Corporate Governance and Cash Holdings: New Evidence from Asian Markets

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Abstract

This paper examines the impacts of the firm and country-level governance settings on Asian firms' cash holdings. Furthermore, this study investigates the effect of corporate governance components on cash holdings and also probes the impact of governance settings on firms' excess cash. This study selects 608 listed companies operating in Asian markets and performs panel data approaches between 2010-2017. The findings reveal that companies with stronger governance mechanisms stockpile less cash, supporting the agency theory. Besides, the findings highlight that the effect of corporate governance is more prominent in strong investor protection environments, implying that they are complements. Likewise, further analysis shows that firms hold less cash by increasing independent directors, splitting CEO and chair positions, and also increasing the diversity of the board. Unlike ineffective legal systems, the results also reveal that a strong governance system leads firms to decrease capital investment but increase R&D investment and dividend payouts. More specifically, the results show that in strong investor protection settings, companies with strong corporate governance invest a significant 0.5% and 0.1% more in R&D and dividend payouts than their counterparts.

Keywords: Corporate governance; Investor protection; Cash holdings; Country risk; Asian markets

JEL Classification: G30, G32, G39

1. Introduction

Cash is an essential factor in a company's assets and determining a firm's cash holdings ratio is an essential decision for managers. Generally, companies prefer to stockpile cash and liquid assets as precautionary and transaction motives to avoid foregoing future positive Net Present Value (NPV) projects and financial distress (Hoshi et al., 1991) and also external financing costs (Myers and Majluf, 1984). Nevertheless, holdings cash includes carrying and agency costs (Jensen, 1986; Ferreira and Vilela, 2004; Chen and Yang, 2017). Consequently, this trade-off has necessary implications for maintaining the optimal holdings cash level by corporate executives (Kim et al., 1998; Pinkowitz et al., 2003).

Although companies prefer to stockpile cash and liquid assets, the firm's cash holdings policy behaviors are considerably different. Ferreira and Vilela (2004) revealed that the cash holdings ratio of European Economic and Monetary Union (EMU) companies is 15%. The findings of Bates et al. (2009) indicated the average cash holdings ratio of U.S. firms is 23.2% in 2006, which is more than double of 1980. Kuan et al. (2012) revealed that the mean firms' cash holdings ratio in Taiwan is 13% between 1997- 2009. Song and Lee (2012) uncovered that the median cash holdings ratio of companies operating in East Asian countries is 12.1% in 2006. Chen et al. (2015) highlighted that the median cash holdings ratio of companies operating in Hong Kong is 16.6% between the 1989–2009 period.

Over the last three decades, the existence of substantial variation in cash holdings policy across countries has triggered the interest of scholars and academic researchers to explore the significant factors which impact firms' cash holdings. Using the cash holdings theories, past works uncovered that size, leverage, dividend payouts, profitability, and growth opportunity are the most important firm-level determinants which affect cash holdings (e.g., Chen et al., 2015; Phan et al., 2019). Also, some works revealed that inflation, Gross Domestic Product (hereafter, GDP) growth (Awartani et al., 2016), and also financial market development (e.g., Lei et al., 2018; Wang et al., 2018) are the most important country-level determinants which considerably affect cash holdings.

Apart from the above determinants, several studies also highlighted that culture (Chang and Noorbakhsh, 2009; Ramirez and Tadesse, 2009; Li et al., 2013), economic policy uncertainty (Demir and Ersan, 2017; Phan et al., 2019), political uncertainty (Xu et al., 2016), firms' political connections (Boubakri et al., 2013), corporate environmental, social and governance disclosure (Atif et al., 2022), ownership structure (Ferreira and Vilela, 2004; Jebran et al., 2019), creditors' rights (Akhtar et al., 2023), legal origin (Das Gupta and Pathak, 2021), and global economic policy uncertainty (Bloom, 2017) are the important factors that affect cash holdings policy. Moreover, the findings of several works emphasized the significant role of corporate governance (e.g., Harford et al., 2008; Kusnadi, 2011; Kuan et al., 2012; Jain et al., 2013; Al-Najjar and Clark, 2017; Seifert and Gonenc, 2018; Shah et al., 2021; Hassanein and Kokel, 2022), institutional quality (Chen and Yang, 2017; Thakur and Kannadhasan, 2019); and also investor protection (e.g., Pinkowitz et al., 2003; Ferreira and Vilela, 2004; Huang et al., 2013; Iskandar-Datta and Jia, 2014; Seifert and Gonenc, 2018; Da Cruz et al., 2019; Tran, 2020) in describing the substantial variation in cash holdings policy. Their findings revealed that companies stockpile more (less) cash in the weak (strong) firm (or internal) and country (or external) governance mechanisms. Nevertheless, limited studies uncovered the opposite relationship implying that companies having weaker internal governance prefer to stockpile less cash and vice versa (e.g., Harford et al., 2008; Iskandar-Datta and Jia, 2014; Dogru and Sirakaya-Turk, 2018). Overall, the studies above reviewed

argued that these are the significant factors that trigger the transaction cost, precautionary, and agency motives of corporate executives for settings cash holdings policy.

