

## Effects of Corporate Governance on Cash Holdings of Shariah-Compliant Firms

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### ABSTRACT

This study aims to enhance the understanding of the impact of corporate governance on cash holdings. Although previous studies have documented the significant impact of corporate governance on cash holdings, the findings focusing on Shariah-compliant firms (SCFs) are still limited. Therefore, this study examines the effects of corporate governance, represented by board characteristics, on cash holdings of SCFs listed in Bursa Malaysia using a static panel data regression. This study tests the robustness of the model by estimating standard errors clustered by firms while addressing both firm fixed and time effects. The results show that board size has a significant positive effect, while board independence and CEO duality demonstrate insignificant negative effects. These findings suggest that a smaller board is an effective corporate governance mechanism and that SCFs have superior corporate governance policies and practices. Hence, their managers' actions and decisions regarding cash holdings are unaffected by their independent board and their CEO's dual role. This study contributes to enriching the literature on corporate governance and corporate decisions for SCFs, and provides insights to regulators for the encouragement of good governance practices. Potential avenues for further research could involve investigating and contrasting the findings between SCFs and Non-Shariah-Compliant Firms (NSCFs) to highlight the similarities and differences.

**Keywords:** Board Characteristics; Cash Holdings; Corporate Governance; Shariah-Compliant

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## **INTRODUCTION**

Cash holdings are important corporate decisions since holding insufficient cash can disrupt a firm's operations. Nevertheless, holding excessive cash may result in agency conflicts between shareholders and managers. Hence, examining factors influencing corporate cash holdings is crucial. This is driven by several factors. First, managers have unrestricted access to the firm's cash, with the utilization of these funds primarily at their discretion (Magerakis, 2022). Second, firms have documented an increase in cash holdings, with a consistent upward trend observed yearly (da Cruz et al., 2019). Finally, while the firm's corporate governance has experienced minimal change, significant fluctuations in the firm's cash holdings have been noticed over time (Im et al., 2017).

Past studies on corporate cash holdings are shaped by two main approaches: (i) firm characteristics are viewed as drivers of cash holdings, and (ii) corporate governance is examined for its impact on cash holdings. Even so, those studies had focused on all listed firms, irrespective of their Shariah compliance status. Shariah compliance is believed to enhance corporate governance by offering a framework aligned with Shariah principles. This alignment is expected to curb managers' risk-taking that could harm minority shareholders (Chen & Yu, 2023). Moreover, Katper et al. (2015) highlight that the *Amanah* (trustworthiness) principle is especially salient for SCFs. The principle of *Amanah* holds significant importance in Shariah, making it particularly relevant in the context of SCFs. This makes SCFs distinct from non-Shariah-compliant firms (NSCFs); therefore, it is expected that their management will mitigate opportunism by exhibiting a high degree of trustworthiness, especially in resource-related decisions.

In addition, the agency problem is discovered as a significant factor influencing various corporate financial policies and a crucial cause of corporate cash holdings (Akhtar et al., 2018). The free cash flow hypothesis of the agency theory (AT) posits that managers who prioritize their self-interest are more likely to escalate the resources under their control. They tend to retain the firm's cash or invest it inefficiently rather than distributing it back to shareholders (Iskandar-datta & Jia, 2014). Accordingly, firms must enhance their corporate governance policies and practices to mitigate this agency problem.

Based on the justifications, this study aims to examine the effects of corporate governance on the cash holdings of SCFs in Malaysia. The motivation of this study is based on the remark by Bugshan et al. (2021) that, despite an abundance of research on the factors influencing cash holdings, the findings for firms that comply with Shariah are not well documented in the literature. Hence, this study enlightens the importance of effective corporate governance, enriches the literature on its impact on cash holdings of SCFs and contributes to the call for the management team to pursue more strategic decisions aimed at maximizing shareholders' wealth.

The remaining sections of this paper are constructed as follows: Section 2 analyzes relevant literature and develops the research hypotheses, while Section 3 discusses the study's research method, sample selection, data sources, research variables, and model specifications. Section 4 discusses the study's findings, and the study's conclusion is provided in Section 5.

## **LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT**

### **Corporate Governance, Agency Theory and Cash Holdings**

Corporate governance encompasses the framework of rules, practices, and policies through which a company is directed and overseen (Zhou et al., 2021). A study by Shleifer and Vishny (1997) defines corporate governance as the mechanisms implemented to ensure that a firm's managers deliver a fair financial return to shareholders, who are the providers of capital to the firm.

From the perspective of Agency Theory (AT), managers of a firm possess greater opportunities to make corporate decisions that align with their own interests rather than those of minority shareholders (Jensen, 1986). Moreover, managers' tendency to waste the firm's free cash flow will be higher if they are not well monitored. Therefore, firms require an effective monitoring mechanism, such as corporate governance, to control the managers' actions, thus lowering the agency cost arising from this agency problem (Kadioglu & Yilmaz, 2017).

Effective corporate governance practices are needed to prevent managers from misusing funds provided by the shareholders. Shareholders can exert control over managers through corporate governance mechanisms, which function as monitoring tools to ensure the alignment of managers' interests with those of shareholders (Al-Najjar & Clark, 2017). Poor corporate governance allows managers to secure greater personal benefits, often to the detriment of minority shareholders. Conversely, enhanced investor protection restricts managers' opportunities to derive private benefits at the expense of minority shareholders (Dyck & Zingales, 2004). Effective corporate governance leads managers to prioritize the maximization of shareholders' wealth over expropriation (Pinkowitz et al., 2006).

### **Corporate Governance and Shariah Compliance**

Chen and Yu (2023) assert that when national governance is strong or firms are Shariah-compliant, corporate governance improves. Additionally, Shariah's precise explanations of the duties that each party has would reduce agency conflicts between various stakeholders. Managers of SCFs have a longer-term outlook on managing a business, which suggests a decreased inclination to take risks that jeopardize stakeholder value to achieve immediate personal gain. Firms that are Shariah-compliant have greater cash values, indicating superior cash management skills and sound corporate governance (Chen & Yu, 2023).

The SCFs' operations differ from those of NSCFs since SCFs must adhere to Islamic principles. SCFs are prevented from engaging in any prohibited activity within the context of Shariah principles. Additionally, SCFs are subject to restrictions on their cash and debt ratios, which cannot exceed 33% (Securities Commission Malaysia, 2024).

In order for a firm to be listed as a Shariah-compliant firm, the firm must adhere to all of the criteria and benchmarks that have been established by the Shariah Advisory Council (SAC) of the Securities Commission Malaysia (SC), and the Bank Negara Malaysia (Securities Commission Malaysia, 2024).

SCFs exhibit superior corporate governance and reduced agency costs compared to NSCFs (Ashari Bakri & Chia Yong, 2023). Revealing a firm's sustainability policies is a primary focus for SCFs. This action enhances governance by increasing stakeholder confidence and

improving transparency. Conversely, such activities are typically lacking in firms that do not adhere to Shariah, leading to a less efficient governance mechanism in these firms (Khattak et al., 2020).

It is worth noting that previous literature on corporate cash holdings provides evidence for all listed firms without considering their Shariah status. Chen and Yu (2023) emphasize that previous literature has limited empirical evidence to suggest the quality of corporate governance in Islamic countries. Shariah compliance should enhance corporate governance since it is a discipline that helps firms be better governed in accordance with Shariah. Agency issues between various stakeholder groups would be mitigated, as Shariah explicitly outlines the obligations of all parties (Chen & Yu, 2023).

### **Board Characteristics and Cash Holdings**

Alqahtani et al. (2022) emphasize that the BODs is a vital element of the internal corporate governance tools since the BODs serve as the main mechanism through which shareholders can exert influence over senior management (Saeed & Sameer, 2017). The board is tasked with selecting and overseeing the firm's principal strategy while ensuring appropriate actions are implemented to safeguard shareholder wealth. The monitoring function necessitates that the BODs oversee management to prevent potentially destructive conduct or fraud (Germain et al., 2014).

