



# Governance and Financial Constraints as Moderating the Relationship Between Cash Holdings and Firm Value

Adilah Permananingrum <sup>1</sup>

<sup>1</sup>National University, Jakarta, Indonesia  
adilahpermana@gmail.com

**Abstract.** The relationship between the ideal amount of cash a company holds and the firm value produces varying results. This research, therefore, contributes to this relationship by looking at the role of corporate governance and financial constraints. The sample was taken using a purposive sampling technique, and a company sample of 219 companies was obtained with an observation period of 10 years (2012-2021 period). The analysis used is the Ordinary Least Square (OLS) estimation method with the help of STATA 15.1. The results support the agency theory that excess cash the company holds reduces firm value. None of the governance variables significantly moderate cash holding and firm value. In contrast to the company's financial condition, a company increasingly experiencing financial constraints will strengthen the decreasing effect of increased cash holding on firm value. Companies must try to set cash holdings in an ideal amount, not to reduce firm value. Likewise, companies must also try to prevent financial constraints from occurring in order to maintain firm value stability.

**Keywords:** Cash holdings; Financial constraint; Firm value; Good governance.

## 1 Introduction

In carrying out their activities, companies always need cash holdings as a transaction, precautionary, or speculation motive. Asymmetric information and agency costs trigger problems when companies need cash holdings (Opler et al., 1999), resulting in problems with the composition of cash holdings (CH). The consequence of cash holdings is flexibility in increasing agency conflict, which leads to managers as agents having more policies to accumulate cash holdings than shareholders (Habib et al., 2021). Managers as agents and shareholders as principals differ in seeing the benefits and costs of cash holdings (Asante-Darko et al., 2018). Trade-offs in the cash holdings determinant theory can identify cash holdings in terms of shareholder prosperity (Frésard et al., 2007) so that when the costs and benefits of cash holdings are optimal, it will increase the firm value (TQ). Firm value will decrease if cash holdings are above or below the optimal level (Afifa et al., 2021).

Agency theory explains that managers prefer CH beyond the company's operational needs to maximize personal gain, which reduces the firm value so the manager can take over the company (Vo, 2018). The implications of agency theory are governance (Luo & Hachiya, 2005) and financial constraints (FC) (Zhang et al., 2020). Maximum governance will ensure efficiency in CH so that the company has optimal assets, resulting in increased firm value (Zhang et al., 2020). Governance reflected in ownership, such as managerial, institutional, and foreign ownership, is often cited as a moderator of the CH-firm value relationship (Theissen et al., 2023). However, the results of these moderation studies still vary widely. Managerial ownership does not moderate the relationship between CH and TQ (Novares et al., 2018). In contrast, according to Sumiati (2020), managerial ownership weakens the influence of CH and TQ. In institutional ownership and foreign ownership, foreign ownership increases cash holdings (Ilyas et al., 2022; Vo, 2018), and this excess cash holding is driven by good governance of foreign ownership due to high investor protection (Ilyas et al., 2022).

Foreign ownership increases cash holdings, which increases firm value, especially in companies that are unlikely to experience financial constraints (Ilyas et al., 2022). This statement suggests that financial constraints on companies will weaken or strengthen the firm value-cash holdings relationship (Nguyen et al., 2016). Companies with financial constraints cannot access equity from third parties (Opler et al., 1999), so companies must maintain cash holdings. Companies with financial constraints should have high cash holdings because this can reduce agency conflicts and restrain managerial behavior that enriches themselves (Afifa et al., 2021).

From a cash-holding perspective, managers' and shareholders' motivation is a unique and severe problem because it influences firm value. Scholars have researched the connection between cash holdings and firm value, and these results can be positive (Zen & Sofie, 2023), unrelated (Lismawati et al., 2022), or negative (Firmasnyah et al., 2020) to firm value (Theissen et al., 2023). These varying results can be due to the influence of existing interactions, such as governance (Theissen et al., 2023) and financial constraints (Nguyen et al., 2016). Previous research has also revealed that governance, as demonstrated by a good ownership structure, will be more positive for cash holdings in companies that experience more financial constraints (Chang et al., 2017). Furthermore, financial constraints influence the relationship between CH and firm value (Ilyas et al., 2022; Nguyen et al., 2016). Therefore, this research fills the gap by including two moderating variables, governance (proxied by ownership) and financial constraints in the cash holdings – firm value relationship.