What about the cash holdings policy in Asian countries and how do governance settings impact Asian firms' cash holdings policy? While numerous researchers as mentioned above are studying the factors of cash holdings in emerging and developed countries, few empirical works have been motivated to empirically probe the Asian firms' cash holdings policy from the agency theory perspective. Particularly, less attempt has been made to profoundly examine the impact of both firm and country-level governance settings on corporate cash holdings in Asian markets. Focusing on the existing literature, Paskelian et al. (2010) revealed that firm monitoring through ownership structure matters in setting firms' cash holdings, implying that government-controlled Chinese companies stockpile greater cash compared to family-controlled Indian firms. Besides, the findings of several works (e.g., Kusnadi, 2011; Kato et al., 2017; Jebran et al., 2019; Athari, 2022a) confirmed that governance quality has an essential role in setting corporate cash holdings, indicating that firms have more agency motive to stockpile greater cash and liquid assets in Asian countries characterized by less efficient governance settings and vice versa. However, the work by Akhtar et al. (2023) indicated that firms prefer to stockpile more cash in Asian economies having strong investor protection settings.

Although the past works highlighted that corporate governance could be an important factor in determining Asian firms' cash holdings policy, few works focus to probe considerably the impact of internal governance on Asian firms' cash holdings by considering the comprehensive components such as namely size, independence, and duration of the board, the duality of CEO, board meeting attendance, audit committee independence, auditor ratification, nomination committee independence, board diversity, and staggered board. Using an aggregate corporate governance score leads to finding robust results and provide more insight into the corporate governance-cash holdings nexus in Asia. More specifically, it's a limited empirical study, particularly testing the impact of internal and external governance mechanisms on Asian firms' cash holdings and testing whether they are complements or substitutes. According to the World Bank report (2020)[1][2], countries in East Asia and the Pacific with an average investor protection score (rank) of 49.7 (99) and South Asia with 57.0 (77) do not have relatively strong investor protection settings. Prior works (e.g., La Porta et al., 2000; Dittmar et al., 2003) argued that the degree of investor protection has a significant role in settings firms' financial decisions and companies operating in weak investor protection settings have more agency motive to hold cash and expropriate shareholders. Thus, studying the impact of external governance quality is essential and could be sheds light on the cash-holding policy behavior of Asian companies. Moreover, there is a significant gap to explore how to do governance settings impact the utilization of excess cash in Asian firms.

Thus, the current work contributes by filling these gaps by considering the countries, which are China, India, Indonesia, Japan, South Korea, and Thailand. Likewise, the present study contributes by comprising unique panel data (e.g., aggregate corporate governance score, composite country risk index[3] score) for a large sample of 608 public companies to empirically corroborate the existence of a governance mechanisms-cash holdings nexus in

[1] https://archive.doingbusiness.org/content/dam/doingBusiness/media/Profiles/Regional/DB2020/EAP.pdf
[2] https://archive.doingbusiness.org/content/dam/doingBusiness/media/Profiles/Regional/DB2020/SA.pdf
[3] According to Kondoz et al. (2021), this index is comprehensive and could be used as an accurate proxy for measuring the vulnerability of a country to political, economic, and financial risks.

the listed Asian firms. Also, it contributes by investigating considerably the impact of governance settings by using corporate governance and investor protection on the Asian firms' cash holdings and answering whether they are complements or substitutes. Furthermore, the present study contributes by testing the effect of corporate governance components and also determining the role of governance settings on firms' spending excess cash on capital expenditures, R&D, and dividend payouts. It's noted that the present differs from some similar research (e.g., Kalcheva and Lins, 2007; Al-Najjar and Clark, 2017) especially by focusing on Asian countries, using the unique determinants such as aggregate corporate governance, protecting minority investors index, and composite country risk index scores, and also conducting panel data estimation methods. This study has also differed by testing the impact of governance quality on firms' spending excess cash.