The size, composition, and leadership capabilities of BODs influence the effectiveness of their monitoring responsibilities (Buallay et al., 2022). Effective governance serves as a vital safeguard against unethical conduct, inadequate management, and fraudulent activities by boards. The BODs are crucial for maintaining high standards of corporate governance and act as stewards and guardians of the firms (Buallay et al., 2022).

In the literature on corporate governance, the primary variables utilized to characterize board attributes include board size, board independence, and CEO duality (Cambrea et al., 2022; Duru et al., 2016; Shahrier et al., 2020). Prior empirical research has identified the aforementioned board characteristics as suitable proxies for board monitoring, primarily based on AT (Cambrea et al., 2022). Sulong and Mat Nor (2008) assert that effective board governance is characterized by smaller board size, increased board independence, and the absence of board duality. Consequently, this study postulates that improved board characteristics are associated with reduced cash holdings.

#### *Board Size and Cash Holdings*

Prior studies on board characteristics indicate that board size may influence the effectiveness of monitoring activities (Cambrea et al., 2022). Yermack (1996) posits that firms with larger boards generally exhibit ineffective corporate governance. Increased board sizes may impair communication and hinder decision-making due to the involvement of more individuals, consequently diminishing the board's effectiveness (MengYun et al., 2021). Firms with an excessive number of directors are likely to be less effective, advocating for a smaller board comprising no more than ten directors (Lipton & Lorsch, 1992).

A smaller board size enhances effectiveness by facilitating familiarity among directors, promoting more productive discussions, and enabling easier consensus during discussions. Larger boards tend to experience free-riding issues, leading to decreased activity and

effectiveness in monitoring; consequently, smaller boards may serve as a more effective governance structure for a firm (Lipton & Lorsch, 1992). A smaller board can enhance business performance (Zabri et al., 2016) and more effectively manage the firm's funds (Aslam et al., 2019).

In this regard, the studies of Ferreira and Vicente (2020), Li and Luo (2020), and Talbi and Menchaoui (2023) provide evidence of a significant positive association between board size and cash holdings. The findings of those studies demonstrate that firms with larger board sizes retain more cash, thereby supporting the AT, which suggests that firms with larger boards often exhibit ineffective corporate governance mechanisms, limiting shareholders' ability to influence management decisions. Managers of these firms hesitate to return excess cash to shareholders because of inadequate oversight by the BODs (Aslam et al., 2019). Increased liquidity may lead managers to adopt more opportunistic behaviors, potentially resulting in agency issues (Talbi & Menchaoui, 2023).

Aligning with the above arguments and justifications, this study formulates the following hypothesis:

*H1: There is a significant positive relationship between board size and cash holdings of SCFs*

#### *Board Independence and Cash Holdings*

Board independence is frequently regarded as one of the critical factors that enhance internal corporate governance mechanisms (Rahayu Izwani & Pok, 2011) as they can boost the position of minority shareholders who possess limited influence over the company (Akhtar et al., 2021). Increasing the number of independent directors on company boards is an effective strategy to reduce potential conflicts between shareholders and management (Karim et al., 2023). Effective board monitoring reduces conflicts of interest between managers and shareholders, thereby diminishing managers' propensity to accumulate excessive cash (Wasiuzzaman, 2014).

An increase in the number of independent directors on a firm's board will reduce information asymmetry and enhance information disclosure to shareholders (Ajanthan & Kumara, 2017). This will diminish managers' self-interest, thereby aiding in the reduction of management entrenchment and resource expropriation (Lee & Lee, 2009). Ajanthan and Kumara (2017) present an argument that is corroborated by Boubaker et al. (2015), which indicates a negative relationship between board independence and cash holdings. Increased board independence is associated with significantly reduced cash holdings in firms. Independent directors exhibit reduced dependence on management and are more focused on constraining the actions of controlling managers, thereby minimizing the potential for expropriation of available funds (Boubaker et al., 2015).

Based on the above arguments and justifications, this study proposes the following hypothesis:

*H2: There is a significant negative relationship between board independence and cash holdings of SCFs*

### *CEO Duality and Cash Holdings*

Proponents of AT argue that the consolidation of the CEO and board's Chairman positions undermines board members' capacity to meet their fiduciary responsibilities (Jebran et al., 2019). CEO duality in leadership is posited to correlate with elevated levels of cash within the firm. Increased cash reserves within firms exhibiting CEO duality may facilitate insider expropriation activities. In firms with CEO duality, elevated cash holdings may indicate a preference for cash accumulation due to the absence of a clear distinction between the CEO's monitoring and management roles. Accumulated cash can grant controlling managers greater access to corporate resources, potentially benefiting them at the expense of outside shareholders (Boubaker et al., 2015).

CEO duality exacerbates agency issues since the roles of CEO and Chairman of the board are held by a single individual (Chouaibi et al., 2022). Firms exhibiting CEO duality seek to maintain higher cash reserves to enhance their autonomy in financial decision-making (Abuhijleh & Zaid, 2023). The dual roles of the CEO may indicate strong leadership; however, they can diminish the effectiveness of board monitoring (Roy, 2018).

In conclusion, the preceding arguments support the notion that effective corporate governance necessitates a distinct separation between the roles of the CEO and the board chairperson. Furthermore, this study aligns with the AT, which suggests that CEO duality exacerbates agency problems. Therefore, this study posits the following hypothesis:

*H3: There is a significant positive relationship between CEO duality and cash holdings of SCFs*

## **METHODOLOGY**

### **Research Method, Sample Selection, and Data Sources**

This study is a quantitative study that uses panel data since the panel data is more accurate in producing forecasts than cross-sectional data and time-series data (Hsiao, 2014). Panel data offers more degrees of freedom and promotes more accurate estimation by controlling collinearity between explanatory variables, controlling for overlooked heterogeneity, and reducing multicollinearity (Law, 2018). In this study, the outliers in the dataset are detected using Cook's Distance Outliers test (Cook, 1977) with the formula of  $D > 4/N$ , where  $N$  is the sample size (Law, 2018). Accordingly, the outliers are excluded from the dataset, and the models are estimated without the outliers.

The population of this study consists of non-financial and non-utility SCFs listed on Bursa Malaysia from 2012 to 2021. The beginning period is chosen as it is in line with the period of effectiveness of the Malaysian Code on Corporate Governance (MCCG) 2012, which aims to improve the structure and composition of the BODs and acknowledge the role of directors as active and responsible fiduciaries (Securities Commission Malaysia, 2012). Meanwhile, the most recent financial statements published by Bursa Malaysia during the data collection period are for 2021. Thus, this study period ends in 2021. Moreover, a 10-year period is sufficiently long to accommodate the nature of the short panel data (Law, 2018).

In accordance with Chen et al. (2020) and Rafinda et al. (2018), this study excludes financial and utility firms due to the distinct role of cash in those sectors. The data is filtered according

to two criteria, which consequently generate balanced panel data. First, to ensure unbiased results, firms must have been consistently listed as SCF during the sample period (Ramli & Haron, 2017). Second, the firms must possess complete data on all variables. Following the removal of firms that are not consistently under SCFs status for the whole study period and those with missing data, the final sample comprised 279 SCFs. This study obtained financial variable data from Thomson Reuters Data Stream, while corporate governance data were manually collected from the firm's annual report accessed via the Bursa Malaysia website.

### **Variable Measurement**

Previous literature identifies two common proxies for cash holdings (Ch). First, the net cash ratio (Bugshan et al., 2021; Cindy et al., 2023; Guizani, 2017) and second, the cash ratio (Alnori et al., 2022; Bugshan et al., 2021). Since prior studies, including Ahmed et al. (2018) and Alnori et al. (2022), highlight that no significant difference in results when utilizing these two ratios, this study employs the cash ratio, which compares cash and cash equivalents to total assets (Alnori et al., 2022; Bugshan et al., 2021) as the dependent variable.

