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# Financial statement comparability, cash flow volatility, capital expenditure: are they related to cash holding?

*Comparabilidade das demonstrações financeiras, volatilidade do fluxo de caixa, despesas de capital: estão relacionadas à manutenção de caixa?*

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**Abstract:** This study examines the relationship between financial statement comparability, cash flow volatility, and capital expenditure on cash holding in Indonesia, a developing country with weak investor protection and high agency costs. By analyzing a panel dataset of 2,387 firm-year data of publicly listed Indonesian companies from 2009 to 2019 using random effect panel data regression, the research findings indicate that financial statement comparability has a positive impact on cash holding. On the other hand, capital expenditure shows a significant non-positive effect on cash holding. Interestingly, the volatility of cash flow does not have a significant influence on cash holding. These results suggest that having comparable financial statements helps address agency problems and encourages firms to prioritize internal capital for project financing. This study highlights the crucial role of financial statement comparability and internal capital in shaping cash holding behavior in the specific context of weak investor protection and high agency costs in developing countries like Indonesia.

**Keywords:** Financial statement comparability; Cash holding; Cash flow volatility; Capital expenditure.

**Resumo:** Este estudo examina a relação entre a comparabilidade das demonstrações financeiras, a volatilidade do fluxo de caixa e o gasto de capital sobre a manutenção de caixa na Indonésia, um país em desenvolvimento com fraca proteção ao investidor e altos custos de agência. Ao analisar um conjunto de dados em painel de 2.387 dados de empresa-ano de empresas indonésias listadas publicamente de 2009 a 2019, utilizando regressão de dados em painel com efeitos aleatórios, os resultados da pesquisa indicam que a comparabilidade das demonstrações financeiras tem um impacto positivo na manutenção de caixa. Por outro lado, o gasto de capital mostra um efeito não positivo significativo na manutenção de caixa. Curiosamente, a volatilidade do fluxo de caixa não tem uma influência significativa na manutenção de caixa. Esses resultados sugerem que ter demonstrações financeiras comparáveis ajuda a abordar problemas de agência e incentiva as empresas a priorizar o capital interno para o financiamento de projetos. Este estudo destaca o papel crucial da comparabilidade das demonstrações financeiras e do capital interno na formação do comportamento de

manutenção de caixa no contexto específico de fraca proteção ao investidor e altos custos de agência em países em desenvolvimento como a Indonésia.

**Palavras-chave:** Comparabilidade das demonstrações financeiras; Manutenção de caixa; Volatilidade do fluxo de caixa; Despesas de capital.

## 1 Introduction

Financial Accounting Standards Board (FASB) describes the comparability of financial statements as qualitative characteristics that facilitate users to recognize conformities and discrepancies between two sets of economic events to augment the usefulness of the information (FASB, 2018). FASB recognizes financial statement comparability as one of the prominent aspects of delivering useful information for investors to make sound decisions (FASB, 2018). Without comparable information, the investors cannot make a particularly critical decision in assessing capital market investment opportunities. De Franco et al. (2011, p. 900) mentioned that "[…] for a given set of economic events, comparability can be defined as the extent to which firms have similar accounting systems and hence produce similar financial statements." He also learned that accounting comparability increased analyst coverage, which created higher forecast accuracy and reduced forecast dispersion. Hence, it would minimize external financing constraints (Imhof et al., 2017), leading the company to hold less cash.

The concept of financial statement comparability is crucial as it allows users to comprehend the firm, the business environment or peers, and the accounting system in a better way (Chen et al., 2018; De Franco et al., 2011). Growing literature discussed financial statement comparability benefits in different environments and settings (Biswas et al., 2022; Chen et al., 2018; Imhof et al., 2017; Kim et al., 2013; Sohn, 2016). Yet, few studies associate the comparability with the firms' cash holding (Habib et al., 2017; Mehrabanpour et al., 2020; Nguyen & Nguyen, 2021). Cash holding is considered important for the firms as it is used to pay the daily operating transactions and to anticipate precautionary or financing frictions and agency conflict, which requires a more considerable amount of cash than the norm. Previous studies on cash holding emphasized more on these subjects (Bates et al., 2009; Chen et al., 2015; Opler et al., 1999; Sohn, 2016; Tong, 2011) and learned that the strong information asymmetry demands firms to hold extra cash (Clarkson et al., 2020; Nguyen & Nguyen, 2021). Many researchers have discussed cash holding for years (Diaw, 2021; Ferreira & Vilela, 2004; Garavito & Chión, 2021; Guizani, 2017; Kim et al., 2020; Lei et al., 2018). The studies did not only study the factors affecting cash holding itself, but they also covered non-financial ones such as corporate governance (Kim et al., 2020), information environment (Clarkson et al., 2020), and national culture (Chen et al., 2015).