## 2 Hypothesis Development

### 2.1 Cash Holdings and Firm Value

Agency theory emphasizes that excessive cash holdings in a company give managers the freedom to be out of control and tend to be self-interested, so management is less effective, and managers are often less innovative in their management (Theissen et al., 2023). Mitigating the risk of misuse results in missed opportunities to gain profits from investments (Habib et al., 2021). The decrease in cash holdings diverted to investment will become a return on investment and the company's non-operating income. The firm value increases as the company's non-operating income increases through fixed assets at book value (Zhang et al., 2020).

Yun et al. (2021) prove that cash holding must benefit shareholders because it will increase firm value. This company's appropriate proportion of cash holdings is a concern for cash-performance relationship research (Theissen et al., 2023). Several studies support that the smaller the company holding cash, the more significant the firm value increased, or it could be interpreted that the relationship between CH and TQ has a negative direction (Firmasnyah et al., 2020; Jabbouri & Almस्ताfa, 2021). This statement is per having large cash holdings, which means eliminating the company's opportunity to make a profit so that it will be actively related to its operational performance, and investors are very tied to the opportunity to make a profit (Aslam et al., 2019).

H1: Cash holding has a negative effect on firm value.

### 2.2 Governance: Ownership Structure

Managers tend to spend cash holdings for expansion to reduce future investment capacity (Jabbouri & Almस्ताfa, 2021). On the other hand, shareholders as principals have the authority to supervise managers who have the potential to commit fraud, which results in a decrease in firm value. Supervision activities by shareholders are an effort to improve corporate governance (Martínez-Sola et al., 2013). Sumiati (2020) found managerial ownership weakens the negative impact of cash holding on firm value. Meanwhile, foreign ownership is negative for cash holdings, and this increases firm value (Loncan, 2020). Luo and Hachiya (2005) prove that cash holding negatively affects firm value in companies with higher institutional ownership.

H2a: Institutional ownership weakens the negative influence of cash holding on firm value.

H2b: Managerial ownership weakens the negative influence of cash holding on company value.

H2c: Foreign ownership weakens the negative influence of cash holding on company

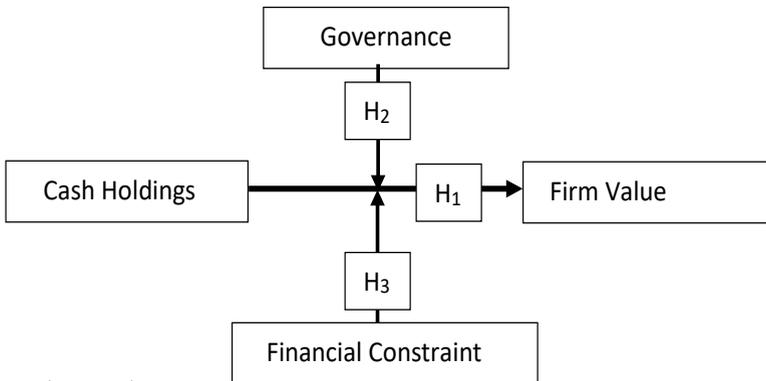
### 2.3 Financial Constraint

Zhang et al. (2020) prove that cash holding in companies with financial constraints weakens the relationship between cash holding and firm value. That is because companies with financial constraints view cash holding as very valuable. Companies with financial constraints are considered to need more capital, need access to the capital market, and have an unstable financial condition.

Faulkender et al. (2006) examined companies with financial constraints by focusing on agency conflicts by applying cash holding and firm value. Jabbouri and Almustafa (2021) found that agency conflicts occur when companies experience financial constraints with high risks and shareholders do not get the benefits of cash holding. That causes the company to experience a decline in value due to the lack of benefits from cash holding (La Rocca & Cambrea, 2019).