This study focuses on three BODs' characteristics, which may have an impact on the corporate cash holdings of SCFs. They are board size (BSize), board independence (BIndep), and CEO Duality (Duality). BSize is the total number of directors on the board scaled by the natural logarithm of total assets (Li & Luo, 2020; Rafinda et al., 2018). BIndep is the ratio of the total number of independent directors to the total number of directors on a board (Ahmed et al., 2018; Al Amosh & Khatib, 2022). Duality is a dummy variable that takes 1 if the board's Chairman is also the CEO at the same time and 0 otherwise (Elyasiani & Movaghari, 2022; Shahrier et al., 2020).

This study also takes into account firm characteristics as control variables, as previous studies show that they significantly impact the amount of cash held by a firm (Weidemann, 2017). The descriptions of the control variables are as follows:

1. Capital expenditure (Capex): is the ratio of capital expenditure to total assets (Al-Hadi et al., 2020; Guizani & Abdalkrim, 2021). Low cash levels are likely to result from an increase in capex (Bates et al., 2009) since cash reserves are ideally used to finance investments (Opler et al., 1999). Thus, this study anticipates a negative correlation between capex and cash holdings.
2. Leverage (Lev): is the ratio of total debts to total assets (Kusnadi, 2019; Orlova & Sun, 2018). Firms with higher leverage are more matter to be monitored by the capital market participants (Drobotz & Gruninger, 2007). For this reason, higher-leverage firms are less able to maintain high cash. Additionally, firms with easier access to the debt markets will consequently have lower cash reserves (Guizani & Abdalkrim, 2021). Accordingly, this study expects that leverage and cash holdings are negatively correlated.
3. Dividends (Div): refers to the dividend ratio, calculated by dividing total dividends by total assets (Al-Hadi et al., 2020; Rama Iyer et al., 2020). Firms that distribute dividends might mitigate cash retention expenses by reducing dividend payouts, leading to an inverse correlation between these two variables (Alnori et al., 2022). Dividend-paying firms with constrained internal resources can avoid expensive external funding by issuing shares or reducing their dividend distributions (Ozkan & Ozkan, 2004). Based on these arguments, this study estimates that the relationship between dividends and cash holdings is negative.

4. Firm Size (FS): is measured as the natural logarithm of total assets (Kwan & Lau, 2020; Saxena & Sahoo, 2023). Smaller firms generally retain more cash than larger firms due to the higher costs associated with external borrowing (Alnori et al., 2022). Large firms are less prone to cash hoarding due to a reduced likelihood of incurring bankruptcy-related costs and their inherent diversity compared to smaller firms (Bugshan et al., 2021). Therefore, this study suggests that firm size has an adverse effect on cash holdings.
5. Growth Opportunity: is proxied by the market-to-book ratio (MTB) and measured by dividing the market price per share by the book value per share (Al-Najjar, 2015; Khan et al., 2019). Firms pursuing high-quality investment prospects might encounter a greater opportunity cost owing to restricted liquidity. Moreover, these firms encounter elevated financial distress costs, resulting in increased expenses for external finance (Alnori & Bugshan, 2022). Consequently, firms with outstanding investments typically possess larger cash reserves to alleviate the risk of future underinvestment and elevated borrowing costs. Accordingly, this study expects a positive relationship between MTB and cash holdings.
6. Profitability (Prof): is a ratio of net income to total assets (Alnori et al., 2022; Satt et al., 2020). Firms with higher profits typically possess greater internal funds due to their ability to retain earnings and their proficiency in accumulating capital, which can be allocated for future expenditures (Guizani, 2017). Conversely, firms with lower profits generally possess limited liquidity and depend on borrowing for their operations. Hence, the influence of profitability on cash levels is estimated to be positive.
7. Liquidity Substitution: is proxied by the net working capital (NWC) and measured by dividing the net current assets by total assets (Guizani, 2017; Orlova & Sun, 2018). Liquid assets, including NWC and cash reserves, are seen as a substitute (Arora, 2019). Firms possessing greater NWC are inclined to maintain lower cash reserves, as liquid assets can be readily liquidated to address any cash deficiencies (Chen & Yang, 2017). Consequently, the relationship between liquidity substitution and cash reserves is anticipated to be negative.
8. Cash Flow (CF): is the ratio between cash flows and total assets (Al-Najjar, 2015; Guizani & Abdalkrim, 2021). Cash flow constitutes the primary financing alternative employed by firms to mitigate asymmetric information costs and other borrowing expenditures (Ferreira & Vilela, 2004); thus, firms with more cash flow will hoard more cash (Guizani & Abdalkrim, 2021). Based on this argument, this study assumes the effect of cash flow on cash holdings to be positive.
9. Liquidity Constraint: is proxied by the cash flow volatility (CFVol) and measured by dividing the standard deviation of cash flow by total assets (Guizani, 2017). Firms with greater variability in cash flows encounter an elevated risk of cash shortages resulting from unforeseen cash flow declines, prompting them to abandon some lucrative investment opportunities (Guizani, 2017). To avoid this risk, firms with volatile cash flows need to hold more cash. Accordingly, this study hypothesizes the effect of cash flow volatility on cash holdings to be positive.

## **Model Specifications**

This study uses static panel data estimation to examine the effects of board characteristics on cash holdings. The general form of the models is as follows:

$$Ch_{i,t} = \beta_0 + \beta_1 X_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where  $Ch_{i,t}$  is the dependent variable representing the cash holding for firm  $i$  and time  $t$ ;  $\beta_0$  is a constant term;  $X_{i,t}$  is a vector of independent and control variables, and  $\varepsilon_{i,t}$  is the error term that is presumed to be normally distributed as  $\varepsilon_{i,t} \sim N(0,1)$ .

For this study, the model is shown in the following equation:

$$Ch_{i,t} = \beta_0 + \beta_1 BSize_{i,t} + \beta_2 BIndep_{i,t} + \beta_3 Duality_{i,t} + \beta_4 Capex_{i,t} + \beta_5 Lev_{i,t} + \beta_6 Div_{i,t} + \beta_7 FS_{i,t} + \beta_8 MTB_{i,t} + \beta_9 Prof_{i,t} + \beta_{10} NWC_{i,t} + \beta_{11} CF_{i,t} + \beta_{12} CFVol_{i,t} + \varepsilon_{i,t} \quad (2)$$

This study's analysis commences with the estimation of equation (2) utilizing a static panel regression, which encompasses pooled ordinary least squares (POLS), random effects model (REM), and fixed effects model (FEM). This is consistent with prior research, including Alnori et al. (2022), Guizani (2017), and Opler et al. (1999), which employed the static panel regression to examine the determinants of cash holdings.

This study employed two tests, the Breusch-Pagan and Lagrangian Multiplier (BP-LM) test and the Hausman Specification test (Hausman, 1978), to identify the most suitable estimator for the data set. The BP-LM test (Breusch & Pagan, 1980) assesses the appropriateness of the model, whether to employ a POLS model or REM. Then, the Hausman test will assist in determining the appropriate model between the REM and the FEM. The significant p-value of the BP-LM test indicates the presence of firm-specific effects in the dataset, suggesting the REM is more suitable than the POLS model. Meanwhile, the significant p-value of the Hausman test indicates that each firm possesses a unique intercept, proposing that the FEM is more appropriate than the REM (Law, 2018).

Upon acquiring the optimal static panel model for estimation, following Law (2018), this study conducts several diagnostic assessments, including the variance inflation factor (VIF) to identify multicollinearity, the Modified Wald statistic to detect groupwise heteroskedasticity, and Wooldridge's (2002) test to ascertain serial correlation. The occurrence of multicollinearity is signified when the average VIF exceeds 10. Meanwhile, heteroscedasticity and autocorrelation problems in the dataset are identified upon rejecting the null hypothesis for the Modified Wald statistic and the Wooldridge (2002) test (Law, 2018).

Upon identifying heteroskedasticity and autocorrelation issues in the model, corrective measures must be undertaken to address these concerns by estimating the model using robust standard errors clustered by firms, as suggested by Hoechle (2014). This study subsequently assesses whether the dataset demonstrates time effects. It concurs with Law (2018) that concentrating exclusively on the firm's fixed effects while neglecting the time effects may lead to biased estimations of coefficients and standard errors. According to Petersen (2009), financial data predominantly demonstrate two principal forms of dependence: time-series dependence and cross-sectional dependence.