Focusing on all publicly listed Indonesian firms, this research intends to observe the influence of comparability of financial statements, cash flow volatility, and capital expenditure on cash holding. Despite there are several research that discussed the influence of financial statement comparability on cash holding, no research had been done before in the context of Indonesian firms, even though Indonesia is considered the biggest economy in Southeast Asia and has shown remarkable economic growth after the Asian financial crisis (The World Bank, 2022). Many studies were done in developed countries (Chen et al., 2020; De Franco et al., 2011; Do, 2020; Kim et al., 2020), but very few were conducted in developing countries (Mehrabanpour et al., 2020; Nguyen & Nguyen, 2021), and none is undertaken in the case of Indonesian companies. Unlike developed countries, most developing countries have institutional ownership and no

governance mechanism (Wardhana & Tandelilin, 2011). These two differences in the ownership structure and corporate governance might lead to different agency conflicts between developed and developing countries. A study by Kusnadi & Wei (2011) using international firms in developed and developing countries as the samples also showed that the cash holding level varies significantly among countries. Therefore, the results in developed countries might not be generalizable to developing ones.

In addition to financial statement comparability, cash flow volatility is another notable factor of cash holding. Cash flow volatility provides information about the risk that a firm or an industry must confront. Numerous works of literature have discussed cash flow volatility as the contributing factor influencing cash holding (Bates et al., 2009; Chen et al., 2015; Garavito & Chión, 2021; Han & Qiu, 2007; Opler et al., 1999). Conversely, other studies (Ferreira & Vilela, 2004) found different results. Research done by Guizani (2017) also showed that the relationship between cash flow volatility and cash holding could be positive or non-positive depending on the types of firms. These different results make the impact of cash flow volatility on cash holding remains uncertain.

Capital expenditure is often included as a cash holding determinant representing investment opportunities (Bates et al., 2009; Diaw, 2021; Habib et al., 2017). Cost overrun and delay can disturb large capital projects, and thus, the availability of cash to finance the capital requirements needs to be maintained (Chandarana et al., 2015). Similar to cash flow volatility, another inconclusive result is obtained between capital expenditure and cash holding. According to Sher (2014), the influence of capital expenditure on cash holding can be positive or non-positive. Kim et al. (2011) suggested that new or improved assets were created from capital expenditure and could be used as collaterals for external financing. Therefore, higher capital expenditure is expected to lower the cash holding. On the opposite, Riddick & Whited (2017) claimed that high capital expenditure means high financial distress. Thus, firms with more capital expenditures typically maintain a more significant amount of cash. A study by Opler et al. (1999) and Lei et al. (2018) found that capital expenditure and cash holding had a positive relationship, while Guizani (2017) and Ki & Adhikari (2022) found capital expenditure had a non-positive impact on cash holding significantly. Khan et al. (2016) also found that capital expenditure did not significantly affect cash holding. In addition to inconclusive results, the previous studies were primarily conducted in the context of Indonesian manufacturing companies, while this study focuses on all Indonesian firms.

In this research, the financial statement comparability will be measured by employing the method of De Franco et al. (2011) that applied widely in former studies (Biswas et al., 2022; Chen & Gong, 2019; Chen et al., 2020; Do, 2020; Habib et al., 2017; Kim et al., 2020; Mehrabanpour et al., 2020; Nguyen & Nguyen, 2021; Sohn, 2016). In addition to the financial statement comparability, capital expenditure and volatility of cash flow are the other two main variables expected to influence cash holding. In addition to the three main variables, six control variables were employed: working capital, yearly sales growth, research and development (R&D), leverage, size, and cash flow. 2,387 data from all publicly listed Indonesian firms in 2009-2019 are included in this study.

## 2 Literature review and hypotheses

Corporations need to hold substantial cash, often representing a significant fraction of corporate wealth. There are three theories to justify the decision of firms' cash holding: trade-off theory, agency theory, and pecking order theory. The first theory tries to establish the best cash holding level that balances marginal costs and benefits.

Marginal costs are related to two motives of cash holding: transaction and precautionary (Bates et al., 2009). The transaction motive defines firms holding cash to pay all daily activities related to operational expenditures in doing the business. In contrast, the precautionary motive means keeping cash to face unforeseen circumstances, avoiding difficulties in accessing external financing, and minimizing financial distress(Ferreira & Vilela, 2004; Han & Qiu, 2007). Users of financial statements can easily recognize the alikeness and discrepancies by looking at comparable financial statements of firms in a particular industry (Francis et al., 2014), decreasing equity cost and borrowing cost, and thus, easily getting external financing (Imhof et al., 2017; Myers & Majluf, 1984).