H3 Financial constraints weaken the negative influence of cash holding on firm value.

### 2.4 Research Model



Source: Author Work

Fig. 1. Research mode

## 3 Methodology

### 3.1 Sample and Data Collection

The sample in this research is company shares selected using purposive sampling and listed on the Indonesia Stock Exchange (BEI) during the 2012-2021 period. Data sources come from Thomson Reuters, financial reports, and Osiris. This research is quantitative, using panel data. The analysis technique in this research uses the STATA application version 15.1, and the estimation method uses Ordinary Least Square (OLS). In choosing an OLS estimation model, namely fixed effects, random effects, or pooled least squares, it is necessary to test which method will be chosen. This research chooses an estimation model with the OLS estimation method using the Lagrange Multiplier Test, Chow Test, and Hausman Test.

Table 1. Election Sample Study

Criteria	Amount
Total company Which recorded in BEI	810
Amount company finance	(105)
Amount company Which IPO after year 2012	(365)
Amount company Which No list ownership institutional	(121)
Amount company non finance in BEI Which active period 2012-2021	219
Period observation	10 year
Amount observation	2190

Source: data secondary and processed, 2022.

Table 1 shows a sample that has been chosen in a manner of purposive sampling. The data excludes the financial sector because this sector's calculations are different from other sectors, so data cannot be entered into the sample.

### 3.2 Measurement

The definition of operational variables in the study is mapped in the following table.

Variable	Proxy	Acronim	Estimation
Dependent	Firm Value	Tobin's Q (TQ)	$TQ_{i,t} = \frac{\text{market value}_{i,t}}{\text{book value}_{i,t}}$
where: market value $_{i,t}$ = equity market value $_{i,t}$ + liabilities market value $_{i,t}$ book value $_{i,t}$ = equity book value $_{i,t}$ + liabilities book value $_{i,t}$			
Independent	Cash Holding	CH	$CH_{i,t} = \frac{\text{cash}_{i,t} + \text{securities}_{i,t}}{\text{total asset}_{i,t}}$
	Governance	Institutional Ownership (KI)	$KI_{i,t} = \frac{\text{institutional ownership}_{i,t}}{\text{total stock}_{i,t}}$
		Managerial Ownership (KM)	$KM_{i,t} = \frac{\text{managerial ownership}_{i,t}}{\text{total stock}_{i,t}}$
		Foreign Ownership (KA)	$KA_{i,t} = \frac{\text{foreign ownership}_{i,t}}{\text{total stock}_{i,t}}$
Financial Constraint	FC	Use dummy variable to classified the constraint. <u>dummy 1 to company that have financial constraint.</u> <u>dummy 0 to company that didn't have financial constraint.</u>	

Variable	Proxy	Acronim	Estimation
Control	Profitability	Return on Asset (ROA)	$ROA_{i,t} = \frac{\text{earning after tax}_{i,t}}{\text{total asset}_{i,t}}$
	Investment Policy	INV	$INV_{i,t}$ = total asset from cash and expenditure <sub>i,t</sub>

3.3 Data analysis

Calculating financial constraints using multivariate classification objects in classify is a company's financial constraint or not (Kaplan & Zingales, 1997). The calculation Logistic regression aims to confirm whether the company is classified as affected by financial constraints or not. The equality used in Logistic regression:

$$L_0 = L_1 \frac{P_t}{1 - P_t} \quad M = \alpha + \beta_{ROA} ROA + \beta_{DPL} DPL + \beta_{SLACK} SLACK + \beta_{SL} SL + \varepsilon$$

Information:

- pi : probability financial constraints (in matter This dummy dividend)
- α And β : parameter constants and coefficients
- ROA : profit operation shared with total assets
- PLB : change in profit, dummy value 1 for positive, 0 for others slack ((cash And investment period short + supply + debt) – debt short term) divided by total assets)
- SL : profit detained shared total asset