The findings have noteworthy policy recommendations. First, the findings reveal that companies with stronger governance mechanisms stockpile less cash, and the extent of the effect of corporate governance is more prominent in environments with strong investor protection. This indicates that external governance is necessary, as well as internal governance, and policymakers by improving governance settings could pressurize companies to hold less cash and alleviate agency problems. Second, the results show that board independence, CEO duality, and board diversity have a significant negative impact on cash holdings. This suggests that policymakers should be enhanced corporate governance, especially by increasing independent directors, splitting CEO and chair positions, and also raising the diversity of the board to reduce the misuse behavior of managers. Third, the results underscore that the strong internal and external governance mechanisms lead firms to decrease capital investment but increase R&D investment and dividend payouts and vice versa. This finding indicates that enhancing governance mechanisms lead to controlling the cash holdings policy and utilizing the usage of excess cash.

Fourth, the results reveal that increased country and global uncertainties trigger the precautionary incentive of companies to stockpile more cash. This indicates that the regularity bodies should be provided their environments less exposed to domestic risks to help Asian firms reduce cash holdings and manage their related costs. A decline in the vulnerability of countries to economic, financial, and political risks could lead companies to have less cash volatility and shortage, which probably reduce the precautionary incentive to stockpile more cash. Also, the finding implies that managers instead of increasing cash holdings should be diversified their assets portfolio to hedge against the spill-over impact of global risk for exploiting investment opportunities and eventually rising the rate of returns.

The paper structure is as follows. Section 2 explains the cash holdings theories and hypothesis development. Section 3 shows the data and methodology. Sections 4 and 5 reveal the results and robustness tests. Section 6 presents the conclusion.

2. Cash holdings theories and hypothesis development

Three key theories are used by works to describe cash holdings. First, the trade-off theory explains that companies' cash holdings policy determines based on the transaction cost and the precautionary motives (e.g., Jensen and Meckling, 1976; Jensen, 1986; Opler et al., 1999). In this regard, companies prefer to stockpile cash to prevent the transaction costs of raising external funds although holding cash causes carrying costs because of the lower return on liquid assets (e.g., Ferreira and Vilela, 2004). Besides, companies prefer to stockpile cash as a precautionary motive to prevent giving up valuable investment

opportunities and financial distress (e.g., Williamson, 1988; Shleifer and Vishny, 1992; Ferreira and Vilela, 2004). Hence, companies do a trade-off and set an optimal cash holdings level when the marginal benefits and costs are identical. Second, the pecking order theory discusses that there is no optimal cash holdings level, and firms based on the financing hierarchy select internal and external financing sequentially (Myers, 1984; Myers and Majluf, 1984). Third, the free cash flow theory discusses that companies should be distributed any excess cash flow to shareholders to constrain managers' incentives for increasing discretionary managerial power and gaining at the shareholders' expense.

However, Jensen (1986) argued that by rising agency conflicts, controlling shareholders are more likely to use corporate liquidity for using personal benefits and undertaking risky projects instead of maximizing shareholders' wealth. Specifically, La Porta et al. (1998, 2000) revealed that the level of agency problems depends on a country's governance quality and shareholders have experienced more agency problems and expropriation risk in countries with weak investor protection settings. Based on their arguments, companies operating in such systems prefer to stockpile proportionately more cash relative to companies operating in strong protection environments. Consequently, La Porta et al. (2000) argued that in strong legal protection environments, well-protected shareholders can pressure controlling shareholders to stockpile less cash and instead distribute free cash flows to shareholders.

Throughout the years, numerous studies focusing on agency problems have been motivated to explain the cash holdings of companies operating in emerging and developed countries. For instance, in a global study, Dittmar et al. (2003) by choosing 11,000 companies operating in 45 economies showed that firms hold relatively more cash in environments with weak shareholder rights protection. Pinkowitz et al. (2003) showed that shareholders' rights significantly impact cash holdings ratios, implying that companies in environments with weak shareholder protection stockpile more cash. Ferreira and Vilela (2004) showed that firms operating in environments with stronger investor protection settings prefer to stockpile less cash. Pinkowitz et al. (2006) by selecting 12,339 firms found that the relationship between cash holdings and firm value is much weaker in environments having poor shareholder protection settings. In international work, Kalcheva and Lins (2007) by choosing 5000 companies across 31 economies uncovered that in environments with weak shareholder protection, firm values are lower when controlling managers stockpile more cash. Chang and Noorbakhsh (2006, 2009) showed that companies operating in environments with a common law system and higher anti-director rights index are probable to stockpile less cash and liquid assets. Al Najjar (2013) highlighted that the quality of institutional settings matters in explaining cash holdings policy and companies operating in low shareholder protection countries have more agency motive to stockpile greater cash. Huang et al. (2013) revealed that cash holdings are much higher for emerging countries firms due to having poor investor protection settings. Seifert and Gonenc (2018) revealed that both country and firm-level governance significantly affect firms' cash holdings, implying that companies with stronger governance mechanisms stockpile less cash. Da Cruz et al. (2019) found that companies have less agency motive to stockpile cash in countries with better law enforcement and strong investor protection settings.

