in 2021 and 1.6508 in 2022.

If you look at the graph above, except for the healthcare industry companies in Vietnam, there is a tendency that there was an increase in the average leverage value in 2020 and then decreased in the following years. Meanwhile, in the healthcare industry companies in Vietnam, the average leverage value continued to decline during the period 2019 to 2022. However, if you look at the numbers, it can be seen that the average leverage value of healthcare industry companies in Vietnam is much higher than in other countries, and all values are above 1. This shows that healthcare industry companies in Vietnam during the study period had debt values that exceeded their total assets.

Profitability data from the research results can be described in the following graph:

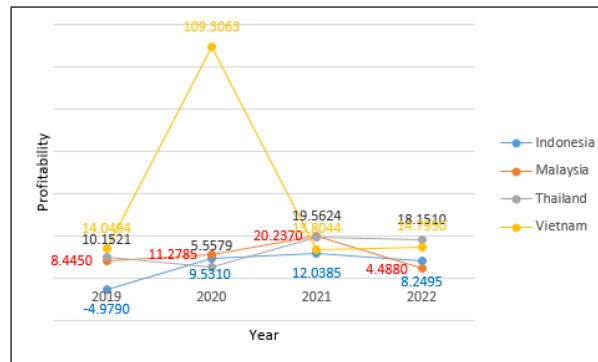


Figure 4.3 Graph of Average Profitability Value of Healthcare Industry Companies in Indonesia, Malaysia, Thailand, and Vietnam 2019 – 2022

Figure 4.3 shows that the average profitability value of healthcare industry companies in Indonesia in 2019 was -4.9790, and increased to 9.5310 in 2020 and 12.0385 in 2021. The average profitability value decreased in 2022 to 8.2495. In healthcare industry companies in Malaysia, the average profitability value in 2019 was 8.4450, and increased to 11.2785 in 2020 and 20.2370 in 2021. The average profitability value decreased in 2022 to 4.4880. In healthcare industry companies in Thailand, the average profitability value in 2019 was 10.1521, and decreased to 5.5579 in 2020. In 2021, the average profitability value increased to 19.5624 and then decreased to 18.1510 in 2022. In healthcare industry companies in Vietnam, the average profitability value in 2019 was 14.0494, and increased to 109.3063 in 2020. In 2021, the average profitability value decreased to 13.8044 and then increased to 14.7950 in 2022.

If we look at the image above, in 2020, except for Thailand, there was an increase in the average profitability value of healthcare industry companies. In 2021, except for Vietnam, there was an increase in the average profitability value of healthcare industry companies in other countries. In 2021, except for Vietnam, there was a decrease in the average profitability value of healthcare industry companies in other countries.

Growth opportunity data from research results can be described in the following graph:

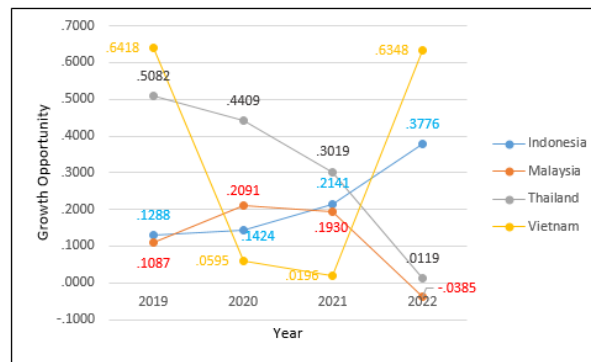


Figure 4.4 Average Growth Opportunity Value Graph of Healthcare Industry Companies in Indonesia, Malaysia, Thailand, and Vietnam 2019 – 2022

Figure 4.4 shows that the average *growth opportunity value* of healthcare industry companies in Indonesia is 0.1288, and in the following years it increased, namely to 0.1424 in 2020, to 0.2141 in 2021 and 0.3776 in 2022. In healthcare industry companies in Malaysia, the average *growth opportunity* was 0.1087 in 2019 and increased to 0.2091 in 2020, and decreased in the following years to 0.1930 in 2021 and -0.0385 in 2022. In healthcare industry companies in Thailand, the average *growth opportunity* was 0.5082 in 2019 and then decreased in the following years, namely 0.4409 in 2020, to 0.3019 in 2021 and 0.0119 in 2022. In the healthcare industry companies in Vietnam, the average *growth opportunity* was 0.6418 in 2019, and then decreased to 0.0595 in 2020 and 0.0196 in 2021. In 2022, it increased to 0.6348.

If you look at the picture above, then in 2020, except in Malaysia, health industry companies in other countries experienced a decrease in the average *growth opportunity value*. In 2021, except in Indonesia, health industry companies in other countries experienced a decrease in the average *growth opportunity value*. Meanwhile, in 2022, except in Indonesia and Vietnam, health industry companies in other countries experienced a decrease in the average *growth opportunity value*.