This research model is formulated as follows:

$$TQ_{i,t} = \alpha_0 + \beta_{CH} CH_{i,t} + \beta_{CHKI} CH_{i,t} x KI_{i,t} + \beta_{CHKM} CH_{i,t} x KM_{i,t} + \beta_{CHKA} CH_{i,t} x KA_{i,t} + \beta_{CHFC} CH_{i,t} x FC_{i,t} + \beta_{ROA} ROA_{i,t}$$

4 RESULTS

This research first examines whether the company has or has no financial constraints with a multivariate classification of objects. Logistic regression test results for financial constraints are as follows:

Variable	Statistic test result
Constant	-0,252*** (0,089)
ROA	5,630*** (0,564)
PLB	-0,060 (0,088)
SLACK	1,088*** (0,166)
LD	0,355*** (0,067)
R-square	0,119
ObsDiv=0	989
ObsDiv=1	1156
Total obs	2145

Table 3 shows the company's financial constraints or not, which are proven by logistic regression. The following table explains the conclusion of financial constraint classification distinguished between predictions and observation.

**Table 4 Total Prediction and Observation of Financial Constraint Comparion**

Category	Low (1)	High (0)	Total
Prediction	1114	1076	2190
Observation	1156	989	2145

data secondary and processed, 2022.

Variables	Means	Median	Maximum	Minimum	Std. Dev	Obs
TQ	1.3445	0.9824	41.1291	0.0000	2.8751	2189
CH	0.1181	0.0572	0.9124	0.0000	0.1286	2189
KI	0.0554	0.0176	0.9673	0.0000	0.1087	2189
km	0.0341	0.0432	0.8123	0.0000	0.5433	2189
ka	0.0032	0.0123	0.0872	0.0000	0.3611	2189
FC_Div	0.5120	1,0000	1,0000	0.0000	0.4981	2189
FC_CF	0.4192	1,0000	1,0000	0.0000	0.4612	2189
FC_BM	0.2391	1,0000	1,0000	0.0000	0.4521	2189
FC_Debt	0.3310	1,0000	1,0000	0.0000	0.4816	2189
FC_total	0.4122	0.0001	1,0000	0.0000	0.4901	2189
ROA	0.0456	0.0452	17.9283	-3.5831	0.4046	2189
INV	0.1715	0.1421	0.9872	0.0000	0.1387	2189

Table 4 shows the difference in the number of predictions and observations related to dividend classification for companies with or without financial constraints. Kindly predict that the company amount, which owns a low dividend classification, with dummy value one, is 1114; however, it turns out that based on observations, the number is 1156. That shows that in terms of observations, low dividend classifications outnumber predictions. Whereas for classification dividend, which is tall, with mark dummy 0 shows that in prediction, the number is 1076, but in observation, it is lower, namely, 989.

Variable	Mean	Median	Maximum	Minimum	Std. Dev	Obs
TQ	1,3445	0,9824	41,1291	0,0000	2,8751	2189
CH	0,1181	0,0572	0,9124	0,0000	0,1286	2189
KI	0,0554	0,0176	0,9673	0,0000	0,1087	2189
KM	0,0341	0,0432	0,8123	0,0000	0,5433	2189
KA	0,0032	0,0123	0,0872	0,0000	0,3611	2189
FC_Div	0,5120	1,0000	1,0000	0,0000	0,4981	2189
FC_CF	0,4192	1,0000	1,0000	0,0000	0,4612	2189
FC_BM	0,2391	1,0000	1,0000	0,0000	0,4521	2189
FC_Debt	0,3310	1,0000	1,0000	0,0000	0,4816	2189
FC_total	0,4122	0,0001	1,0000	0,0000	0,4901	2189
ROA	0,0456	0,0452	17,9283	-3,5831	0,4046	2189
INV	0,1715	0,1421	0,9872	0,0000	0,1387	2189

Source: data secondary and processed, 2022.

**Table 5 Results Statistics Descriptive**

Source: data secondary and processed, 2022.