In a global study, Chen et al. (2020) underscored that an improvement in corporate governance by board reforms leads to reducing in firms' cash holdings. Tran (2020) in a global work showed that shareholder protection negatively affects firms' cash holdings, indicating that weak legal settings lead to increasing agency motive of companies to hold more cash. Das Gupta and Pathak (2021) showed that companies operating in civil law

countries hold relatively more cash than companies operating in common law systems, which have strong investor protection settings. Inaba (2021) highlighted that firms having managers with worse ethical conduct, lesser responsibility, and weaker investor protection stockpile higher cash ratios. Shah et al. (2021) showed a strong nexus between internal governance and the value of cash holdings in Pakistan, implying that stronger corporate governance leads to increasing the value of cash holdings. Atif et al. (2022) found that cash holdings are negatively impacted by corporate environmental, social, and governance disclosure during the various stages of the firm life cycle. Hassanein and Kokel (2022) showed that firms having better corporate governance quality through a larger size of the board of directors and independent directors are more probable to stockpile more cash than their counterparts. Butt et al. (2022) revealed that strong corporate governance settings could help alleviate agency problems by pressurizing firms to increase dividend payouts in Pakistan. Recently, Gupta and Krishnamurti (2023) showed that companies that follow strong corporate governance practices tend to hold less cash. While the above-reviewed studies showed a negative relationship between governance mechanisms and cash holdings, some works found the nexus is positive. Iskandar-Datta and Jia (2014) by selecting 18,192 firms across 41 countries found a positive nexus between anti-director rights and firms' cash holdings. Dogru and Sirakaya-Turk (2018) showed that cash holding is relatively more significant in well-governed corporates than in poorly governed ones. Overall, the past works underscored the important role of the governance system in setting the firms' cash holding ratios.

Although past works underlined the importance of governance mechanisms, less attempt has been made to deeply probe the debatable link between governance settings and corporate cash holdings in Asian markets. Based on the World Bank report (2020), countries in East Asia and the Pacific regions have relatively weak legal protection systems and expropriation risk is relatively high. Consequently, the agency problems are relatively higher in such settings and firms have more agency motive to misuse shareholders and stockpile more cash. Considering the agency theory, several works explained the cash holdings policy behavior of firms operating in Asian countries. For example, Kusnadi (2011) showed that firms with less efficient governance settings prefer to expropriate shareholders by holding greater cash than ones' having more efficient governance in Singapore and Malaysia. Chen et al. (2012) highlighted that the structural reform leads to reducing cash holdings in China and the reduction is greater for companies with weaker governance. Kuan et al. (2012) highlighted that fewer excess control rights positively influence cash holdings in low-cash-holding companies in Taiwan. Scholtens and Kang (2013) argued that the legal system mostly is poor in Asia and investor protection negatively impacted earnings management. Jebran et al. (2019) highlighted that the expropriation risk is high in China, and firms' managers have more incentive to misuse minority shareholders by stockpiling greater cash. Overall, their findings corroborated that governance quality is a significant determinant, and having weak firm and country-level governance settings led to Asian firms stockpiling greater cash and liquid assets.

Despite the negative nexus between governance mechanisms and cash holdings, several studies uncovered that Asian firms set cash holdings policy differently in environments with higher governance quality. Kato et al. (2017) revealed that companies operating in Japan stockpile less cash after improvement in governance since 2000. Similarly, Athari (2022a) underscored that stronger investor protection is linked with holding less cash in some Asian countries like Thailand. However, Akhtar et al. (2023) showed that higher shareholder protection leads to increasing firms' cash holding in Malaysia, Singapore, Indonesia, Thailand, and the Philippines.