In the case that the dataset incorporates both firm-specific fixed effects and time effects, the model must be adjusted by utilizing a robust model that estimates the standard error clustered by firms while addressing time effects to yield a reliable estimation (Petersen, 2009). It is deemed stable and reliable due to its robustness, which effectively addresses issues of influential outliers, heteroscedasticity, and non-normal residuals (Law, 2018).

## FINDINGS AND DISCUSSIONS

### Descriptive Statistics

Table 1 presents a statistical description of all variables in the sample, comprising 2790 observations. Based on the result of Panel A of Table 1, SCFs listed in Bursa Malaysia on average hold 12.72% of their assets in the form of cash and cash equivalents. This discovery corresponds with the Malaysian Shariah screening criteria, which mandate that SCFs maintain a cash ratio below 33% (Securities Commission Malaysia, 2024). This aligns with the findings of Ashhari and Faizal (2018) and Guizani and Abdalkrim (2021), which indicate that firms in Malaysia maintain 13% cash reserves.

**Table 1**  
*Descriptive Statistics*

Panel A: Ratio Variables				
Variable	Mean	Std. Dev.	Minimum	Maximum
Cash Holdings	0.12719	0.10236	0.00009	0.00009
Board Size	7.52544	1.98684	3	17
Board Independence	0.45770	0.12851	0	1
Capex	0.03543	0.04252	0	0.39383
Leverage	0.17290	0.13518	0	0.81571
Dividends	0.02008	0.05083	0	2.01925
Firm Size	13.14594	1.54546	9.01590	18.09484
Market-to-book	1.37547	3.19299	-42.93	73.44
Profitability	0.02508	0.12099	-3.67127	0.83749
Net Working Capital	0.16455	0.23859	-3.41029	0.78336
Cash Flow	5.90922	9.63842	-232.3624	88.88309
Cash Flow Volatility	3.20230	7.80161	0.00171	211.3155
Panel B: Dummy Variable				
	Frequency	Percentage	No of Observations	
Duality/Non-duality	269/2521	9.64/90.36	2790	

For corporate governance variables, on average, SCFs consist of eight members on their boards. This aligns with corporate governance best practices, which recommend a minimum of seven board members (Yermack, 1996), and the AT, which proposed a maximum of ten members is optimal for effective monitoring (Lipton & Lorsch, 1992). The average ratio of independent directors to total board members is 45.77%. It is consistent with good governance practices as outlined in the MCCG 2021 (Securities Commission Malaysia, 2021), recommending that independent directors constitute 50% of the board. Meanwhile, Panel B of Table 2 indicates that 9.64% of the observations pertain to SCFs that engage in CEO duality, whereas 90.36% are characterized by non-duality. The results indicate that SCFs in Malaysia demonstrate effective corporate governance, as evidenced by a higher frequency of non-duality practices among these firms.

Furthermore, the average size of SCFs in the sample is large, with a mean value of 13.15, indicating superior access to the capital market. A leverage of 17.29% suggests that these firms

do not heavily rely on leverage for their financing options. It aligns with the Malaysian Shariah screening criteria, stipulating that SCFs maintain a debt ratio below 33% (Securities Commission Malaysia, 2024). The sample firms exhibit a dividend ratio of 2%, indicating that SCFs distribute a smaller proportion of dividends, as they require a greater reserve of liquid assets for internal capital needs.

During the sample period, the SCFs exhibited a profit generation of only 2.51% from their investments in total assets. These firms also produced 16.45% of net working capital from their total asset investments. Capital expenditures, as indicated by a mean value of 3.54%, suggest that approximately 4% of total assets are allocated to finance these expenditures. Concerning growth opportunities as indicated by the MTB, the data reveal that, on average, the market price per share of SCFs is 1.38 times greater than their book value per share. The higher standard deviation value for MTB signifies a greater variability in growth opportunities among SCFs. The high standard deviation of cash flow and cash flow volatility of 9.63 and 7.80, respectively, also indicate greater variations. The results suggest that SCFs encounter significant uncertainties, as a high standard deviation indicates increased volatility of the variables.

### Regression Results

Table 2 provides the estimated results for this study’s analysis, where cash holdings (Ch) is the dependent variable, board characteristics are the independent variables, and firm characteristics are the control variables. Several procedures are performed to determine the optimal model for this study.

The results presented in Table 2 indicate that the model does not exhibit multicollinearity, as evidenced by a mean VIF of 1.37, which is below the threshold of 10. The p-value of the BP-LM test, which is below 0.01, suggests the presence of firm-specific effects in the dataset. Therefore, the REM (Model 2) is more suitable than the POLS model (Model 1). The subsequent Hausman test yielded a p-value below 0.01, indicating that each firm possesses a unique intercept, thereby suggesting that the FEM (Model 3) is favoured over the REM (Model 2).

**Table 2**  
*Estimated results of the static panel data regression*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<b>Dependent variable:</b> Ch	<b>POLS</b>	<b>REM</b>	<b>FEM</b>	<b>FEM (Cluster Firms)</b>	<b>Time Effects</b>	<b>Firms &amp; Time Effects</b>
<b>Independent variables:</b>						
BSize	<b>0.0385***</b> (0.00762)	<b>0.0290***</b> (0.00766)	<b>0.0246***</b> (0.00810)	<b>0.0246**</b> (0.0116)	<b>0.0333***</b> (0.00759)	<b>0.0333**</b> (0.0164)
BIndep	0.000450 (0.0156)	<b>0.0373**</b> (0.0152)	<b>0.0468***</b> (0.0160)	<b>0.0468**</b> (0.0230)	-0.0200 (0.0157)	-0.0200 (0.0295)
Duality	-0.00379 (0.00587)	<b>-0.0125*</b> (0.00740)	<b>-0.0173**</b> (0.00826)	-0.0173 (0.0130)	-0.00220 (0.00582)	-0.00220 (0.0111)
<b>Control variables:</b>						
Capex	<b>-0.125***</b> (0.0428)	<b>-0.114***</b> (0.0327)	<b>-0.110***</b> (0.0331)	<b>-0.110**</b> (0.0424)	<b>-0.0800*</b> (0.0430)	-0.0800 (0.0720)
Lev	<b>-0.198***</b> (0.0143)	<b>-0.164***</b> (0.0172)	<b>-0.148***</b> (0.0190)	<b>-0.148***</b> (0.0333)	<b>-0.195***</b> (0.0142)	<b>-0.195***</b> (0.0356)
Div	<b>0.169***</b>	0.0405	0.0217	0.0217	<b>0.182***</b>	0.182

	(0.0472)	(0.0353)	(0.0356)	(0.0404)	(0.0469)	(0.137)
FS	0.00180	<b>0.00400*</b>	<b>0.00964***</b>	0.00964	0.000828	0.000828
	(0.00134)	(0.00234)	(0.00357)	(0.00766)	(0.00134)	(0.00293)
MTB	<b>0.0164***</b>	<b>0.0182***</b>	<b>0.0186***</b>	<b>0.0186***</b>	<b>0.0169***</b>	<b>0.0169*</b>
	(0.00329)	(0.00313)	(0.00330)	(0.00442)	(0.00328)	(0.00956)
Prof	<b>0.0704***</b>	<b>0.0987***</b>	<b>0.103***</b>	<b>0.103***</b>	<b>0.0720***</b>	<b>0.0720*</b>
	(0.0235)	(0.0174)	(0.0175)	(0.0336)	(0.0234)	(0.0416)
NWC	<b>-0.0550***</b>	<b>-0.116***</b>	<b>-0.136***</b>	<b>-0.136***</b>	<b>-0.0513***</b>	<b>-0.0513**</b>
	(0.00873)	(0.00956)	(0.0104)	(0.0299)	(0.00867)	(0.0247)
CF	<b>0.0102***</b>	<b>0.00358***</b>	<b>0.00257**</b>	<b>0.00257*</b>	<b>0.0103***</b>	<b>0.0103***</b>
	(0.00133)	(0.00104)	(0.00106)	(0.00146)	(0.00132)	(0.00199)
CFVol	<b>0.00531***</b>	<b>0.00409***</b>	<b>0.00392***</b>	<b>0.00392*</b>	<b>0.00411**</b>	0.00411
	(0.00181)	(0.00149)	(0.00152)	(0.00223)	(0.00181)	(0.00388)
Constant	0.130***	0.0973***	0.0190	0.0190	0.137***	0.137***
	(0.0184)	(0.0306)	(0.0458)	(0.0979)	(0.0188)	(0.0408)
Observations	2,790	2,790	2,790	2,790	2,790	2,790
R-squared	0.211		0.144	0.144	0.227	0.227
Number of firms	279	279	279	279	279	279
Multicollinearity test: Mean VIF	1.37	1.37	1.37	1.37	1.37	1.37
BP-LM test (p-value)	0.0000					
Hausman test (p-value)	0.0000					
Heteroskedasticity test (p-value)	0.0000					
Serial correlation test (p-value)	0.0000					
Time effect test (p-value)	0.0000					
Coefficient estimates	OLS	GLS	OLS	OLS	OLS	OLS
Standard errors	OLS	GLS	OLS	Cluster Firm	OLS	Year Dummy + Cluster Firm