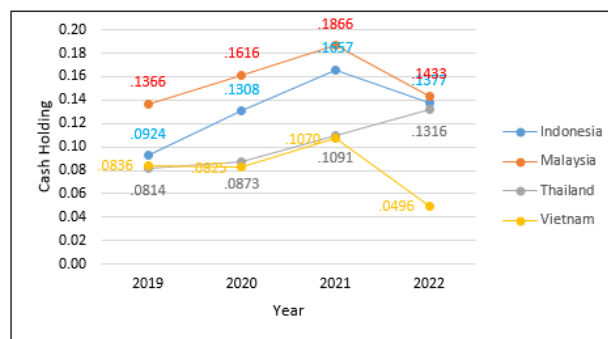


Figure 4.5 Average Cash Holding Value Chart of Industrial Companies Health in Indonesia, Malaysia, Thailand, and Vietnam 2019 – 2022

Figure 4.5 shows that the average *cash holding value* of healthcare industry companies in Indonesia, in 2019 was 0.0924 and increased to 0.1308 in 2020 and 0.1657 in 2021. In 2022, the average *cash holding value* decreased to 0.1377. The average *cash holding value* of healthcare industry companies in Malaysia, in 2019 was 0.1366 and increased to 0.1616 in 2020 and 0.1866 in 2021. In 2022, the average *cash holding value* decreased to 0.1433. The average *cash holding value* of healthcare industry companies in Thailand, in 2019 was 0.0814 and increased to 0.0873 in 2020 and 0.1091 in 2021, and 0.1316 in 2022. The average *cash holding value* of healthcare industry companies in Vietnam, in 2019 was 0.0836 and according to became 0.0825 in 2020. In 2021, the average *cash holding value* increased to 0.1070 and decreased in 2022 to 0.0496.

If you look at the picture above, then in 2020, except in Vietnam, health industry companies in other countries experienced an increase in the average value of *cash holding*. In 2022, health industry companies in all countries studied experienced an increase in the average value of *cash holding*.

Meanwhile, in 2022, except in Thailand, health industry companies in other countries studied experienced a decrease in the average value of *cash holding*.

4.2 DATA ANALYSIS

Data analysis in this study was conducted on each country, namely Indonesia, Malaysia, Thailand, and Vietnam. Hypothesis testing is conducted using a selected model that is free from classical assumptions. The results can be described as follows:

Results of Selected Estimation Model Analysis

Variables	Reg resi coefficient	SE	t	Prob.
Indonesia (REM Box-Cox Transformation $\lambda= 0.5$)				
C	0.262728	0.049329	5.325994	0.0000
CONS	-0.049224	0.041062	-1,198787	0.2344
LEV	0.172930	0.115738	1.494150	0.1393
PROF	0.003683	0.001293	2.849295	0.0057
GOP	-0.019964	0.011558	-1.727348	0.0882
Malaysia (FEM)				
C	0.172109	0.032304	5,327822	0.0000
CONS	-0.119485	0.055352	-2,158615	0.0352
LEV	-0.109790	0.082400	-1.332409	0.1881
PROF	0.003292	0.000832	3.955686	0.0002
GOP	0.010389	0.042198	0.246187	0.8064
Thailand (Box-Cox transformation REM $\lambda= -0.05$)				
C	5.019032	0.483000	10.39136	0.0000
CONS	-0.296676	0.369998	-0.801831	0.4244
LEV	0.792867	0.794520	0.997920	0.3205
PROF	-0.075125	0.012529	-5.996064	0.0000
GOP	0.525443	0.094179	5,579210	0.0000
Vietnam (FEM Box-Cox transformation $\lambda= -1$)				
C	90.45748	329,5906	0.274454	0.7850
CONS	-9,264630	537,6824	-0.017231	0.9863
LEV	31.05177	185,0472	0.167805	0.8675
PROF	-0.007752	0.407421	-0.019028	0.9849
GOP	1.258135	46,30370	0.027171	0.9784

Dependent Variable: *Cash Holding*

Source: Data analysis, 2024

Based on tables 4.67, 4.68, and 4.69, the following hypothesis tests were carried out:

4.2.1 First Hypothesis Testing.

The first hypothesis is the influence of financial constraints on *cash holding*. The results of research on health industry companies in Indonesia, obtained a t value of -1.198787 and a probability of 0.2344. Based on probability > 0.05 , it is concluded that *financial constraints* do not affect *cash holding* in health industry companies in Indonesia. The results of research on health industry companies in Malaysia, obtained a t value of -2.158615 and a probability of 0.0352. Based on the negative t value and probability < 0.05 , it is concluded that *financial constraints* have a negative effect on *cash holding* in healthcare industry companies in Malaysia.