While extant literature suggested the significant governance mechanisms-cash holdings nexus, the findings of past works are still inconclusive in the case of Asian firms. Particularly, the significant variation in the degree of governance quality and taking heterogenous cash holdings policy decisions in response to the governance settings among Asian firms increase the necessity and interest of this study. Hence, this study attempts to clarify more specifically the governance mechanisms-cash holdings relationship and also to probe whether the internal and external governance mechanisms act as complements or substitutes. The current work tests the impact of internal and external governance mechanisms and their interaction with cash holdings by employing the proxies of the aggregate corporate governance score and the minority shareholder protection index score for measuring corporate governance and country-level investor protection, respectively. Based on the above evidence the subsequent hypotheses are proposed:

H_{1a}: There is a negative nexus between internal and external governance mechanisms and cash holdings.
H_{1b}: There is a positive nexus between internal and external governance mechanisms and cash holdings.
H_{2a}: There is a negative nexus between the internal and external governance mechanisms interaction factor and cash holdings.
H_{2b}: There is a positive nexus between the internal and external governance mechanisms interaction factor and cash holdings.

3. Data and methodology

3.1. Data description

This work includes the listed companies operating in Morgan Stanley Capital International (MSCI) All Country (AC) Asia Index. This study initially selects all the included countries in the MSCI AC Asia Index and covers the period between 2010-2018. However, the final sample due to the insufficiency of data and missing observations, particularly for the aggregate corporate governance and country risk index factors limited to only the 608 publicly listed companies operating in China, India, Indonesia, Japan, South Korea, and Thailand countries between 2010-2017. Table 1 presents the variables' descriptions. This study collected the annual aggerate corporate governance (CG) score (0-13) from the Bloomberg and Thomson Reuters WorldScope database. Table A1 in the Appendix shows the measurement of aggregate corporate governance and its components[4]. The present study also gathered all the data for the firm-level control factors, from the Thomson Reuters WorldScope database.

For the country-level control factors, the ratio of stock market capitalization to GDP (SMC) is collected, as in Chang and Noorbakhsh (2009), from World Bank for calculating the financial market development. Likewise, the data of the ratio of stock market turnover ratio (SMT) is collected as an alternative proxy for the robustness check. Besides, the present study gathered the country-level composite index scores (0-100), as in Athari et al. (2020), Athari et al. (2021), and Saliba et al. (2023), from PRS[5] Group for gauging the country risk rating. This study also gathered data on the shareholder protection index (IP) score (0-100),

[4] See the study by Singareddy et al. (2018) for calculating the aggerate corporate governance score and explaining corporate governance attributes in detail.
[5] www.prsgroup.com

as in Athari and Bahreini (2021), from the World Bank Group[6] for assessing the investor protection settings. Moreover, the present study gathered data on the global economic policy uncertainty score (GEPU), as constructed by Baker et al. (2016), for measuring global risk.

< Insert Table 1 >

3.2. Models and methodology

Equation (1) uses to test hypothesis 1 (H_1) by investigating the impacts of internal and external governance mechanisms on cash holdings by controlling the firm, country, and global variables. Besides, Equation (2) is used to test hypothesis 2 (H_2) by particularly investigating the impact of the interaction effect (CG*IP) on firms' cash holdings. This study follows the prior studies (e.g., Jebran et al., 2019) and comprises the lagged cash holdings in the estimation equations because companies in imperfect capital markets partially adjust cash levels to their target levels.

$$C/TA_{it} = \alpha_0 + \alpha_1 C/TA_{it-1} + \alpha_2 CG_{it} + \alpha_3 \sum Firm_{it} + \alpha_4 SMC_t + \alpha_5 CR_t + \alpha_6 IP_t + \alpha_7 GR_t + \varepsilon_{it} \quad (1)$$

$$C/TA_{it} = \alpha_0 + \alpha_1 C/TA_{it-1} + \alpha_2 CG_{it} + \alpha_3 \sum Firm_{it} + \alpha_4 SMC_t + \alpha_5 CR_t + \alpha_6 IP_t + \alpha_7 CG_{it} * IP_t + \alpha_8 GR_t + \varepsilon_{it} \quad (2)$$

where $_{it}$ indicates firm and time, correspondingly. ε_{it} is an independent error term. CASH (C/TA) is the cash holdings ratio. C/TA_{it-1} is the lagged CASH; CG is the aggregate corporate governance score; $\sum Firm_{it}$ includes the size (Ln (TA)), leverage (TD/TA), profitability (NI/TA), dividend payouts (DIVDUM), capital expenditure (CAPEX/TA), intangible assets (PP&E/TA), and R&D expenditure (R&D/TA); SMC is the capital market development; CR is the country risk; IP is the shareholder protection; GR is the global risk.