Notes: The dependent variable is the cash ratio. \*\*\*, \*\* and \* denote significant at 1%, 5% and 10% levels, respectively. The figures in parentheses for Models 1, 2, 3, and 5 are standard errors, while for Models 4 and 6 are robust standard errors. The time dummies are not reported to save space.

Diagnostic tests are subsequently included to assess serial correlation and heteroskedasticity issues in the FEM (Model 3). The findings indicate a p-value below 0.01, confirming the presence of heteroscedasticity and autocorrelation issues within the dataset. Following Hoechle (2014), this study then estimates the FEM with heteroskedasticity and serial correlation issues by employing robust standard errors clustered by firm. The outcome is presented in Model 4.

Additional testing on the time effects is performed per Petersen's (2009) assertion that financial data at the firm level is typically subject to two primary forms of dependency: time series and cross-sectional dependency. The p-value for the time effect test in Model 5 is below 0.01, indicating the presence of a time effect in the dataset. Petersen (2009) highlights that focusing exclusively on firms' fixed effects, while overlooking the time effect, may result in biased coefficient and standard error estimations. Therefore, this study estimates the model using robust standard errors clustered by firms, while considering the time effect, as noted by Petersen (2009). Model 6 presents the results. Model 6 exhibits stability and reliability as a robust clustered model that effectively addresses influential outliers, heteroscedasticity, and non-normal residuals (Law, 2018). Accordingly, Model 6 is employed to explain the effect of board characteristics on the cash holdings of the SCFs.

Based on the results of Model 6 in Table 2, board size has a significant positive impact on cash holdings at a 5% significance level, which signifies that SCFs with larger board sizes hold more cash. This finding parallels Talbi and Menchaoui (2023), who analyzed board size and corporate cash holdings from AT's perspective. The positive relationship between board size and cash holdings suggests that bigger board sizes do not hinder managers' opportunistic conduct, reflected in higher cash holdings (Talbi & Menchaoui, 2023). Instead, smaller boards represent a better governance structure for corporations because larger boards may have free-riding issues and limit monitoring efforts (Lipton & Lorsch, 1992).

Alternatively, the positive effects of board size and cash holdings could also mean SCFs with small boards hold less cash. Since smaller boards minimize cash reserves, they can be useful corporate governance tools. Smaller boards can limit managers' expropriation, which may suggest the absence or lower level of agency problems. Smaller boards are more effective because directors get to know each other, have better talks, and reach true consensus more easily (Lipton & Lorsch, 1992). Accordingly, the significantly positive effect of board size on cash holdings evidenced in this study suggests that a smaller board is more effective at mitigating agency conflicts than a larger board. Other research that shows that board size significantly increases cash holdings includes Ferreira and Vicente (2020), Li and Luo (2020), and Talbi and Menchaoui (2023).

This finding suggests that SCFs with fewer board members emphasize lowering agency costs by prioritizing sharing funds with shareholders through dividends, demonstrating a commitment to transparency and adhering to Shariah rules that forbid excessive wealth accumulation. This is consistent with SCFs' overarching goal of operating in an ethical and financially sound manner while maximizing resources and encouraging equitable distribution.

Turning to the effect of board independence and CEO duality on cash holdings, the result of Model 6 in Table 2 shows that the effects are negative but insignificant. It suggests that while a more independent board and the dual role of CEO might be associated with lower cash holdings, the relationship isn't strong enough to be considered important, which supports the findings of Al-Najjar and Clark (2017) for board independence board, and Magerakis et al. (2020) for duality. These findings might be due to the reason that SCFs have superior corporate governance policies and practices compared to NSCFs (Ashari Bakri & Chia Yong, 2023). Since clear rights for all stakeholders, requirements for transparency and disclosure, and clear board responsibilities and accountability are necessary for effective corporate governance (Ullah et al., 2023), the SCFs managers' attitudes regarding cash holdings are unaffected by their independent board and their CEO's dual role.

In addition, the observed association may be statistically insignificant due to a number of mitigating factors in the Malaysian SCFs setting. First, Shariah compliance places certain constraints on cash management (for example, restrictions on certain investments and reliance on compliant instruments), which can dampen the sensitivity of cash holdings to governance structures such as board independence and CEO duality. Second, firms in Malaysia frequently face industry and macro-level liquidity needs (for example, working capital requirements, regulatory resolution, and target liquidity ratios), which dominate cash decision processes and outweigh the incremental governance effects. Third, the sample of SCFs in this study may exhibit limited variation in board independence or CEO duality, or the significance of these governance traits may be small relative to other determinants of cash holdings. Consequently,

while the directions of these relationships are negative, the combined noise and relatively weak explanatory power lead to an insignificant statistical result.

Meanwhile, for the control variables, this study demonstrates that leverage and liquidity substitution negatively and significantly impact the cash holdings of SCFs at a 1% and 5% significance level, respectively. Diaw (2021) and Shabbir et al. (2016) prove that leverage adversely affects cash holdings, parallel to AT's argument that repaying debt using cash will reduce the firm's free cash flow. In addition, because liquid assets may be easily exchanged to offset any cash deficiencies, firms with higher NWC typically hold less cash (Chen & Yang, 2017). This finding aligns with the connotation of the trade-off theory (TOT) that cash holdings and liquid assets such as NWC are regarded as alternatives (Arora, 2019). Prior studies by Ashhari and Faizal (2018) and Bugshan et al. (2021) have demonstrated the significant adverse effects of liquidity substitution on cash holdings.

The results of Model 6 in Table 2 also display that the effects of growth opportunity, profitability, and cash flow on cash holdings are significantly positive at 10%, 10% and 1%, respectively. It is parallel to Arora (2019) for growth opportunity, Bagh et al. (2021) for profitability, and Bugshan et al. (2021) for cash flow. The positive effects of these variables on the cash holdings of SCFs are due to the reason that SCFs maintain cash to be used as the main source of financing since they mainly depend on internal capital (Bugshan et al., 2021). This is due to the reason that Shariah status imposes limitations on SCFs, which significantly influence their corporate decisions, especially on liquidity and financing (Alnori & Alqahtani, 2019).

The above findings validate the TOT's hypothesis that firms typically maintain larger cash reserves to avoid costly capital resulting from market constraints and financial challenges (Chireka & Fakoya, 2017). Because SCFs have few external funding sources, the need to hoard cash is more prevalent for them (Alnori et al., 2022). Moreover, these findings further support the pecking order theory (POT) idea that cash is employed as the key source of funding since external financing is typically costly due to information asymmetry (Al-Najjar, 2015). As a result, SCFs have more cash on hand when they earn higher profits and retain more cash flow. The cash held can be used to fund their expansion at a cheaper cost.