Table 5 gives results analysis of descriptive data from variables in this research. The TQ variable gives the company's performance state, reflecting firm value. Variables TQ shows that the firm value average is 1.3445. This value above 1,000 means the company has a good market performance ratio. The minimum and maximum TQ values for each are 0.000 and 41.1291, with a standard deviation of 2.8751. The standard deviation value is higher than the average value, meaning the data vary. Independent variables such as CH, KI, KM, and KA also have a standard deviation value higher than the average value, meaning the data vary.

This study uses Ordinary Least Square (OLS) estimation, and then we have to choose one of the model approaches in OLS, i.e., common, fixed, or random effects. We must use a method approach in estimating OLS panel data for test model estimate, namely the Chow Test, Lagrange Test Multiplier, or Haussman's Test. The LM test shows a smaller F value than alpha (0.024 < 0.050), so a random effect is chosen. Haussman's test shows a smaller F value than alpha (0.000 < 0.050), so a fixed effect is selected. The Chow test shows an F value smaller than alpha (0.000 < 0.050), so the chosen fixed effect. So, the study uses a fixed effects approach.

**Table 6 Statistic Test Result**

Variabel	Coef (t-statistic)
Constant	1.087*** (14.008)
CH	-2.079*** (-2.757)
CH*KI	0.091 (0.181)
CH*KM	0.986 (1.982)
CH*KA	2.097 (1.901)
CH*FC	14.627*** (2.918)
ROA	-0.219** (-2.762)
INV	1.892*** (3.186)
<b>Obs.</b>	2190
<b>R-squared</b>	0.682

Source: data secondary and processed, 2022.

Note: coefficients are presented above brackets; t-statistics are presented in parentheses; t-statistics are based on the significance levels below.

\*\*\* significant at level 1%

\*\* significant at level 5%

\* significant at level 10%

Based on the results of data processing, the test values obtained as a research model are as follows:

$$TQ_{i,t} = 1.087 - 2.079CH_{i,t} + 0.091CH_{i,t} \times KI_{i,t} + 0.986CH_{i,t} \times KM_{i,t} + 2.097CH_{i,t} \times KA_{i,t} + 14.627CH_{i,t} \times FC_{i,t} - 0.219ROA_{i,t} + 1.892INV_{i,t} + \varepsilon_{i,t}$$

Table 6 gives results of testing variable cash holdings (CH) influential negative to firm value (TQ). Results test statistics cash holdings (CH) to mark company (TQ) show a value coefficient of -2,079 And t-statistic as 0.787. Value probability CH is small compared to the alpha value of 1% (0.003 < 0.010), so the CH variable has a TQ-significant effect at the 1% significance level. This result means that the firm value increases more when cash holdings

are low. Results show that the cash holdings variable has a significant effect on reducing the value of the company due to agency problems. The first hypothesis (H 1) proposed is supported.

Statistic results test from Table 6 show that variable governance, which covers institutional, managerial, and foreign ownership, shows that governance cannot moderate the influence of cash holding on firm value. Statistical results test show institutional ownership (KI) has a coefficient of 0.091 and a t-statistic value of 0.181. Mark the probability of CH\*KI is greater than the alpha value of 5% ( $0.831 > 0.05$ ). Statistical test results show managerial ownership (KM) own coefficient as 0.986 and the value of t-statistic as 1982. The probability value of CH\*KM is above compared to the alpha value base of 5% ( $0.8646 > 0.05$ ).

The statistical results test shows that foreign ownership (KA) has a coefficient of 2,097 and a t-statistic of 1,901. The probability value CH\*KA is 0,7118, exceeding the specified alpha limit, namely 0.05. That means the governance variable in the manner of whole ownership (institutional ownership (KI), managerial ownership (KM), and foreign ownership (KA)) is not significant in moderating the relationship between cash holdings and firm value. Hypothesis second (H 2A), (H 2B), And (H 2C), which was submitted in the study, is not supported.