This work winsorized the factors for each year from 1% top and bottom (e.g., Athari and Bahreini, 2021; Athari et al., 2023). We follow Petersen (2009) and use the fixed effects (FE) panel data method by clustering standard errors at the firm level to estimate models. We also use the dynamic panel data (GMM) method to find robust results especially when unobserved country-fixed effects and endogeneity problems exist (Roodman, 2009). More precisely, this work follows Diaw (2021) and uses the System-GMM method (Arellano and Bover, 1995; Blundell and Bond, 1998). Remarkably, the present study estimates the equations by considering the exogeneity and endogeneity of explanatory variables to find robust results. In examining the reliability of the findings, serial correlation and over-identification restrictions tests are used.

3.3 Explanatory variables

Following the explained cash holdings theories and the findings of past works, the present study selects the below determinants and hypothesizes the expected signs.

3.3.1 Firm-specific factors

[6] www.doingbusiness.org

This study selects a firm's size, which is calculated by the logarithm of total assets (Ln (TA)) and is probable to impact cash holdings negatively or positively. Some studies explained that large companies have less need to stockpile large amounts of cash due to having easier access to the financial market and less prone to bankruptcy costs, confirming the trade-off theory (e.g., Opler et al., 1999; Chang and Noorbakhsh, 2009; Al-Najjar and Belghitar, 2011; Phan et al., 2019). However, according to the pecking order and free cash flow theories, there is the possibility that large companies stockpile greater cash as they are likely more successful in generating cash flows and prefer to use excess cash for personal benefits. In addition, large companies prefer to stockpile more cash to diversify their opportunities.

The present study selects leverage, which is computed by the total debt to total assets ratio (TD/TA) and is expected to impact cash holdings negatively or positively. Following the trade-off theory, companies with easier access to debt financing are likely to stockpile less cash whereas highly leveraged companies prefer to stockpile greater cash to decrease the financial distress costs (Al-Najjar, 2013). However, the pecking order and free cash flow models argued that leverage negatively impacts cash holdings.

This study selects profitability, which is calculated by the return on assets (NI/TA) and is predicted to positively affect cash holdings. Consistent with the pecking order theory, profitable companies could better pay dividends, pay off their debts, and accumulate significant amounts of cash. The findings of some studies confirmed that profitable companies tend to stockpile greater cash to decrease the cost of external funding and earnings volatility (e.g., Al-Najjar and Clark, 2017). Recently, the work by Yang et al. (2023) showed that companies with better operating performance stockpile more cash after the passing of merger and acquisition laws.

This study selects dividend payout, which is calculated by a dummy variable (DIVDUM) and is expected to impact cash holdings negatively or positively. Consistent with the trade-off theory, payers' firms prefer to hold less cash since they could decrease their dividend payments in case of the need for raising finances at lower costs relative to non-payers firms. Nevertheless, companies that pay out dividends prefer to stockpile greater cash as a precautionary saving motive to prevent cash shortfall to payouts their dividends (Boubakri et al., 2013).

This study selects capital expenditure (CAPEX/TA) and intangible assets (PP&E/TA) and is expected to impact cash holdings negatively (e.g., Kuan et al., 2011; Marwick et al., 2020; Diaw, 2021; Liu et al., 2021). It also selects the R&D expenditure (R&D/TA) and is expected to impact cash holdings positively (e.g., Kato et al., 2017; Chen et al., 2020).

3.3.2 country and global-specific factors

This study selects financial market development, which is computed by stock market capitalization to GDP (SMC) and is expected to impact cash holdings negatively. The prior studies (e.g., Chang and Noorbakhsh, 2009; Lei et al., 2018; Wang et al., 2018; Thakur and Kannadhasan, 2019) revealed that companies operating in the more developed financial markets have less transaction cost motivation to hold cash due to bearing lower external financing costs for increasing external funds.

This study selects the country risk (CR), which is measured by the International Country Risk Guide (ICRG) country-level composite index score and is expected to impact cash

holdings positively. Remarkably, based on the data source definition, the negative sign is expected as a higher CR score indicates less vulnerability of a country. The previous studies suggested that firms prefer to stockpile greater cash by increasing a country's vulnerability to financial (e.g., rising exchange rate volatility), economic (e.g., rising inflation), and political (e.g., rising corruption) risks to buffer against the possibility of cash volatility (e.g., Acemoglu et al., 2003; Pinkowitz et al., 2003). The prior works (e.g., Baum et al., 2008; Brogaard and Detzel, 2015; Huang et al., 2015; Demir and Ersan, 2017) also highlighted that the precautionary incentive of companies is triggered to stockpile greater cash by increasing country's uncertainty level because of rising a higher cost of external financing and financial shortfalls during high uncertainty periods. Moreover, this study selects global risk, which is calculated by the global economic policy uncertainty score (GEPU) and is expected to impact cash holdings positively. Bloom (2017) indicated that increasing global economic policy uncertainty triggers the precautionary motive of companies in particular financially restricted to stockpile more cash.