The results of the study on health industry companies in Thailand, obtained a t value of -0.801831 and a probability of 0.4244. Based on the probability value > 0.05 , it is concluded that *financial constraints* do not affect *cash holding* in health industry companies in Thailand. The results of the study on health industry companies in Vietnam, obtained a t value of -0.017231 and a probability of

0.9863. Based on the probability value > 0.05 , it is concluded that *financial constraints* do not affect *cash holding* in healthcare industry companies in Vietnam.

Based on the test results above, it is concluded that *financial constraints* have a negative effect on *cash holding* in health industry companies in Malaysia. Meanwhile, in health industry companies in Indonesia, Thailand, and Vietnam, *financial constraints* do not affect *cash holding*.

4.2.2 Second Hypothesis Testing

The second hypothesis is the effect of *financial leverage* on *cash holding*. The results of research on health industry companies in Indonesia, obtained a t value of 1.494150 and a probability of 0.1393. Based on probability > 0.05 , it is concluded that *financial leverage* has no effect on *cash holding* in health industry companies in Indonesia. The results of the study on health industry companies in Malaysia, obtained a t value of -1.332409 and a probability of 0.1881. Based on the probability value > 0.05 , it is concluded that *financial leverage* has no effect on *cash holding* in healthcare industry companies in Malaysia.

The results of the study on health industry companies in Thailand, obtained a t value of 0.997920 and a probability of 0.3205. Based on the probability value > 0.05 , it is concluded that *financial leverage* has no effect on *cash holding* in health industry companies in Thailand. The results of the study on health industry companies in Vietnam, obtained a t value of 0.167805 and a probability of 0.8675. Based on the probability value > 0.05 , it is concluded that *financial leverage* has no effect on *cash holding* in health industry companies in Vietnam. Based on the test results above, it is concluded that *financial leverage* has no effect on *cash holdings* in healthcare industry companies in all countries studied.

4.2.3 Third Hypothesis Testing

The third hypothesis is the effect of *profitability* on *cash holding*. The results of research on health industry companies in Indonesia, obtained a t value of 2.849295 and a probability of 0.0057. Based on the positive t value and probability < 0.05 , it is concluded that *profitability* have a positive impact on *cash holding* in health industry companies in Indonesia. The results of research on health industry companies in Malaysia, obtained a t value of 3.955686 and a probability of 0.0002. Based on the positive t value and probability < 0.05 , it is concluded that *profitability* have a positive impact on *cash holding* in healthcare industry companies in Malaysia.

The results of the study on health industry companies in Thailand, obtained a t value of -5.996064 and a probability of 0.0000. Based on the negative t value and probability < 0.05 , it is concluded that *profitability* negatively affect *cash holding* in health industry companies in Thailand. The results of the study on health industry companies in Vietnam, obtained a t value of -0.019028 and a probability of 0.9849. Based on the probability value > 0.05 , it is concluded that *profitability* has no effect on *cash holding* in health industry companies in Vietnam. Based on the test results above, it is concluded that *profitability* has a positive effect on *cash holding* in health industry companies in Indonesia and Malaysia, and has a negative effect on health industry companies in Thailand. Meanwhile, in health industry companies in Vietnam, *profitability* has no effect on *cash holding*.

4.2.4 Fourth Hypothesis Testing

The fourth hypothesis is the influence of *growth opportunity* on *cash holding*. The results of research on health industry companies in Indonesia, obtained a t value of -1.727348 and a probability of 0.0882. Based on the probability value > 0.05 , it is concluded that *growth opportunity* has no effect on *cash holding* in health industry companies in Indonesia. The results of research on health industry companies in Malaysia, obtained a t value of 0.246187 and a probability of 0.8064. Based on the probability value > 0.05 , it is concluded that *growth opportunity* has no effect on *cash holding* in healthcare industry companies in Malaysia.

The results of the study on health industry companies in Thailand, obtained a t value of 5.579210 and a probability of 0.0000. Based on the positive t value and probability < 0.05 , it is concluded that *growth opportunity* has a positive effect on *cash holding* in health industry companies in Thailand.

The results of the study on health industry companies in Vietnam, obtained a t value of 0.027171 and a probability of 0.9784. Based on the probability value > 0.05 , it is concluded that *growth opportunity* has no effect on *cash holding* in health industry companies in Vietnam. Based on the test results above, it is concluded that *growth opportunity* has a positive effect on *cash holding* in healthcare industry companies in Thailand, and has no effect on healthcare industry companies in other countries studied.

4.3 DISCUSSION

4.3.1 The impact of financial constraints on cash holdings

The research results showed that *financial constraints* had a negative effect on *cash holding* in health industry companies in Malaysia. Meanwhile, in health industry companies in Indonesia, Thailand, and Vietnam, *financial constraints* do not affect *cash holding*. *Financial constraints* have a negative impact on *cash holding* in healthcare industry companies in Malaysia. This means that when companies experience financial constraints, they tend to reduce the amount of cash they hold. *Financial constraints* do not have a significant impact on *cash holdings* in healthcare industry companies in these countries. This suggests that despite financial constraints, firms in these three countries have not changed their cash holding policies.