Table 6 above shows that financial constraints can moderate the relationship between cash holdings and firm value. Results test statistics show the coefficients is 14,627 and mark t-statistics as big as 2,918. The probability value for CH\*FC is smaller than the alpha 1% ( $0.004 < 0.001$ ), so the interaction CH\*FC significantly moderates the relationship between cash holdings and firm value at a significance level of 1%. That means the connection between cash holding and firm value will weaken when moderated by financial constraints. When cash holdings are low, the firm value will be higher if there are financial constraints. Results test shows that financial constraints have a significant effect in moderating the relationship between cash holdings and company value agency problems—the third hypothesis (H3) proposed in the research supported.

Table 6 also shows the influence of control variables in the study: profitability (ROA) And investment (INV). The coefficient value of ROA is -0.219, and the t-statistic value is -2.762. The ROA probability value is 0.034, smaller than 0.050, so ROA significantly influences firm value. It means that the lower the ROA, the higher the firm value. The coefficient value for INV is 1.892, and the t-statistic value is 3.186. So, this control variable INV is influential and significant to firm value. It means the higher the investment, the higher it is firm value.

## 5 Discussion

The relationship between CH and TQ provides varying results. These varying results are based on different perspective. Under agency theory, excessive cash that a company holds will decrease the firm value (Firmansyah et al., 2020) because it leads to managers' conflicts of interest, making managers allocate resources ineffectively (Vo, 2018). Meanwhile, viewed from the perspective of behavioral theory in companies, cash holdings can have a positive effect on firm value because it can provide funding that creates an innovation environment by avoiding external funding (Aslam et al., 2019), enabling actors who compete in the company to coexist harmoniously by implementing their ideas (Theissen et al., 2023). This research proves that CH have a negative effect on TQ. So, this research confirms and supports the agency theory that holding excessive cash will lead to agency conflicts, which impact reducing firm value.

Variations in the CH-TQ relationship can vary significantly due to the moderating effect (Theissen et al., 2023). As in the relationship between CH and TQ, corporate governance has a vital role in how excess cash held by the company will positively or negatively impact company value (Dittmar & Mahrt-Smith, 2007). Companies with good governance will be fine with excess cash holdings, which will not reduce firm value (Ilyas et al., 2022). In contrast, in companies with poor governance, excess cash holdings will only be a wasted resource and ultimately reduce firm value (Dittmar & Mahrt-Smith, 2007). However, the results of this research were unable to show support for the influence of governance on the relationship between CH and TQ. Governance in this research is based on company ownership proxies, namely institutional, managerial, and foreign. These three types of ownership have yet to be proven to be able to moderate the relationship between CH and TQ. These results align with several studies examining the interaction of ownership in CH with TQ, such as state ownership does not moderate the relationship between CH and TQ (Nhan &

Ha, 2016). Likewise, the interaction between managerial ownership and CH was insignificant in firm value (Novaresih et al., 2018).

This research supports the interaction of financial constraints and cash holding on firm value. The interaction results show a positive direction, so companies experiencing financial constraints will strengthen the negative influence of CH on TQ. These results align with and support that companies without experience or have a slight possibility of financial constraints and excess cash will not reduce their firm value (Ilyas et al., 2022). The more a company experiences financial constraints, the stronger the excess cash will reduce firm value.

## 6 Conclusion

Cash holdings have a significant negative effect on firm value. Governance, proxied by institutional, managerial, and foreign ownership, does not significantly moderate CH-TQ relationship. Finally, financial constraints have been proven to significantly moderate the negative influence of CH on TQ.

### 6.1 Research implications

Companies, investors, researchers, and practitioners can benefit from the results of this research, that a conflict of interest with excess cash will reduce the firm value. The type of ownership, such as institutional, managerial, or foreign, cannot influence the relationship between excess cash and firm value. Company managers must be careful in having cash and also if they experience financial constraints. Companies must find the ideal amount of cash they have and must also try to avoid experiencing financial constraints.