The agency theory states that higher cash holding in one firm can lead to higher discretionary power that managers can enjoy for their benefits, resulting in less scrutiny and a discretionary way of using cash, and hence, increasing the managers and the shareholders' conflict (Bates et al., 2009; Myers & Majluf, 1984; Sohn, 2016; Tong, 2011). These agency conflicts can be reduced if there is a strong information symmetry related to investment opportunities, and it can cause firms to hold less cash (Nguyen & Nguyen, 2021). Consistently, the strong information asymmetry between managers and stakeholders is possibly lowered by developing higher financial statement comparability that will make stakeholders easier in grasping and evaluating the financial performance of the firms related to the economic events. As a result, the cost to access information and the need for holding cash will be lower (Chen et al., 2015; De Franco et al., 2011; Habib et al., 2017; Mehrabanpour et al., 2020).

Pecking order theory proclaims that cash holding has no perfect level other than as a safeguard of retained capital and investment purposes, which makes internal financing the cheapest source of funds, then liabilities, and last is equity (Habib et al., 2017). This theory is supported by the fact that most profitable firms have greater cash flows and withhold more cash (Ferreira & Vilela, 2004). Cost related to external financing is due to information asymmetry. The less different the financial statements are, the lower the cost and the higher the willingness to seek external financing (De Franco et al., 2011; Do, 2020; Habib et al., 2017).

Diaw (2021) explored the determinant of cash holding in emerging markets between 2010 and 2018 using dynamic panel data regression and found that existing liquid companies in these countries have larger size, low leverage, capital expenditure, intangibles, also lower R&D expenses. Further, Habib et al. (2017) investigated the impact of financial statement comparability on cash holding with three mediator variables: financing constraint, financing reporting quality, and corporate governance using a large panel of U.S. from 1981 to 2013. They concluded that comparable financial statements allowed investors to engage in a lower cost of information acquisitions, which could lower financing constraints and information asymmetry and lessen cash holdings. On the opposite side, Nguyen & Nguyen (2021) conducted research on Vietnamese-listed firms from 2010 to 2019 about the impact of accounting similarity on cash holding and also tested the non-linear link between variables of interest. The output confirmed a positive relationship between accounting comparability and cash holdings. The research also found that only comparable high-level firms tended to disclose highly relevant information to the shareholders. Financial statement comparability can be a control mechanism for monitoring the manager, preventing agency problems and discounted cash value.

Prior research findings assert that the comparability of financial statements, which reflects accounting practices applied by various firms, has been noteworthy in many

assessments made by market participants. However, the impact of comparability toward cash holding is still unclear or ambiguous based on the theories or literature perspective explained previously. Therefore, we hypothesize:

$H_1$: Comparability of the financial statements is associated with cash holding.

The variability of cash holding also depends on the cash flow volatility, which provides information about the risk a firm or an industry must face. Based on the precautionary motive, a riskier firm or industry holds more cash as a reserve to encounter the risk of incoming cash shortage and avoid the distress of dividend cutback and potential losses of assets' forced divestitures (Han & Qiu, 2007). Opler et al. (1999) also proved that firms tended to keep additional cash when the cash flow volatility was higher to mitigate the expected cost of liquidity constraints. Similarly, Bates et al. (2009) learned that riskier firms led to higher cash holding. Therefore, it can be said that cash flow volatility and cash holding relate positively (Clarkson et al., 2020; Garavito & Chión, 2021; Habib et al., 2017; Han & Qiu, 2007). On the contrary, Ozkan & Ozkan (2004) discovered a positive but insignificant association between these two variables. Contrarywise, Ferreira, and Vilela (2004) found a non-positive association in their study about Economic and Monetary Union (EMU) countries. Hence, we hypothesize:

$H_2$: There is an association between volatility of cash flow and cash holding.

Furthermore, capital expenditure is the prominent source influencing cash holding as it represents investment opportunities (Habib et al., 2017). Kim et al. (2020) also stated that capital expenditure is a crucial component in determining corporate disbursement decisions and its future long-term goal or achievement. Thus, it is imperative to discern cash spending to avoid underinvestment. Aligned with the pecking order theory related to firms prioritizing internal financing to invest over debt, a previous study by Bates et al. (2009) exhibited that capital expenditure acts as collateral of debt financing to establish certain assets, which leads to lower cash holding. Aligned with the conclusions of Opler et al. (1999), firms with large capital expenditures exhausted their liquid assets. So, we hypothesize the third:

$H_3$: Capital expenditure is associated with cash holding.