When facing financial constraints, companies prioritize using funds for operational purposes or other important investments rather than holding cash. This can happen because they need higher cash flow to maintain business continuity amidst resource constraints. Companies experiencing *financial constraints* may have limited access to capital markets or other external sources of funding. Therefore, they tend to use existing cash to finance urgent needs, rather than hoarding unproductive cash.

In the study (Shah et al., 2020) stated that the Malaysian Government allocated a large budget in the economic stimulus package, including the PRIHATIN package, which includes funds for the health sector. This includes the procurement of medical equipment, improving health infrastructure, and supporting health workers. Economic stimulus packages, such as PRIHATIN, which provides significant funding for the health sector, can help companies facing *financial constraints* by providing direct or indirect financial support. This support can reduce the need for companies to hold large amounts of cash as liquidity reserves. As a result, firms with *financial constraints* may feel safer reducing their *cash holdings* because they have access to additional resources from the government.

Economic stimulus can increase market confidence and improve credit conditions, allowing *financially constrained companies* to gain easier access to external capital. With better access to external capital, companies do not need to hold as much cash as reserves, thereby reducing their *cash holdings*. This is supported by research by Ramachandran et al., 2022 and Shah et al., 2020 which states that some of the mentioned financing initiatives, such as automation and digitization facilities for SMEs, can involve third-party investors who are interested in investing in technology and innovation that can help businesses adapt to the new challenges faced during the pandemic.

4.3.2 The effect of leverage on cash holding

The research results showed that *leverage* had no effect on *cash holdings* in healthcare industry companies in all countries studied. Companies in these countries have relatively easy and affordable access to external funding sources, such as bank loans or bonds, so they do not feel the need to hold large amounts of cash as reserves for debt payments. As a result, the level of *leverage* does not have a direct impact on *cash holdings* (Y. Chen, Zhu, & Yi, 2022).

During the COVID-19 pandemic, many governments in Southeast Asia, including Indonesia, Malaysia, and Thailand, provided significant financial support to the healthcare sector. This included subsidies, cash assistance, and stimulus packages that helped healthcare companies maintain their liquidity despite facing high *leverage levels*. With this support, companies did not need to increase their *cash holdings* despite their high *leverage*.

Amid the pandemic, many banks and financial institutions are providing credit facilities with more lenient terms to companies in the health sector because of the importance of this sector in dealing with the crisis. With easier access to credit, companies can feel more secure using existing cash for operational or investment needs, without having to worry about their *leverage*. (Tahu & Yuesti, 2023).

4.3.3 Influence of *profitability* against *cash holding*

The research results showed that *profitability* had a positive effect on *cash holding* in health industry companies in Indonesia and Malaysia, and has a negative effect on health industry companies in Thailand. Meanwhile, in health industry companies in Vietnam, *profitability* has no effect on *cash holding*.

More profitable companies have stronger internal cash flows. With high profitability, companies tend to generate more net income, which in turn increases their liquidity. In this situation, companies may choose to retain some of these profits as cash to deal with future uncertainties or for short-term operational needs. Thorbecke's (2023) Indonesian economy has a long history of steady growth punctuated by times of turmoil and crisis. Recently Indonesia has faced the COVID-19 pandemic, inflation, contractionary U.S. monetary policy, and fluctuating commodity prices. To examine how the economy is faring since the pandemic began, this paper compares sectoral stock returns since COVID-19 hit the Indonesian economy with forecasted returns based on macroeconomic variables. The results indicate that coal, iron and steel, health care, and pharmaceuticals are outperforming more than three years after the coronavirus crisis began. Tobacco, industrials, and sectors related to construction are underperforming. The regression evidence also indicates that Indonesian sectors are primarily exposed to the Indonesian stock market. Coal, iron and steel and natural resources stocks are less exposed to the Indonesian stock market and more exposed to the world stock market. Almost no sectors exhibit exposure to contractionary U.S. monetary policy. The importance of the Indonesian stock market in explaining stock returns reflects the fact that the Indonesian economy is largely driven by domestic demand. To increase its resilience, Indonesia should also nurture labor-intensive exports states that the health sector in Indonesia contributes to Indonesia's economic growth, and its good performance reflects the public's need for quality health services. This sector also shows resilience to economic shocks caused by the pandemic. This shows that there is high profitability in Indonesia. With high profitability, companies have greater financial flexibility to hold more cash without having to rely too much on external funding sources. This provides an advantage in responding to sudden needs or taking market opportunities quickly, especially in crisis situations such as the COVID-19 pandemic.

Profitability negatively impacts healthcare industry companies in Thailand. Many companies in Thailand increased their cash holdings in response to the economic uncertainty caused by the pandemic. With social restrictions and business closures, companies are trying to maintain liquidity to survive the difficult situation. (Srisathan & Naruetharadhol, 2022). In addition, more profitable companies may see the pandemic as an opportunity to adapt quickly, for example by investing in digital technology or remote healthcare services. In this case, the company will use cash more for growth opportunities that arise from market changes, rather than maintaining high liquidity.