4. Empirical results

4.1 Univariate analysis

Table 2 shows the sample coverage and descriptive summary of using factors for each country and the entire sample. Panel (A) indicates that Indonesia with 45 firms has the lowest number of companies in the sample whereas China with 162 firms has the highest number of firms, respectively. Likewise, Panel (A) displays that India and Thailand with a median of 0.04 have the lowest cash holdings ratio (C/TA) whereas Indonesia and China with a median of 0.11 and 0.13 have the highest ratio, correspondingly. Besides, India with a median of -0.05 has the highest capital expenditure (CAPEX/TA) whereas Thailand and Japan with a median of 0.34 and 0.02 have the highest intangible assets (PP&E/TA) and R&D expenditure (R&D/TA), correspondingly. Panel (B) also demonstrates the average aggregated corporate governance (CG) and its components' scores. As shown, South Korea and Thailand with a mean of 2.77 and 3.52 have the lowest CG scores whereas Japan and India with a mean of 5.68 and 7.54 have the highest CG scores, correspondingly.

Moreover, Panel (C) shows the average country and global-specific variables. As presented, South Korea with a mean of 90.82 and 82.44 has the most developed financial market and strong investor protection settings. It also shows that South Korea and Japan with a mean of 80.73 and 81.05 for country risk have the least vulnerable environments, correspondingly. Besides, the mean value for global risk is 141.05 indicating a high economic policy uncertainty at the global level in the period of study. Remarkably, the descriptive summary of the full sample is reported in Table A2 in the Appendix.

< Insert Table 2 >

Figure 1 demonstrates the time series plot of aggregate corporate governance scores and cash holdings for the country-specific and the entire investigated countries between the 2010-2017 period. As shown in Figure 1, Asian firms operating in the selected countries stockpile less cash by increasing aggregate corporate governance scores while this trend becomes the opposite by decreasing internal governance scores. Figure 1 also presents that there is an opposite nexus between aggregate corporate governance scores and cash holdings for the entire selected countries.

< Insert Figure 1>

Table 3 reveals that the correlations among the factors are not significantly high, implying that it is possible to include the factors in the same equation.

< Insert Table 3 >

4.2 Multivariate analysis

Table 4 shows the results of Equations (1) and (2) using the fixed effects methodology. Also, Table 4 shows the fixed effects results for both Equations (1) and (2) by using an alternative dependent variable (Log C/TA), as in Kusnadi (2011) and Chen et al. (2020). Table 4 shows that the lagged cash (Lagged C/TA) positively impacts cash holdings, indicating that the Asian companies partially adjust cash levels toward the target cash holdings. The work by Orlova (2020) revealed that managerial cultural characteristics and macroeconomic elements impact the persistence of cash reserve levels, deviation from target, and the speed with which companies in various economies modify their cash holdings. For the firm-level variables, Table 4 shows that corporate governance (CG) adversely impacts firms' cash holdings. This finding supports the agency argument by Jensen (1986), indicating that companies are more probable to stockpile more cash in countries with less effective governance mechanisms. Consequently, it supports the previous research (e.g., Kusnadi, 2011; Kato et al., 2017; Chen et al., 2020), which showed that the nexus between agency conflicts and cash holdings is positive and companies stockpile more cash by declining the corporate governance quality and vice versa. Athari et al. (2016) and Athari (2022) found that companies operating in strong governance settings stockpile less cash and instead payouts more dividends.

Besides, the findings reveal that the size (Ln (TA)) negatively affects cash holdings. This finding confirms the trade-off theory and the previous research (e.g., Bates et al., 2009; Huang et al., 2013), suggesting that larger companies stockpile less cash due to the more accessibility to external financing and the economies of scale. Likewise, the estimation results highlight that leverage (TD/TA) negatively impacts firms' cash holdings, which supports the pecking order and the free cash flow theories and also the past works (e.g., Chen and Yang, 2017). Furthermore, Table 4 shows that profitability (NI/TA) positively impacts cash holdings, confirming the pecking order theory. Finding the positive effect is consistent with the studies by Dittmar et al. (2003) and Demir and Ersan (2017) and implies that companies with more profitability tend to stockpile excess cash as a precautionary motive to decrease the earnings volatility and costs of external financing and also avoid missing profitable investment opportunities.