## 3 Method

### 3.1 Model

In measuring the comparability of financial statements, the method of De Franco et al. (2011), which has been applied widely in previous accounting and finance studies (Biswas et al., 2022; Chen et al., 2020; Do, 2020; Habib et al., 2017; Imhof et al., 2022; Kim et al., 2020; Mehrabanpour et al., 2020), is used in the current study. De Franco et al. (2011) developed the method by comparing how close the mapping of information is in two firms' financial statements, given the same underlying economic events. The method established estimates for comparability based on output-based accounting, which explains the firm's behavior and forecast items compared to previous measures using input-based accounting comparability (Sohn, 2016).

Following Diaw (2021) and Habib et al. (2017), the cash holding owned by firms can be formulated in the model Equation (1) below:

$$Cash_{i,t} = \beta_0 + \beta_1 CompAcct_{1,t} + \beta_2 CV_{i,t} + \beta_3 CAPX_{i,t} + \beta_4 Size_{i,t} + \beta_5 LEV_{i,t} +$$
$$\beta_6 Earn_{i,t} + \beta_7 YSG_{i,t} + \beta_8 RD_{i,t} + \beta_9 NWC_{i,t} + \beta_{10} CF_{i,t} + year_{dummies} + \varepsilon_{i,t} \qquad (1)$$

Cash$_{it}$ refers to a firm's cash ratio as a proxy of the firm i's cash holding in year t, and two proxies are used. The first proxy is cash and marketable securities to net assets (Chen et al., 2015; Diaw, 2021; Habib et al., 2017; Nguyen & Nguyen, 2021; Opler et al., 1999). The second measure is the natural logarithm of cash and marketable securities scaled by net assets plus one (Habib et al., 2017).

CompAcct$_{it}$ is financial comparability based on De Franco et al. (2011) and succeeding prior studies (Biswas et al., 2022; Habib et al., 2017; Mehrabanpour et al., 2020). Two proxies of comparability scores estimation of the firm are used. The first proxy is CompAcct4, which is the average of the firm i's top 4 comparability scores in year t compared to all firms j in the same sub-industry (GICS) as firm i. The second is CompAcct10, which is the average of firms i's top 10 comparability scores in year t compared to all firms j in the same sub-industry (GICS) as firm i. Comparability estimates are decile-ranked and rescaled to range between [0,1] (Kim et al., 2020; Chen et al., 2018).

CV$_{it}$ is the volatility of cash flow belonging to firm i in year t, calculated by the standard deviation of operating cash flow within the previous five years divided by the total assets during the period to represent the company's risk (Clarkson et al., 2020; Habib et al., 2017; Opler et al., 1999; Ozkan & Ozkan, 2004)

CAPX$_{it}$ is capital expenditure belonging to firm i in year t, calculated by capital expenditures (zero if missing) over total assets as a proxy of investment opportunities (Biswas et al., 2022; Diaw, 2021).

The control variables aligned with previous studies (Clarkson et al., 2020; Diaw, 2021; Habib et al., 2017) are summarized in Table 1.

**Table 1.** Control Variables.

| Variables | Description |
|---|---|
| Firm Size (Size$_{i,t}$) | Measured by the natural logarithm of total assets |
| Leverage (LEV$_{i,t}$) | Calculated as the total debt (short-term and long-term) scaled by total assets. To reduce debt constraints, firms tend to hold more cash. Thus, leverage is expected to show a negative sign. |
| CashFlow (CF$_{i,t}$) | Represented ratio of cash flow to total assets is measured by net income before extraordinary items are added with depreciation amortization expenses scaled by total assets. |
| Yearly Sales Growth (YSG$_{i,t}$) | It is a natural logarithm of sales changes to measure growth opportunities |
| Research and Development (RD$_{i,t}$) | Calculated by R&D expenses divided by total assets, stated as 0 if a firm has missing data. |
| Net Working Capital (NWC$_{i,t}$) | Calculated by current assets (minus cash holding) deducted by current liabilities scaled by total assets to control the possibility of cash substitution |

## 3.2 Data

The data of all publicly listed Indonesian firms (adjusted to Global Industry Classification Standard-GICS) is taken from the Bloomberg database, the firm's website, and Indonesian Stock Exchange (IDX) website. To reduce bias, the study used data from 2009-2019, the year after the global financial crisis in 2008 and the year before the pandemic. There were 3,300 firm-year observations, including the firms with no data (for the variable of interest and control variables) and publicly listed after 2008. After excluding some incomplete data, there were 2,387 firm-year data employed in this research, and the details are in Table 2 below:

**Table 2.** Sample Data.

| Industry Group (GICS) | Missing Data | Selected |
|---|---|---|
| Automotive & Components | 0 | 121 |
| Capital Goods | 121 | 88 |
| Pharmaceuticals | 22 | 77 |
| Real Estate | 88 | 297 |
| Media | 22 | 77 |
| Consumer Durables | 33 | 143 |
| Energy | 187 | 143 |
| Materials | 231 | 473 |
| Retailing | 0 | 385 |
| Transportation | 99 | 154 |
| Consumer Service | 11 | 132 |
| Food Beverage | 99 | 297 |
| **TOTAL** | 913 | **2,387** |