Profitability has no effect on cash holding in Vietnam. Ho et al.'s study, 2021, stated that the healthcare sector did not experience the same significant risk fluctuations as other sectors that were more affected by lockdown policies and changes in consumer behavior. The Vietnamese government's policies towards the healthcare sector, including tax incentives, subsidies, or regulations that support companies in dealing with the COVID-19 pandemic, may have contributed to a situation where companies did not feel the need to hold much cash as reserves. The government may have provided sufficient support to ensure business continuity, so that the level of profitability did not have a direct impact on cash holdings.

The influence of *growth opportunities* against *cash holding*

The research results showed that *growth opportunities* have a positive effect on *cash holdings* in healthcare industry companies in Thailand, and had no effect on healthcare industry companies in other countries studied. This reflects the company's strategy to maintain high liquidity in order to take advantage of existing growth opportunities, while maintaining their flexibility and financial security in the face of uncertainties and risks associated with such growth. In Srisathan & Naruetharadhol, 2022, Thailand is known as one of the countries that responded quickly to the COVID-19 pandemic. The government implemented preventive measures such as mass testing, contact tracing, and quarantine to control the spread of the virus. Thailand's healthcare sector is investing in research and innovation to develop new solutions to tackle COVID-19, including the development of vaccines and therapeutics. This suggests that growth opportunities arising from the pandemic, such as increased demand for certain healthcare products or new medical technologies, may prompt companies to increase their *cash holdings* in preparation for expansion or innovation.

CONCLUSION AND SUGGESTION

Conclusion

Based on the research results that have been explained, the following are the conclusions obtained:

Financial constraints have a negative impact on *cash holding* in healthcare industry companies in Malaysia. *financial constraints* have no effect on *cash holding* in healthcare industry companies in Indonesia, Thailand, and Vietnam.

Financial leverage has no effect on *cash holding* in health industry companies in Indonesia, Malaysia, Thailand and Vietnam.

Profitability has a positive effect on *cash holding* in health industry companies in Indonesia and Malaysia, and has a negative effect on health industry companies in Thailand. Meanwhile, in health industry companies in Vietnam, *profitability* has no effect on *cash holding*.

Growth opportunities have a positive effect on *cash holdings* in healthcare industry companies in Thailand, and have no effect on healthcare industry companies in Indonesia, Malaysia, and Vietnam.

Suggestion

Based on the research results showing differences in the influence of financial factors on cash holding in the healthcare industry sector in Indonesia, Malaysia, Thailand, and Vietnam, here are some suggestions that can be taken:

1. For Healthcare Company Management:

- Malaysia : As financial constraints negatively affect cash holding, companies in Malaysia should be more proactive in planning for long-term liquidity. It is recommended that they expand their financing sources, either through equity or debt with more favorable terms, to avoid financial stress that could reduce cash reserves.

- Indonesia, Thailand, and Vietnam: Although financial constraints do not have a significant impact, companies in these three countries should still pay attention to good cash flow management, especially when facing uncertain economic conditions. Diversifying funding sources can also be an important strategy.

- Profitability and Liquidity Management: In Indonesia and Malaysia, profitability has a positive effect on cash holding indicating that more profitable companies tend to have higher cash reserves. Management needs to balance between holding cash for liquidity and using cash for investment or expansion. In Thailand, since profitability has a negative effect on cash holding, more profitable companies should focus more on investing for growth rather than holding excess cash. Management may consider allocating cash for reinvestment or distribution to shareholders.

- Thailand and Growth Opportunity: Since growth opportunities have a positive effect on cash holding in Thailand, companies should plan financial strategies that allow them to take advantage of growth opportunities by preparing adequate cash reserves. Companies should evaluate each growth opportunity in depth so that cash holding decisions can be in line with expansion strategies.

2. For Policy Makers and Regulators:

- Financial Regulation and Capital Access: In countries like Malaysia, where financial constraints affect cash holdings, the government and financial institutions may consider providing incentives or funding programs that support the healthcare sector. Facilitating access to low-interest financing sources or providing credit facilities for the healthcare sector can help companies maintain better liquidity.

- Supporting Growth in Thailand: Since growth opportunity has a positive effect on cash holding in Thailand, policymakers should create a supportive business environment, such as fiscal policies that make it easier for companies to gain access to capital and expand their businesses.

- Regional Policy Coordination: Given the differences in the impact of financial factors on cash holdings across countries, ASEAN policymakers could consider coordinating to create more harmonized financial standards and regulations. This would help companies in the region access capital more easily and drive cross-border growth.

3. For Further Researchers:

- A Deeper Comparative Study: It is recommended to conduct further research on other factors that may influence cash holding in the healthcare industry, such as market volatility, monetary policy, or differences in financial management culture in each country.