Meanwhile, the results of this study also show that there are no significant effects of capex, dividends, firm size, and liquidity constraints on the cash holdings of SCFs. These results align with Zainudin (2024) for capex, Thanatawee (2019) for dividends, and Alnori et al. (2022) for both firm size and liquidity constraints. As SCFs must adhere to strict financial regulations based on Islamic laws, SCFs have distinct financial and risk management practices that distinguish them from conventional firms (Maruhun et al., 2018). This explains why these variables have insignificant impacts on SCFs' cash holdings.

## **CONCLUSION**

This study aimed to examine the effects of corporate governance on cash holdings for SCFs. The board characteristics are used in this study to represent corporate governance based on a prior study's argument that BODs are the most vital mechanisms of corporate governance (Alqahtani et al., 2022). The primary drive for this study is the lack of research on corporate cash holding, focusing on SCFs.

SCFs with larger board sizes are found to hoard more cash. This indicates that large corporate boards are ineffective as a tool for corporate governance. Conversely, it can also be interpreted as SCFs with smaller boards hoard less cash. It illustrates that smaller boards can be seen as a useful corporate governance tool that can be utilized to restrict managers' expropriation actions. SCFs with smaller boards are better able to handle the agency conflicts that result from ownership and control being separated. Nevertheless, this study evidenced that board independence and CEO duality effects on cash holdings are insignificant. It suggests that SCFs possess stronger corporate governance policies and practices, corroborating the stewardship theory, which argues that managers are intrinsically driven to perform in the firm's best interests. It contends that effective corporate governance can cultivate a stewardship mindset among managers, reinforcing their dedication toward aligning shareholders-managers interests (Hamdouni, 2025).

SCFs are discovered to gain benefits from effective corporate governance mechanisms that align the interests of management and shareholders as per Shariah principles. Although smaller boards offer benefits, SCFs must always guarantee effective governance by ensuring that the conduct of board members is consistent with Shariah principles and norms. CEO duality may be an effective technique if the CEO is deeply devoted to ethics and business purposes. Additionally, enhancing board independence is crucial to mitigate potential conflicts of interest, facilitating more effective oversight of financial decisions and improved adherence to Shariah-compliant status.

This study's findings offer insights to the regulatory bodies on the importance of enforcement for compliance with good governance practices, apart from compliance with Shariah. It is also recommended that SCFs establish their own Shariah Advisory Committee to ensure that their operations and functions are in accordance with Shariah rulings. Realizing the potential issue of endogeneity that the static panel model may suffer, therefore, it is recommended that future studies consider the dynamic panel model to enhance the reliability of the estimation. Future research that focuses on the similarities and distinctions in the findings between SCFs and NSCFs would also be an interesting avenue to pursue.

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## **REFERENCES**

- Abuhijleh, S. T. ., & Zaid, M. A. A. (2023). Do political connections shape the nexus between board attributes and corporate cash holdings? *EuroMed Journal of Business*, 18(1), 85–110. <https://doi.org/10.1108/EMJB-09-2021-0136>
- Ahmed, R., Qi, W., Ullah, S., & Kimani, D. (2018). Determinants of corporate cash holdings: An empirical study of Chinese listed firms. *Corporate Ownership and Control*, 15(3), 57–65. <https://doi.org/10.22495/cocv15i3art5>
- Ajanthan, A., & Kumara, K. U. (2017). Corporate governance and cash holdings: Empirical evidence from an emerging country, Sri Lanka. *International Journal of Accounting and Financial Reporting*, 7(2), 112–128. <https://doi.org/10.5296/ijafr.v7i2.12137>
- Akhtar, T., Tareq, M. A., & Rashid, K. (2021). Chief Executive Officers' monitoring, board

- effectiveness, managerial ownership, and cash holdings: Evidence from ASEAN. *Review of Managerial Science*, 15(8), 2193–2238. <https://doi.org/10.1007/s11846-020-00421-0>
- Al-Hadi, A., Eulaiwi, B., Al-Yahyaee, K. H., Duong, L., & Taylor, G. (2020). Investment committees and corporate cash holdings. *North American Journal of Economics and Finance*, 54, 1–22. <https://doi.org/10.1016/j.najef.2020.101260>
- Al-Najjar, B. (2015). The effect of governance mechanisms on small and medium-sized enterprise cash holdings: Evidence from the United Kingdom. *Journal of Small Business Management*, 53(2), 303–320. <https://doi.org/10.1111/jsbm.12062>
- Al-Najjar, B., & Clark, E. (2017). Corporate governance and cash holdings in MENA: Evidence from internal and external governance practices. *Research in International Business and Finance*, 39, 1–12. <https://doi.org/10.1016/j.ribaf.2016.07.030>
- Al Amosh, H., & Khatib, S. F. A. (2022). Ownership structure and environmental, social and governance performance disclosure: The moderating role of the board independence. *Journal of Business and Socio-Economic Development*, 2(1), 49–66. <https://doi.org/10.1108/JBSED-07-2021-0094>
- Alnori, F., & Alqahtani, F. (2019). Capital structure and speed of adjustment in non-financial firms: Does Shariah compliance matter? Evidence from Saudi Arabia. *Emerging Markets Review*, 39(August 2018), 50–67. <https://doi.org/10.1016/j.ememar.2019.03.008>
- Alnori, F., & Bugshan, A. (2022). Cash holdings and firm performance: Empirical analysis from Shariah-compliant and conventional corporations. *International Journal of Islamic and Middle Eastern Finance and Management*, 16(3), 498–515. <https://doi.org/10.1108/IMEFM-01-2022-0005>
- Alnori, F., Bugshan, A., & Bakry, W. (2022). The determinants of corporate cash holdings: Evidence from Shariah-compliant and non-Shariah-compliant corporations. *Managerial Finance*, 48(3), 429–450. <https://doi.org/10.1108/MF-02-2021-0085>
- Alqahtani, J., Duong, L., Taylor, G., & Eulaiwi, B. (2022). Outside directors, firm life cycle, corporate financial decisions and firm performance. *Emerging Markets Review*, 50(March), 1–20.
- Arora, R. K. (2019). Corporate cash holdings: An empirical investigation of Indian companies. *Global Business Review*, 20(4), 1–19. <https://doi.org/10.1177/0972150919844911>
- Ashari Bakri, M., & Chia Yong, C. (2023). Determinants of dividend policies in Shariah compliant and non-Shariah compliant firms: A panel quantile approach. *Capital Markets Review*, 31(1), 47–58. [https://www.mfa.com.my/cmrv31\\_il\\_a3/%0Ahttp://creativecommons.org/licenses/by/4.0/](https://www.mfa.com.my/cmrv31_il_a3/%0Ahttp://creativecommons.org/licenses/by/4.0/)
- Ashhari, Z. M., & Faizal, D. R. (2018). Determinants and performance of cash holding: Evidence from small business in Malaysia. *International Journal of Economics, Management and Accounting*, 26(2), 457–473.
- Aslam, E., Kalim, R., & Fizza, S. (2019). 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), 1–18. <https://doi.org/10.1177/0972150918825202>
- Bagh, T., Khan, M. A., Meyer, N., Sadiq, R., & Kot, S. (2021). Determinants of corporate cash holdings among Asia's emerging and frontier markets: Empirical evidence from non-financial sector. *Journal of Asian Finance, Economics and Business*, 8(6), 661–670. <https://doi.org/10.13106/jafeb.2021.vol8.no6.0661>
- Bates, T. W., Kahle, K. M., & Stulz, R. M. (2009). Why do U.S. firms hold so much than they used to? *Journal of Finance*, 64(5), 1985–2021. <https://doi.org/10.1111/j.1540-6261.2009.01492.x>
- Boubaker, S., Derouiche, I., & Nguyen, D. K. (2015). Does the board of directors affect cash