**Notes**: GICS=Global Industry Classification Standard.

Table 2 shows that the panel data regression analysis includes only 892 firm-year observations, whereas Table 2 reports a total of 2,387 year-firm observations. This difference arises from the method used to calculate financial statement comparability. Following the approach outlined by De Franco et al. (2011), the comparability assessment required data from 16 previous quarters (2009-2012) to estimate earnings for each firm-year. Additionally, it utilized 16 subsequent quarters (2013-2016) to compute final financial statement comparability metrics (CompAcct4 and CompAcct10) for pairs of firm-years within the same industry. In contrast, the panel regression analysis focused solely on data from 2016 to 2019, resulting in 892 firm-year observations from 223 firms. Furthermore, Table 2 reveals that any missing data was excluded from the observations, resulting in a balanced panel dataset, where all firms have an equal number of observations.

## 4 Results and Discussion

### 4.1 Results

Table 3 reported descriptive statistics of a pooled set of variables used in the current study. As mentioned above, two different measurements were used to calculate cash holding. The first measurement was cash and marketable securities to net assets (Cash1), and the second measurement was the natural logarithm of cash and marketable securities scaled by net assets plus one (Cash2). The average values of Cash1 and Cash2 were 0.149 and 0.122. The standard deviations of Cash1 and Cash2 were 0.262 and 0.165, meaning that the dispersion of Cash1 was broader than Cash2.

For financial statement comparability, two different measurements were used in this research. The first was the mean of the highest four comparability groupings (CompAcct4), and the second was the mean of the highest ten comparability groupings (CompAcct10). The mean value and standard deviation of CompAcct4 were –0.059 and 0.175, while the mean value and standard deviation of CompAcct10 were –0.071 and 0.206. This means that the dispersion of CompAcct10 was broader than that of CompAcct4.

Pearson Correlation test was performed and tabulated in Table 4. The financial statement comparability, capital expenditure, and cash flow volatility had no significant correlation with Cash1 and Cash2. For the control variables, only size had a significant negative correlation with Cash1, while the rest did not have a significant correlation. The

correlation value was -0.116, meaning that smaller companies tend to hold more cash. Size also had a significant negative correlation with capital expenditure, leverage, and cash flow volatility, with a correlation value of –0.187, –0.120, –0.271, respectively. This might indicate that smaller-size companies tend to have higher capital expenditure, greater leverage, and more volatile cash flow. A similar negative correlation between leverage and net working capital could also be found. A negative correlation of –0.328 between the two variables indicates a higher amount of leverage tends to correlate with lower net working capital. Different from other correlations, a positive correlation of 0.241 was found between the volatility of cash flow and cash flow.

Overall, the correlations among independent variables were relatively low (<0.8), showing an indication that the multicollinearity problem was unlikely to happen in the multivariate models (Gujarati, 2009).

**Table 3.** Descriptive Statistics.

| Variable | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|
| Cash1 | .149 | .262 | 0 | 2.656 |
| Cash2 | .122 | .165 | 0 | 1.296 |
| CompAcct4 | -.059 | .175 | -2.667 | -.001 |
| CompAcct10 | -.071 | .206 | -3.205 | -.001 |
| NWC | -.043 | .579 | -8.299 | .988 |
| YSG | .274 | 4.557 | -1 | 131.133 |
| CAPX | .26 | 3.382 | 0 | 69.703 |
| RD | 0 | .002 | 0 | .037 |
| LEV | .629 | 1.285 | 0 | 29.839 |
| Size | 28.696 | 1.769 | 22.658 | 33.495 |
| CF | .223 | 1.144 | -1.46 | 19.888 |
| CV | .048 | .05 | 0 | .519 |