- Impact of Global Crisis: Further research could explore how global crises (e.g., the COVID-19 pandemic) affect corporate cash holding decisions in ASEAN countries, as well as whether these impacts differ based on the country's financial condition, access to financing, or economic stability.

- Other Industry Analysis: Given that these results are limited to the healthcare sector, additional research looking at other sectors could provide a broader picture of the relationship between financial factors and cash holdings across industries.

REFERENSI

- Akben-Selcuk, E., & Altioek-Yilmaz, A. (2017). Determinants of corporate cash holdings: Firm level evidence from emerging markets. *Global Business Strategies in Crisis*. https://doi.org/10.1007/978-3-319-44591-5_28
- Alvarez, F., & Argente, D. (2022). Cash-management in times of Covid-19. *The BE Journal of Macroeconomics*, 22(1), 89–129.
- Arfan, M., Basri, H., Handayani, R., Shabri, M., & ... (2017). Determinants of cash holding of listed manufacturing companies in the Indonesian stock exchange. *DLSU Business and ...*. Retrieved from <http://www.dlsu.edu.ph/wp-content/uploads/2019/03/1arfan-012517.pdf>
- Bae, J., & Kang, J. (2023). The role of labor in cash holdings: Evidence from the supply-side impact of COVID-19. *Economics Letters*, 224, 111034.
- Basuki, A. T., & Yuliadi, I. (2015). *Electronic Data Processing (SPSS 15 dan Eviews 7)*. Yogyakarta: Danisa Media.
- Chen, X., & Wang, Y. (2022). Research on financing efficiency of China's strategic emerging industries based on super efficiency DEA and tobit model. *International Journal of Emerging Markets*, 17(2), 485–504. <https://doi.org/10.1108/IJOEM-02-2020-0188>
- Chen, Y., Zhu, L., & Yi, Z. (2022). Operating leverage and corporate cash holdings: evidence from China. *Asia-Pacific Journal of Accounting and Economics*. <https://doi.org/10.1080/16081625.2022.2047742>
- Cheryta, A. M., Moeljadi, M., & Indrawati, N. K. (2018). Leverage, Asymmetric Information, Firm Value, and Cash Holdings in Indonesia. *Jurnal Keuangan Dan Perbankan*, 22(1), 83–93. <https://doi.org/10.26905/jkdp.v22i1.1334>