### 6.2 Limitations of research and suggestions

This research still discusses the relationship between cash holdings and firm value in a linear model. At the same time, several studies have proven the existence of a U-shaped relationship in this relationship. Therefore, future research should include this model by linking it to moderating ownership and financial constraints. The research results showing that the control variables proved to be significant is the second limitation of this research. The significance of the control variable makes the research results biased. Therefore, it is necessary for further and deeper studies that include this variable as part of the research concerning the variables studied.

## References

1. Afifa, M. A., Saleh, I., & Haniah, F.: Direct and mediated associations among ownership structure, cash holdings, and firm value: The case of Jordanian insurance firms. *Vision*, 25(4), 471–482 (2021). <https://doi.org/10.1177/0972262920983989>
2. Asante-Darko, D., Adu Bonsu, B., Famiyeh, S., Kwarteng, A., & Goka, Y.: Governance structures, cash holdings, and firm value on the Ghana Stock Exchange. *Corporate Governance (Bingley)*, 18(4), 671–685 (2018). <https://doi.org/10.1108/CG-07-2017-0148>
3. Aslam, E., Kalim, R., & Fizza, S.: Do cash holding and corporate governance structure matter for the performance of firms? Evidence from KMI 30- and KSE 100-indexed firms in Pakistan. *Global Business Review*, 20(2), 313–330 (2019). <https://doi.org/10.1177/0972150918825202>
4. Chang, Y., Benson, K., & Faff, R.: Are excess cash holdings more valuable to firms in times of crisis? Financial constraints and governance matters. *Pacific-Basin Finance Journal*, 45, 157-173 (2017). <https://doi.org/10.1016/j.pacfin.2016.05.007>
5. Dittmar, A., & Mahrt-Smith, J.: Corporate governance and the value of cash holdings. *Journal of Financial Economics*, 83(3), 599-634 (2007). <https://doi.org/10.1016/j.jfineco.2005.12.006>
6. Faulkender, M., Wang, R., Benzoni, L., Campello, M., Garvey, G., Goldstein, R., Milbourn, T., Petersen, M., & Stambaugh, R.: Corporate financial policy and the value of cash. *The Journal Of Finance*, LXI(4) (2006).
7. Firmansyah, A., Setiawan, T., & Fathurahman, F.: Nilai perusahaan: Kebijakan utang, good corporate governance, cash holding. *Jurnal Akuntansi Dan Bisnis*, 20(2), 237 - 254 (2020). <http://dx.doi.org/10.20961/jab.v20i2.568>
8. Frésard, L., Salva, C., Bailey, W., Degeorge, F., Dubois, M., Errunza, V., Habib, M., Isakov, D., King, M. R., Litvak, K., Leuz, C., Loderer, C., Morellec, E., Stulz, R., Valta, P., Watanabe, M., & Hulle, C. Van.: The value of excess cash and corporate governance: Evidence from U.S. cross-listings. *Journal of Financial Economics (JFE)*, 83, 359–387 (2007). <https://doi.org/10.1016/j.jfineco.2005.12.006>