**Table 4.** Pearson Correlations.

| Variables | Cash1 | Cash2 | Comp Acct4 | Comp Acct10 | NWC | YSG | Capx | RD | LEV | Size | CF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CompAcct4 | 0.014 | 0.010 | 1.000 | | | | | | | | |
| CompAcct10 | 0.011 | 0.007 | 0.990* | 1.000 | | | | | | | |
| NWC | 0.042 | 0.053 | 0.092 | 0.085 | 1.000 | | | | | | |
| YSG | -0.019 | -0.025 | 0.008 | 0.009 | 0.025 | 1.000 | | | | | |
| CAPX | 0.070 | 0.042 | 0.018 | 0.019 | 0.080 | 0.011 | 1.000 | | | | |
| RD | 0.017 | 0.031 | 0.028 | 0.028 | 0.043 | -0.005 | -0.006 | 1.000 | | | |
| LEV | -0.046 | -0.040 | -0.019 | -0.016 | -0.328* | -0.019 | -0.025 | -0.027 | 1.000 | | |
| Size | -0.116* | -0.087 | -0.018 | -0.011 | 0.019 | -0.002 | -0.187* | 0.075 | -0.120* | 1.000 | |
| CF | -0.038 | -0.042 | -0.094 | -0.091 | 0.019 | -0.026 | -0.019 | -0.007 | -0.026 | -0.057 | 1.000 |
| CV | 0.044 | 0.042 | 0.008 | 0.009 | -0.064 | -0.029 | 0.409* | -0.023 | 0.011 | -0.271* | 0.241* |

*$p<0.05$ statistically significant.

Static panel data regression was applied to answer the hypotheses mentioned above. There are two types of static panel data regression: Fixed Effect (FE) and Random Effect (RE), which is determined by running Hausman Test (Baltagi, 2021). The result is in favor of RE, and one may argue that RE has assumptions that unobservable individual effects are not correlated with other regressors, and it is applied in past research (Arfan et al., 2017; Le et al., 2022). However, the null hypothesis of the Hausman test says no correlation concerning unobservable individual

errors and regressors; thus, RE is efficient and consistent (Lee et al., 2019). The results of the Breusch and Pagan Lagrangian multiplier test further confirm that RE is the preferred method over ordinary least squares (OLS) for generating more efficient estimates, particularly when the number of within-entity observations (T) is low (fewer than 20) (Baltagi, 2021).

## 4.2 Discussion

This study has contributed to filling in the gap in financial statement comparability to cash holding in developing countries, where investor protection is weak, and agency cost is high. These agency conflicts are expected to be reduced if there is a strong information symmetry related to the investment opportunities, which can result in firms holding less cash (Nguyen & Nguyen, 2021). Comparable financial statements allow peer firms to have a benchmark and utilize the financial statements of its peer to mitigate the under or over-investment risk (Kim et al., 2020).

It is confirmed in Table 5 that the financial comparability effect to cash holding remains positive and robust under both proxies of cash holding. For Cash1, the coefficients for CompAcc4 and CompAcc10 are 0.088 and 0.100 with $p < 0.05$ and for Cash2, the coefficients for CompAcc4 and CompAcc10 are 0.068 and 0.077 with $p < 0.05$. The result also shows consistent results under both models with two financial comparability proxies (CompAcct4 and CompAcct10). This means financial comparability will not lessen or discount the cash value when the information asymmetry triggers higher costs to carry cash (De Franco et al., 2011; Habib et al., 2017; Mehrabanpour et al., 2020) due to the higher agency cost between investors and managers often happen in developing countries. The positive relationship is aligned with a study by Nguyen & Nguyen (2021). It implies that comparable financial statements should motivate managers to oversee the investments or manage assets with higher responsibility and prevent the cash from being discounted by investing in positive economic return projects, which rarely happens in developing countries. Managers of firms which provide higher transparency are more likely to be scrutinized by external parties and lead to less likely for managers in exploiting firms resources for their personal benefit (Huang & Zhang, 2012). Moreover, managers are less likely to have the value of an additional dollar of currency fall below its face value when they employ liquid assets to optimize shareholder welfare (Pinkowitz et al. 2006).

The positive relationship is aligned with trade-off theory that firms maximize shareholder wealth by taking into accounts both marginal costs and marginal benefits in cash holding (Bates et al., 2009), and a study by Nguyen & Nguyen (2021) also supported the result. It implies that comparable financial statements should motivate managers to oversee the investments or manage assets with higher responsibility and prevent the cash from being discounted by investing in positive economic return projects, which rarely happens in developing countries.

Meanwhile, cash flow volatility exhibited a non-significant impact under both proxies of cash holding and financial comparability, supported by Ozkan & Ozkan (2004), and both Diaw (2021) and Uyar and Kuzey (2014), who did the study in other emerging countries. That means cash flow volatility, which arises from the variation of cash flow over a certain period within the business operating cycle, does not affect Indonesian firms' cash holding and is also proven by Arfan et al. (2017). This is aligned with precautionary motives (Ferreira & Vilela, 2004; Han & Qiu, 2007) that cash holdings are used to meet unexpected contingencies to increase the likelihood of survival from

cash shortfalls due to external factors such as economic policy changes which often experienced by emerging countries like Indonesia (Demir & Ersan, 2017; Roring & Juliana, 2022).