- Endri, E., Sulastri, S., Syafarudin, A., & ... (2020). Determinants Cash Holding Of Coal Mining Companies Listed On The Indonesian Stock Exchange. *Academy of ...* Retrieved from <https://search.proquest.com/openview/85b372f40b179958bf9ae8f936722a04/1?pq-origsite=gscholar&cbl=38745>
- Gadsden, T., Ford, B., Angell, B., Sumarac, B., de Oliveira Cruz, V., Wang, H., ... Jan, S. (2022). Health financing policy responses to the COVID-19 pandemic: a review of the first stages in the WHO South-East Asia Region. *Health Policy and Planning*, 37(10), 1317–1327.
- Guizani, M. (2017). The financial determinants of corporate cash holdings in an oil rich country: Evidence from Kingdom of Saudi Arabia. *Borsa Istanbul Review*, 17(3), 133–143.
- Gujarati, D. (2012). *Econometrics by Example*. New York: Palgrave Macmillan.
- Harahap, S. S. (2016). *Analisis Kritis atas Laporan Keuangan*. Jakarta: RajaGrafindo Persada.
- Hidayat, R. (n.d.). *KEPUTUSAN INVESTASI DAN FINANCIAL CONSTRAINTS: STUDI EMPIRIS PADA BURSA EFEK INDONESIA*. 1, 457–479.
- Ho, C. M., Pham, T. T., Nguyen, H. L. P., & Vo, D. H. (2021). Does the COVID-19 pandemic matter for market risks across sectors in Vietnam? *Heliyon*, 7(12), e08453. <https://doi.org/10.1016/j.heliyon.2021.e08453>
- John Erhan Prasetyo Hermawan, & Riko Riandoko. (2021). Do Firms Facing Increases in Financial Constraints Tend To Generate Cash Through Tax Avoidance? Empirical Evidence From Indonesia Publicly Listed Firms. *Scientax*, 2(2), 232–247. <https://doi.org/10.52869/st.v2i2.62>
- Kaye, A. D., Okeagu, C. N., Pham, A. D., Silva, R. A., Hurley, J. J., Arron, B. L., ... Gamble, J. W. (2021). Economic impact of COVID-19 pandemic on healthcare facilities and systems: International perspectives. *Best Practice & Research Clinical Anaesthesiology*, 35(3), 293–306.
- Koh, Y., & Lee, H. A. (2015). The effect of financial factors on firms' financial and tax reporting decisions. In *Asian Review of Accounting* (Vol. 23). <https://doi.org/10.1108/ARA-01-2014-0016>
- Liestyasih, L. P. E., & Wiagustini, L. P. (2017). Pengaruh Firm Size Dan Growth Opportunity Terhadap Cash Holding Dan Firm Value. *E-Jurnal Ekonomi Dan Bisnis Universitas Udayana*, 10, 3607. <https://doi.org/10.24843/eeb.2017.v06.i10.p07>
- Malikussaleh, U., Khaddafi, M., & Malikussaleh, U. (2016). *Influence Analysis of Return on Assets (ROA), Return on Equity (ROE), Net Profit Margin (NPM), Debt To Equity Ratio (DER), and current ratio (CR), Against Corporate Profit Growth In Automotive In Indonesia Stock Exchange*. (January). <https://doi.org/10.6007/IJARBSS/v4-i12/1331>
- Manajemen, J., Mempengaruhi, F., Holding, C., Trisanti, N., & Lestari, H. S. (2022). *J-MAS*. 7(2), 582–585. <https://doi.org/10.33087/jmas.v7i2.462>
- Morais, F., Nave, A., & Rodrigues, R. G. (2019). *Cash holdings determinants from Brazilian listed firms* (Vol. 505, pp. 1043–1050; V. G., M. J., & S. F., Eds.). Vol. 505, pp. 1043–1050. https://doi.org/10.1007/978-3-319-91334-6_144
- Muaja, M., Maramis, J. B., & Jan, A. H. (2023). Pengaruh Konsentrasi Kepemilikan, Firm Size, Stock Liquidity, Leverage dan Investment Opportunity Set Terhadap Cash Holding Pada Perusahaan Perbankan Yang Terdaftar di Bursa Efek Indonesia Periode 2020-2022. *Jurnal EMBA: Jurnal Riset Ekonomi, Manajemen, Bisnis Dan Akuntansi*. Retrieved from <https://api.semanticscholar.org/CorpusID:265363353>
- Nenu, E. A., & Vintilă, G. (2017). An analysis regarding cash holdings. Empirical study on the bucharest stock exchange listed firms. *Scientific Annals of Economics and Business*, 64(3), 289–306. <https://doi.org/10.1515/saeb-2017-0019>
- Nguyen, T. L. H., Nguyen, L. N. T., & Le, T. P. V. (2016). Firm Value, Corporate Cash Holdings and Financial Constraint: A Study from a Developing Market. *Australian Economic Papers*, 55(4), 368–385. <https://doi.org/10.1111/1467-8454.12082>
- Nhan, D. T. T., Vu, N. M., Ha, P., & Pavelková, D. (2017). The prestige of tock exchanges and corporate cash holding in transition economies: A study on vietnamese listed firms. *Investment Management and Financial Innovations*, 14(3), 199–209. [https://doi.org/10.21511/imfi.14\(3-1\).2017.04](https://doi.org/10.21511/imfi.14(3-1).2017.04)