- holdings? A study of French listed firms. *Journal of Management and Governance*, 19(2), 341–370. <https://doi.org/10.1007/s10997-013-9261-x>
- Breusch T. S., & Pagan A.R. (1980). The lagrange multiplier test and its applications to model specification in econometrics. *Review of Economic Studies*, 47, 239–253.
- Buallay, A., Hamdan, R., Barone, E., & Hamdan, A. (2022). Increasing female participation on boards: Effects on sustainability reporting. *International Journal of Finance and Economics*, 27(1), 111–124. <https://doi.org/10.1002/ijfe.2141>
- Bugshan, A., Alnori, F., & Bakry, W. (2021). Shariah compliance and corporate cash holdings. *Research in International Business and Finance*, 56, 1–16. <https://doi.org/10.1016/j.ribaf.2021.101383>
- Cambrea, D. R., Calabrò, A., La Rocca, M., & Paolone, F. (2022). The impact of boards of directors' characteristics on cash holdings in uncertain times. *Journal of Management and Governance*, 26(1), 189–221. <https://doi.org/10.1007/s10997-020-09557-3>
- Chen, N., & Yang, T. C. (2017). Democracy, rule of law, and corporate governance—a liquidity perspective. *Economics of Governance*, 18(1), 35–70. <https://doi.org/10.1007/s10101-016-0182-4>
- Chen, N., & Yu, M. T. (2023). Sharia compliance, national governance, and value of cash in Organization of Islamic Cooperation countries. *Humanities & Social Sciences Communications*, 10(24), 1–10. <https://doi.org/10.1057/s41599-023-01521-4>
- Chen, Y. R., Ho, K. Y., & Yeh, C. W. (2020). CEO overconfidence and corporate cash holdings. *Journal of Corporate Finance*, 62, 1–26. <https://doi.org/10.1016/j.jcorpfin.2020.101577>
- Chireka, T., & Fakoya, M. B. (2017). The determinants of corporate cash holdings levels: Evidence from selected South African retail firms. *Investment Management and Financial Innovations*, 14(2), 79–93.
- Chouaibi, S., Chouaibi, Y., & Zouari, G. (2022). Board characteristics and integrated reporting quality: Evidence from ESG European companies. *EuroMed Journal of Business*, 17(4), 425–447. <https://doi.org/10.1108/EMJB-11-2020-0121>
- Cindy, M., Leon, F. M., & Purba, Y. E. (2023). Determinants of cash holding of Shariah and non-Shariah-compliant firms at Indonesia stock exchange. *The International Journal of Business & Management*, 11(1), 19–31. <https://doi.org/10.24940/theijbm/2023/v11/i1/bm2301-009>
- Cook, R. D. (1977). Detection of influential observation in linear regression. *Technometrics*, 19(1), 15–18.
- da Cruz, A. F., Kimura, H., & Sobreiro, V. A. (2019). What do we know about corporate cash holdings? A systematic analysis. *Journal of Corporate Accounting & Finance*, 30(1), 77–144. <https://doi.org/10.1002/jcaf.22368>
- Diaw, A. (2021). Corporate cash holdings in emerging markets. *Borsa Istanbul Review*, 21(2), 139–148. <https://doi.org/10.1016/j.bir.2020.09.005>
- Drobtz, W., & Gruninger, M. C. (2007). Corporate cash holdings: Evidence from Switzerland. *Financial Markets and Portfolio Management*, 21(3), 293–324. <https://doi.org/10.1007/s11408-007-0052-8>
- Duru, A., Iyengar, R. J., & Zampelli, E. M. (2016). The dynamic relationship between CEO duality and firm performance: The moderating role of board independence. *Journal of Business Research*, 69(10), 4269–4277. <https://doi.org/10.1016/j.jbusres.2016.04.001>
- Dyck, A., & Zingales, L. (2004). Private benefits of control: An international comparison. *Journal of Finance*, 59(2), 537–600. <https://doi.org/10.1111/j.1540-6261.2004.00642.x>
- Elyasiani, E., & Movaghari, H. (2022). Determinants of corporate cash holdings: An application of a robust variable selection technique. *International Review of Economics and Finance*, 80, 967–993. <https://doi.org/10.1016/j.iref.2022.03.003>

- Ferreira, M. A., & Vilela, A. S. (2004). Why do firms hold cash? Evidence from EMU countries. *European Financial Management*, 10(2), 295–319. <https://doi.org/10.1111/j.1354-7798.2004.00251.x>
- Ferreira, M. P., & Vicente, E. F. R. (2020). Effect of the structure of the board of directors on cash holdings of publicly traded companies. *Contextus – Revista Contemporânea de Economia e Gestão*, 18, 275–289.
- Germain, L., Galy, N., & Lee, W. (2014). Corporate governance reform in Malaysia: Board size, independence and monitoring. *Journal of Economics and Business*, 75, 126–162. <https://doi.org/10.1016/j.jeconbus.2014.06.003>
- Guizani, Moncef, & Abdalkrim, G. (2021). Does Shariah compliance affect corporate cash holdings and cash adjustment dynamics? Evidence from Malaysia. *Pacific Accounting Review*, 33(4), 459–473. <https://doi.org/10.1108/PAR-07-2020-0100>
- Guizani, Muncef. (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. <https://doi.org/10.1016/j.bir.2017.05.003>
- Hamdouni, A. (2025). The nexus between corporate governance improvements, corporate investment and value creation: Evidence from Shariah-compliant companies. *International Journal of Innovative Research and Scientific Studies*, 8(2), 321–328. <https://doi.org/10.53894/ijirss.v8i2.5159>
- Hausman, J. A. (1978). Specification test in econometrics. *Econometrica*, 46(6), 1251–1271.
- Hoechle, D. (2014). Robust standard errors for panel regressions with cross-sectional dependence. *Stata Journal*, 281–312. <https://doi.org/10.1177/1536867x0700700301>
- Hsiao, C. (2014). *Analysis of Panel Data* (Third Ed). Cambridge University Press.
- Im, H. J., Park, H., & Zhao, G. (2017). Uncertainty and the value of cash holdings. *Economics Letters*, 155, 43–48. <https://doi.org/10.1016/j.econlet.2017.03.005>
- Iskandar-datta, M. E., & Jia, Y. (2014). Investor protection and corporate cash holdings around the world: New evidence. *Review of Quantitative Finance and Accounting*, 43, 245–273. <https://doi.org/10.1007/s11156-013-0371-y>
- Jebran, K., Chen, S., & Tauni, M. Z. (2019). Principal-principal conflicts and corporate cash holdings: Evidence from China. *Research in International Business and Finance*, 49(February), 55–70. <https://doi.org/10.1016/j.ribaf.2019.02.010>
- Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Review*, 76(2), 323–329.
- Kadioglu, E., & Yilmaz, E. A. (2017). Is the free cash flow hypothesis valid in Turkey? *Borsa Istanbul Review*, 17(2), 111–116.
- Karim, S., Abdul Manab, N., & Ismail, R. (2023). Assessing the governance mechanisms, corporate social responsibility and performance: The moderating effect of board independence. *Global Business Review*, 24(3), 550–562. <https://doi.org/10.1177/0972150920917773>
- Katper, N. K., Madun, A., & Syed, K. B. S. (2015). Does Shariah compliance lead to managerial trustworthiness? Evidence from empirical analysis of capital structure of Shariah and non-Shariah firms in Pakistan. *Journal of Applied Economic Sciences*, 10(7), 1028–1045.
- Khan, S., Peng, Z., Ahmad, S., Mahmood, S., & Ahmad, I. (2019). Effect of firm structure on corporate cash holding (Evidence from non-financial companies). *Journal of Financial Risk Management*, 8(1), 1–14. <https://doi.org/10.4236/jfrm.2019.81001>
- Khattak, M. A., Ali, M., & Burki, A. K. (2020). Sustainability-disclosures and financial performance: Shariah-compliant Vs non-Shariah-compliant Indonesian Firms. *Journal of Islamic Monetary Economics and Finance*, 6(4), 789–810. <https://doi.org/10.21098/jimf.v6i4.1087>