As expected, the capital expenditure (CAPX) showed a non-positive significant influence on cash holding (Bates et al., 2009; Diaw, 2021; Clarkson et al., 2020). This result supports the third hypothesis ($H_3$) and is persistent under both models using different proxies of financial comparability and cash holding: Cash1 (coefficient CAPX is -0.264, p-value<0.05 for CompAcc4 and CompAcc10) and Cash2 (coefficient CAPX is -0.180, p-value<0.05 for CompAcc4 and CompAcc10). This means the higher the capital expenditures incurred by the firms, the lesser their cash holding would be since they may use their cash to finance the capital expenditures before accumulating reserves, as expected from developing countries (Diaw, 2021). The output of this study is aligned with the pecking order theory that said to finance new investments, firms use internal capital first, then liabilities, and last is equity (Habib et al., 2017; Myers & Majluf, 1984).

The fraction of R&D expenditure scaled by total assets, which is to control financial distress costs as many R&D intensive firms keep higher cash holding (Bates et al., 2009; Opler et al., 1999), found not affect the cash holding (Chen et al., 2015; Diaw, 2021). This fact is due to very few Indonesian firms reporting the amount of research and development, validated by the mean of 0 in descriptive analysis (Table 3). The same to R&D expenditure, Cash Flow (C.F.) was not able to demonstrate a significant influence on cash holding, which is not aligned with previous studies by Suherman (2017) and Diaw (2021). Correspondingly, yearly sales growth (YSG) as a proxy of growth opportunities was found to be not significant, like previous studies (Bigelli & Sánchez-Vidal, 2012; Han & Qiu, 2007). The correlation result in Table 4 suggested YSG is not correlated to any other variables in the model. Regardless, the positive coefficient of YSG demonstrates the alignment with precautionary and transactional motives that respond to both pecking order theory and trade-off theory.

Indonesian firms' size is not associated with cash holding since it is shown to be not significant (Diaw, 2021; Ferreira & Vilela, 2004; Sari et al., 2019). Mitigating the difference, a robustness test is conducted in Table 6, reaffirming the insignificant result of firm size to cash holding. Even with it, size exhibited a negative impact as larger firms have a higher chance of having less asymmetric information concerning the operation, leading to lower cash holding (Bigelli & Sánchez-Vidal, 2012; Clarkson et al., 2020; Habib et al., 2017).

Leverage (Lev) depicts a negative influence on cash holding significantly and is aligned with the result of former studies (Chen et al., 2015; Diaw, 2021; Habib et al., 2017; Nguyen & Nguyen, 2021). The pecking order theory proclaims that internal financing is an inexpensive source of funds, then liabilities, and last is equity (Habib et al., 2017). Thus, when firms choose borrowings as their primary capital source, their liquid assets must be lower, and it is reassuring the general knowledge that cash is assumed as negative debt (Bigelli & Sánchez-Vidal, 2012). Besides, it is predicted managers would be disciplined by debt, which likewise exerts downward pressure on liquidity (Diaw, 2021).

As expected from trade-off theory, variable NWC is proven to have a significant and negative impact on cash holding, meaning that firms who keep higher substitute of cash hold smaller cash balances (Chen et al., 2015; Clarkson et al., 2020; Diaw, 2021; Habib et al., 2017).

**Table 5.** Main Results.

| | Cash1 | Cash1 | Cash2 | Cash2 |
|---|---|---|---|---|
| CompAcct4 | 0.088** | | 0.068** | |
| | 2.485 | | 2.847 | |
| CompAcct10 | | 0.100** | | 0.077** |
| | | 2.522 | | 2.907 |
| YSG | 0.012 | 0.012 | 0.006 | 0.006 |
| | 0.453 | 0.441 | 0.373 | 0.358 |
| NWC | -0.112** | -0.113** | -0.076** | -0.076** |
| | -2.181 | -2.182 | -2.249 | -2.252 |
| Capx | -0.264** | -0.264** | -0.180** | -0.180** |
| | -3.092 | -3.092 | -3.009 | -3.007 |
| RD | -4.991 | -3.482 | -3.930 | -2.775 |
| | -0.573 | -0.397 | -0.521 | -0.365 |
| LEV | -0.109** | -0.109** | -0.072** | -0.072** |
| | -2.380 | -2.373 | -2.336 | -2.331 |
| Size | -0.018* | -0.019* | -0.011 | -0.011 |
| | -1.646 | -1.696 | -1.439 | -1.491 |
| CF | -0.013 | -0.012 | -0.008 | -0.007 |
| | -0.897 | -0.833 | -0.738 | -0.673 |
| CV | -0.004 | -0.011 | -0.003 | -0.008 |
| | -0.012 | -0.034 | -0.011 | -0.037 |
| Industry | Yes | Yes | Yes | Yes |
| Year | Yes | Yes | Yes | Yes |
| p-value | 0.016 | 0.012 | 0.005 | 0.003 |
| Hausman test | 0.303 | 0.0375 | 0.205 | 0.204 |
| B.P. Lagrangian test | 0.000 | 0.000 | 0.000 | 0.000 |
| N | 892 | 892 | 892 | 892 |

Notes: All variables are defined in the Table 2. Use random-effect panel regression (robust standard error) and clustered at the firm, industry and year level; *$p<0.10$, ** $p<0.05$ indicate significance at 10% and 5%, using two-tailed tests.