9. Habib, A., Bhatti, M. I., Khan, M. A., & Azam, Z.: Cash Holding and Firm Value in the Presence of Managerial Optimism. *Journal of Risk and Financial Management*, 14(8), 356 (2021). <https://doi.org/10.3390/jrfm14080356>
10. Ilyas, M., Mian, R. U., & Safdar, N.: Institutional investors and the value of excess cash holdings: empirical evidence from Pakistan. *Managerial Finance*, 48(1), 158-179 (2022). <https://doi.org/10.1108/MF-05-2021-0201>
11. Jabbouri, I., & Almustafa, H.: Corporate cash holdings, firm performance, and national governance: evidence from emerging markets. *International Journal of Managerial Finance*, 17(5), 783–801 (2021). <https://doi.org/10.1108/IJMF-07-2020-0342>
12. Kaplan, S. N., & Zingales, L.: Do investment-cash flow sensitivities provide useful measures of financing constraints?. *The Quarterly Journal of Economics*, 112(1), 169–215 (1997). <http://qje.oxfordjournals.org/>
13. La Rocca, M., & Cambrea, D. R.: The effect of cash holdings on firm performance in large Italian companies. *Journal of International Financial Management and Accounting*, 30(1), 30–59 (2019). <https://doi.org/10.1111/jifm.12090>
14. Lismawati, S. R., Utomo, C. H., & Fauziah, F.: Influence of cash holding and dividend against firm value on property company and real estate listed on the Indonesia Stock Exchange. *International Journal of Quantitative Research and Modeling*, 3(2), 87–93 (2022). <https://journal.rescollacomm.com/index.php/iqrm/index>
15. Loncan, T.: Foreign institutional ownership and corporate cash holdings: Evidence from emerging economies. *International Review of Financial Analysis*, 71, 101295 (2020). <https://doi.org/10.1016/j.irfa.2018.12.003>
16. Luo, Q., & Hachiya, T.: Corporate governance, cash holdings, and firm value: Evidence from Japan. *Review of Pacific Basin Financial Markets and Policies*, 8(4), (2005). [www.worldscientific.com](http://www.worldscientific.com)
17. Martínez-Sola, C., García-Teruel, P. J., & Martínez-Solano, P.: Corporate cash holding and firm value. *Applied Economics*, 45(2), 161–170 (2013). <https://doi.org/10.1080/00036846.2011.595696>
18. Nguyen, T. L. H., Nguyen, L. N. T., & Le, T. P. V.: Firm value, corporate cash holdings and financial constraint: A study from a developing market. *Australian Economic Papers*, 55(4), 368-385 (2016). <https://doi.org/10.1111/1467-8454.12082>
19. Nhan, D. T. T. & Ha, P.: Cash holding, state ownership and firm value: The case of Vietnam. *International Journal of Economics and Financial Issues*, 6(6), 110-114 (2016). <https://dergipark.org.tr/en/pub/ijeft/issue/31991/352812>
20. Noravesh, I., Safari Gerayli, M., & Momeni Yanesari, A.: Managerial ownership, cash holdings and firm valuation. *Accounting and Auditing Research*, 10(39), 5-20 (2018). [https://www.iaaar.com/article\\_98813\\_en.html?lang=en](https://www.iaaar.com/article_98813_en.html?lang=en)
21. Opler, T., Pinkowitz, L., Stulz, R., & Williamson, R.: The determinants and implications of corporate cash holdings. *Journal of Financial Economics*, 52 (1999)
22. Sumiati, S.: Effect of cash holding on firm value with ownership structure as a moderating variable in Indonesia company. *Jurnal Aplikasi Manajemen*, 18(1), 122-129 (2020). <http://dx.doi.org/10.21776/ub.jam.2020.018.01.12>
23. Theissen, M. H., Jung, C., Theissen, H. H., & Graf-Vlachy, L.: Cash holdings and firm value: Evidence for increasing marginal returns. *Journal of Management Scientific Reports*, 0(0), (2023). <https://doi.org/10.1177/27550311231187318>
24. Vo, X. V.: Foreign ownership and corporate cash holdings in emerging markets. *International Review of Finance*, 18(2), 297-303 (2018). <https://doi.org/10.1111/irfi.12130>
25. Yun, J., Ahmad, H., Jebran, K., & Muhammad, S.: Cash holdings and firm performance relationship: Do firm-specific factors matter? *Economic Research-Ekonomska Istrazivanja*, 34(1), 1283–1305 (2021). <https://doi.org/10.1080/1331677X.2020.1823241>
26. Zen, S., & Sofie.: The effect of environmental performance, eco-efficiency, and cash holding on firm value. *Akumulasi: Indonesian Journal of Applied Accounting and Finance*, 2(2), 103–114 (2023). <https://doi.org/10.20961/akumulasi.v2i2.873>
27. Zhang, H., Zhang, Y., Zhou, S., & He, Y.: 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 (2020). <https://doi.org/10.1080/1540496X.2019.1603105>

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