- Kusnadi, Y. (2019). Political connections and the value of cash holdings. *Finance Research Letters*, 30, 96–102. <https://doi.org/10.1016/j.frl.2019.03.035>
- Kwan, J.H., & Lau, W.Y. (2020). Corporate governance and cash holdings in hospitality firms: Do board characteristics matter? *Asian Economic and Financial Review*, 10(7), 816–832. <https://doi.org/10.18488/journal.aefr.2020.107.816.832>
- Law, S. H. (2018). *Applied panel data analysis: Short panel* (First Ed). Universiti Putra Malaysia Press.
- Lee, K.W., & Lee, C.F. (2009). Cash Holdings, corporate governance structure and firm valuation. *Review of Pacific Basin Financial Markets and Policies*, 12(3), 475–508.
- Li, X., & Luo, D. (2020). Increase in cash holdings of U.S. firms: The role of healthcare and technology industries. *Journal of Business Research*, 118(July), 286–298. <https://doi.org/10.1016/j.jbusres.2020.06.034>
- Lipton, M., & Lorsch, J. W. (1992). A modest proposal for improved corporate governance. *The Business Lawyer*, 48(1), 59–77. <https://doi.org/10.1525/sp.2007.54.1.23>
- Magerakis, E. (2022). The importance of managerial discretion on managerial ability–firm cash holding nexus. *Management Decision*, 60(12), 3275–3303. <https://doi.org/10.1108/MD-07-2021-0991>
- Magerakis, E., Gkillas, K., Tsagkanos, A., & Siriopoulos, C. (2020). Firm size does matter: New evidence on the determinants of cash holdings. *Journal of Risk and Financial Management*, 13(8), 163. <https://doi.org/10.3390/jrfm13080163>
- Maruhun, E. N. S., Abdullah, W. R. W., Atan, R., & Syed Yusuf, S. N. (2018). The effects of corporate governance on enterprise risk management: Evidence from Malaysian Shariah-compliant firms. *International Journal of Academic Research in Business and Social Sciences*, 8(1), 865–877. <https://doi.org/10.6007/ijarbss/v8-i1/3893>
- MengYun, W., Um-e-Habiba, Husnain, M., Sarwar, B., & Ali, W. (2021). Board financial expertise and corporate cash holdings: Moderating role of multiple large shareholders in emerging family firms. *Complexity*, 1, 1–22.
- Opler, T., Pinkowitz, L., Stulz, R., & Williamson, R. (1999). The determinants and implications of corporate cash holdings. *Journal of Financial Economics*, 52(1), 3–46. [https://doi.org/10.1016/S0304-405X\(99\)00003-3](https://doi.org/10.1016/S0304-405X(99)00003-3)
- Orlova, S. V., & Sun, L. (2018). Institutional determinants of cash holdings speed of adjustment. *Global Finance Journal*, 37(November 2017), 123–137. <https://doi.org/10.1016/j.gfj.2018.05.002>
- Ozkan, A., & Ozkan, N. (2004). Corporate cash holdings: An empirical investigation of UK companies. *Journal of Banking and Finance*, 28, 2103–2134. <https://doi.org/10.1016/j.jbankfin.2003.08.003>
- Petersen, M. A. (2009). Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies*, 22(1), 435–480. <https://doi.org/10.1093/rfs/hhn053>
- Rafinda, A., Hadzhiev, A., Tähkänen, S., & Helvert, L. van. (2018). Determinants of cash holdings in developed and developing countries. *Jurnal Dinamika Manajemen*, 9(1), 1–11. <https://doi.org/10.15294/jdm.v9i1.14647>
- Rahayu Izwani, B., & Pok, W. C. (2011). Cash holding, leverage, ownership concentration and board independence: Evidence from Malaysia. *Malaysia Accounting Review*, 10(1), 63–88.
- Rama Iyer, S., Sankaran, H., & Walsh, S. T. (2020). Influence of director expertise on capital structure and cash holdings in high-tech firms. *Technological Forecasting and Social Change*, 158(June), 1–15. <https://doi.org/10.1016/j.techfore.2020.120060>
- Ramli, N. E., & Haron, R. (2017). Debt determinants of Shari’ah approved firms: Empirical evidence from Malaysia. *Journal of Islamic Finance*, 6(Special Issue), 188–204.

<https://doi.org/10.12816/0047349>

- Roy, A. (2018). Corporate governance and cash holdings in Indian firms. *Contemporary Studies in Economic and Financial Analysis*, 99, 93–119. <https://doi.org/10.1007/978-981-13-1696-8>
- Saeed, A., & Sameer, M. (2017). Impact of board gender diversity on dividend payments: Evidence from some emerging economies. *International Business Review*, 26(6), 1100–1113. <https://doi.org/10.1016/j.ibusrev.2017.04.005>
- Satt, H., Bendriouch, F. Z., & Nechbaoui, S. (2020). The impact of Shariah finance compliance level on the cost of debt. *Journal of Islamic Accounting and Business Research*, 11(6), 1211–1226. <https://doi.org/10.1108/JIABR-04-2018-0056>
- Saxena, V., & Sahoo, S. (2023). What drives corporate cash holdings in MSMEs?: Evidence from India. *Managerial Finance*, 49(2), 291–314. <https://doi.org/10.1108/MF-04-2022-0184>
- Securities Commission Malaysia. (2012). *Malaysian code on corporate governance*.
- Securities Commission Malaysia. (2021). *Malaysian code on corporate governance*.
- Securities Commission Malaysia. (2024). *List of Shariah-Compliant Securities by the Shariah Advisory Council of the Securities Commission Malaysia* (Issue May).
- Shabbir, M., Haider Hashmi, S., & Mujtaba Chaudhary, G. (2016). Determinants of corporate cash holdings in Pakistan. *International Journal of Organizational Leadership*, 5(1), 50–62. <https://doi.org/10.33844/ijol.2016.60263>
- Shahrier, N. A., Ho, J. S. Y., & Gaur, S. S. (2020). Ownership concentration, board characteristics and firm performance among Shariah-compliant companies. *Journal of Management and Governance*, 24(2), 365–388. <https://doi.org/10.1007/s10997-018-9436-6>
- Shleifer, A., & Vishny, R. W. (1997). A survey of corporate governance. *The Journal of Finance*, 52(2), 737–783. <https://doi.org/10.2307/2329497>
- Sulong, Z., & Mat Nor, F. (2008). Dividends, ownership structure and board governance on firm value: Empirical evidence from Malaysian listed firms. *Malaysian Accounting Review*, 7(2), 55–94. <http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=38213256&site=bsi-live>
- Talbi, D., & Menchaoui, I. (2023). Impact of board attributes and managerial ownership on cash holdings: Empirical evidence using GMM and quantile regressions. *Corporate Governance*, 23(4), 723–741. <https://doi.org/10.1108/CG-04-2021-0145>
- 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/AJFA.2019.100978>
- Ullah, S., Haroon, M., Hussain, S., & Rehman, A. U. (2023). Islamic labelling and corporate governance: A perspective of Shariah compliance firms. *Journal of Islamic Accounting and Business Research*, 14(6), 849–867. <https://doi.org/10.1108/JIABR-03-2021-0108>
- Wasiuzzaman, S. (2014). Analysis of corporate cash holdings of firms in Malaysia. *Journal of Asia Business Studies*, 8(2), 118–135. <https://doi.org/10.1108/JABS-10-2012-0048>
- Yermack, D. (1996). Higher market valuation of companies with a small board of directors. *Journal of Financial Economics*, 40, 185–211.
- Zabri, S. M., Ahmad, K., & Wah, K. K. (2016). Corporate governance practices and firm performance: Evidence from top 100 public listed companies in Malaysia. *Procedia Economics and Finance*, 35(October 2015), 287–296. [https://doi.org/10.1016/S2212-5671\(16\)00036-8](https://doi.org/10.1016/S2212-5671(16)00036-8)

- Zainudin, N., Abdul Rahim, N., Selamat, A. I., & Abdul Rahim, R. (2024). Determinants of cash holdings: Evidence from Shariah-compliant firms in Malaysia. *International Journal of Islamic Economics and Finance Research*, 7(2), 1–18.
- Zhou, M., Li, K., & Chen, Z. (2021). Corporate governance quality and financial leverage: Evidence from China. *International Review of Financial Analysis*, 73(December 2020), 101652. <https://doi.org/10.1016/j.irfa.2020.101652>