- Osiichuk, D., & Mielcarz, P. (2020). The nonmonotonicity of cash-cash flow relationship : the role of uncertainty and financing constraints. *Economic Research-Ekonomska Istraživanja*, 0(0), 1–21. <https://doi.org/10.1080/1331677X.2020.1862687>
- Oum, S., Kates, J., & Wexler, A. (2022). Economic impact of COVID-19 on PEPFAR countries. *KFF Global Health Policy*.
- Pangulu, A. L., & Maski, G. (2014). Pengaruh profitabilitas, growth opportunity, dan struktur modal terhadap nilai perusahaan (studi pada perusahaan perbankan yang terdaftar di BEI Periode 2011-2013). *Jurnal Ilmiah Mahasiswa FEB*, 3(1).
- Prawitasari, P. P. (2023). PENGARUH PROFITABILITAS, LEVERAGE DAN FIRMS SIZE, TERHADAP CASH HOLDING PADA PERUSAHAAN MANUFAKTUR YANG TERDAFTAR DI BEI TAHUN 2017-2019. *Jurnal AKTUAL*. Retrieved from <https://api.semanticscholar.org/CorpusID:265224547>
- Primasari, N. S., & Wahyuningtyas, E. T. (2020). *Earning management and cash holding as window dressing moderation for past financial performance with f-score analysis (Studies non-banking sector companies in indonesia capital market)*. (August). Retrieved from <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85096535743&partnerID=40&md5=7080b999d2c493b43b652167df45b065>
- Ramachandran, J., Kannan, Y. H., & Benjamin, S. J. (2022). Excess cash holding and audit pricing: a further consideration of precautionary motives and other factors. *Meditari Accountancy Research*. <https://doi.org/10.1108/MEDAR-10-2021-1456>
- Romadhoni, R., Kufepaksi, M., & Hendrawaty, E. (2019). Faktor-Faktor yang Mempengaruhi Cash Holding Perusahaan yang Listing di Bursa Efek Indonesia Tahun 2013-2017. *The Manager Review*, 1(2), 124–139. <https://doi.org/10.33369/tmr.v1i2.9328>
- Setiawan, R., & Rachmansyah, A. (2019). Firm characteristics, macroeconomic variables and cash holdings in Indonesia and Singapore. *International Journal of Innovation, Creativity and Change*, 9(8), 265–286. Retrieved from <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078900743&partnerID=40&md5=7f0760de9416cbb826c20f8af690ebff>
- Shah, A. U. M., Safri, S. N. A., Thevadas, R., Noordin, N. K., Rahman, A. A., Sekawi, Z., ... Sultan, M. T. H. (2020). COVID-19 outbreak in Malaysia: Actions taken by the Malaysian government. *International Journal of Infectious Diseases*, 97, 108–116. <https://doi.org/10.1016/j.ijid.2020.05.093>
- Shubita, M. F. (2020). The impact of capital structure and cash holdings on firm value: An empirical study on jordanian industrial listed companies. *Jordan Journal of Business Administration*, 16(1), 53–68. Retrieved from <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104924433&partnerID=40&md5=a3df39ab6bd4a2d6f68a6aef6bb4875e>
- Singh, K., & Misra, M. (2019). Financial determinants of cash holding levels: An analysis of Indian agricultural enterprises. *Agricultural Economics (Czech Republic)*, 65(5), 240–248. <https://doi.org/10.17221/240/2018-AGRICECON>
- Srisathan, W. A., & Naruetharadhol, P. (2022). A COVID-19 disruption: The great acceleration of digitally planned and transformed behaviors in Thailand. *Technology in Society*, 68, 101912. <https://doi.org/10.1016/j.techsoc.2022.101912>
- Sudana, I. M., Imaniar, F. B., Sasikirono, N., & Singh, S. K. (2019). Diversification and cash holdings: Comparison between Indonesia and the Netherlands firms. *International Journal of Monetary Economics and Finance*, 12(2), 133–151. <https://doi.org/10.1504/IJMEF.2019.100265>
- Suk, K. S., Haryanto, M., & Purba, J. T. (2019). Cash holdings of business group-affiliated firms in Indonesia. *DLSU Business and Economics Review*, 29(1), 40–57. Retrieved from <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85070314799&partnerID=40&md5=977b457b0bdcd97c34f5d021054d5345>
- Tahu, G. P., & Yuesti, A. (2023). Determinant Factor of Firm value in Covid-19 Pandemic: Role of Dividend Policy as Mediating Variable. *JPPi (Jurnal Penelitian Pendidikan Indonesia)*, 9(2), 1008–1018. <https://doi.org/10.29210/020231799>

- Thanatawee, Y. (2019). Alignment or entrenchment? Evidence from cash holdings in Thailand. *Afro-Asian Journal of Finance and Accounting*, 9(3), 291–308. <https://doi.org/10.1504/AAJFA.2019.100978>
- Thu, P. A., & Khuong, N. V. (2018). Factors effect on corporate cash holdings of the energy enterprises listed on vietnam's stock market. *International Journal of Energy Economics and Policy*, 8(5), 29–34.
- Wei, T., Wu, Y., & Yang, X. (2022). The Impact of COVID-19 on Medical-related American Stocks. *2022 7th International Conference on Financial Innovation and Economic Development (ICFIED 2022)*, 2035–2040. Atlantis Press.
- Widarjono, A. (2007). *Ekonometrika: Teori dan Aplikasi untuk Ekonomi dan Bisnis*. Yogyakarta: Ekonisia FE UII Yogyakarta.
- Wieczorek-Kosmala, M., Błach, J., & Trzęsiok, J. (2018). Analysis of bankruptcy threat for risk management purposes: A model approach. *International Journal of Financial Studies*, 6(4). <https://doi.org/10.3390/ijfs6040098>
- Yudaruddin, R. (2019). Determinants of corporate cash holdings: Evidence of the mining sector in indonesia. *International Journal of Scientific and Technology Research*, 8(10), 1523–1526. Retrieved from <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85074333099&partnerID=40&md5=8242afde2d5e1a59254ec5375916be27>
- Yun, J., Ahmad, H., Jebran, K., & ... (2021). Cash holdings and firm performance relationship: Do firm-specific factors matter? *Economic Research* <https://doi.org/10.1080/1331677X.2020.1823241>
- Zhang, D., Tong, Z., & Li, Y. (2020). The role of cash holding towards cleaner production in China's manufacturing sectors: A financial constraint perspective. *Journal of Cleaner Production*, 245, 118875. <https://doi.org/10.1016/j.jclepro.2019.118875>
- Zhang, H., Zhang, Y., Zhou, S., & He, Y. (2020). Corporate Cash Holdings and Financial Constraints — An Analysis Based on Data on China at Company Level after the Global Financial Crisis. *Emerging Markets Finance and Trade*, 56(7), 1490–1503. <https://doi.org/10.1080/1540496X.2019.1603105>