### 4.2.1 Robustness test

To confirm the robustness of our outcomes, further analysis was conducted by using a different proxy for cash holding, Cash3, which was measured by cash and marketable securities scaled by total assets (Diaw, 2021; Habib et al., 2017; Nguyen & Nguyen, 2021) under financial comparability proxies, CompAcct4 and CompAcct10, as depicted in Table 6. The results suggest that applying panel data regression (random effect) as indicated by Hausman and Breusch Pagan tests, the coefficients for CompAcct4 and CompAcct10 to Cash3 were positive (0.055 and 0.062 for CompAcct4 and CompAcct10) and statistically significant ($p< 0.05$). Meanwhile, cashflow volatility (CV) remained to be insignificant. For control variables (NWC, CAPX, and L.E.), the same results with the previous result in Table 5 were found. These findings confirm that our outcomes are robust and not driven only by a distinct measure of cash holding.

**Table 6.** Robustness Results.

| | Cash3 | Cash3 |
|---|---|---|
| CompAcct4 | 0.055** | |
| | 3.151 | |
| CompAcct10 | | 0.062** |
| | | 3.241 |
| YSG | 0.004 | 0.004 |
| | 0.339 | 0.320 |
| NWC | -0.054** | -0.055** |
| | -2.264 | -2.268 |
| CAPX | -0.130** | -0.131** |
| | -2.812 | -2.809 |
| RD | -3.076 | -2.146 |
| | -0.469 | -0.326 |
| LEV | -0.051** | -0.051** |
| | -2.256 | -2.252 |
| Size | -0.007 | -0.007 |
| | -1.212 | -1.265 |
| CF | -0.005 | -0.005 |
| | -0.610 | -0.544 |
| CV | -0.005 | -0.009 |
| | -0.030 | -0.059 |
| Intercept | 4.236 | 4.178 |
| | 1.271 | 1.256 |
| Industry | Yes | Yes |
| Year | Yes | Yes |
| Firm | Yes | Yes |
| N | 892 | 892 |
| p-value | 0.002 | 0.001 |
| Hausman | 0.112 | 0.110 |
| Breusch Pagan | 0.000 | 0.000 |

Notes: All variables are defined in the Table 2. Use random-effect panel regression (robust standard error) and clustered at the firm, industry and year level. ** $p < 0.05$ indicate significance at 10% and 5%, using two-tailed tests.

## 5 Conclusion

This study investigates the effects of financial statement comparability, cash flow volatility, and capital expenditure on cash holdings among Indonesian firms. The results indicate that financial statement comparability and capital expenditure have a significant impact on cash holdings, thereby supporting hypotheses $H_1$ and $H_3$. Conversely, cash flow volatility was found to have an insignificant effect on cash holdings, leading to the rejection of hypothesis $H_2$. This study provides new empirical evidence on the influence of financial statement comparability on cash holdings in developing countries, revealing a statistically robust and significant positive relationship. This finding contributes to the limited body of research on this topic, particularly in developing countries characterized by intense agency problems between managers and shareholders (Nguyen & Nguyen, 2021). Additionally, our results indicate that firms in these contexts prefer to utilize cash for financing capital expenditures before accumulating reserves, supporting the notion that they prioritize internal funding, as posited by the pecking order theory (Habib et al., 2017; Myers & Majluf, 1984).

The practical implications of our findings are noteworthy for shareholders and policymakers. First, firms that produce more comparable financial statements can mitigate information asymmetry, fostering greater trust among shareholders. This transparency enables shareholders to monitor management's capital allocation more effectively, particularly in scenarios involving less profitable or under-invested projects. Second, by emphasizing internal financing over external liabilities and equity, firms may inadvertently lead to lower profit distributions to shareholders, which could impact shareholder satisfaction and engagement.

Despite these contributions, our study does not demonstrate a significant impact of cash flow volatility on cash holdings. Furthermore, we acknowledge potential endogeneity issues, as both financial statement comparability and cash holdings may be influenced by unobservable variables. Future research should explore these dynamics further, delving into underlying factors and considering alternative perspectives to enrich our understanding of this relationship.

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## Data Availability Statement

The data are available on demand to the authors after the publication.

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