Likewise, the results underscore that dividend payout (DIVDUM) positively impacts firms' cash holding. The work by Ozkan and Ozkan (2004) discussed that payers' companies prefer to stockpile cash as a precautionary saving motive to pay out dividends smoothly and avoid reducing or cutting dividend payments to keep the reputation among investors. Besides, as the signs expected, the results show that the capital expenditure (CAPEX/TA) and intangible assets (PP&E/TA) negatively impact firms' cash holdings, supporting the prior research (e.g., Marwick et al., 2020; Diaw, 2021; Liu et al., 2021). However, Table 4 shows that R&D expenditure (R&D/TA) positively impacts cash holdings and companies prefer to stockpile greater cash by rising R&D expenditure (Kato et al., 2017; Chen et al., 2020).

Focusing on the country-specific factors, Table 4 shows that the financial market development (SMC) negatively impacts firms' cash holdings, implying that companies prefer to stockpile less cash in the more developed financial market because of easier external financing at lower costs (Thakur and Kannadhasan, 2019). Besides, Table 4 reveals that the country risk rating (CR) adversely impacts cash holdings, implying that companies prefer to stockpile more cash by increasing the country's vulnerability to financial, economic, and political risks as a hedging instrument to have a safe shield against any potential adverse shocks and avoid financial distress (Acemoglu et al., 2003; Ramirez and Tadesse, 2009; IMF, 2016). The results also underscore that investor protection (IP) negatively impacts firms' cash holdings, supporting the agency argument (Jensen, 1986) which showed that firms tend to stockpile less cash in strong investor protection environments to alleviate agency conflicts. Moreover, the estimation results reveal that global risk (GEPU) positively impacts firms' cash holdings. This finding indicates that companies stockpile greater cash and liquid assets during the high global economic policy uncertainty period as a precautionary motive to decrease the possibility of financial distress (Demir and Ersan, 2017). Furthermore, Table 4 shows the findings of Equation (2). The results are consistent and confirm that the explained firm and country-specific factors considerably affect cash holdings. The findings also show that the interaction effect (CG*IP) negatively affects cash holdings. This result supports the study by Mitton (2004) and indicates that external governance is necessary, as well as internal governance and they are complements.

< Insert Table 4>

Table 5 reveals the findings of Equations (1) and (2) using the System-GMM methodology, which is emphasized by this study. The results of Equation (1) reveal that the lagged C/TA positively impacts cash holdings, indicating that the Asian firms partially adjust toward the target cash holdings with approximately a 0.60 adjustment coefficient. The findings are similar to those presented in Table 4 and confirm that Asian firms stockpile less cash by improving the internal (CG) and external (IP) governance mechanisms. Having poor governance settings increase managers' incentives to expropriate shareholders by holding more cash, which supports the agency theory. Besides, Table 5 reveals that the firm-specific factors including size (Ln (TA)), leverage (TD/TA), capital expenditure (CAPEX/TA), and intangible assets (PP&E/TA) with negative signs and profitability (NI/TA), dividend payouts (DIVDUM), and R&D expenditure (R&D/TA) with positive signs significantly impact firms' cash holdings, respectively. Similar to the results in Table 4, financial market development (SMC) negatively impacts firms' cash holdings, indicating that companies stockpile less cash as a transaction cost motive in the more developed financial markets. The results also highlight that rising uncertainty at both country and global-level (CR and GEPU) triggers managers to raise cash holdings. Moreover, focusing on the interaction effect, the estimation results provide significant evidence that the (CG*IP) negatively impacts firms' cash holdings, implying that the internal and external governance mechanisms are complements.

< Insert Table 5>

Figure 2 specifically shows the interactive effects of CG and IP on firms' cash holdings. As presented, for the countries with average IP, CG negatively affects firms' cash holdings. Besides, Figure 2 shows that in the environments with above-average IP, CG negatively impacts cash holdings but the slope of the line is steeper. Similarly, in the countries with below-average IP, CG negatively impacts cash holdings but the slope of the line is less steep.

Generally, the estimation results underscore that the degree of the effect of CG on cash holdings increases as moves from countries with below-average IP to above-average IP, and the CG effect is more prominent in strong investor protection (IP) environments. This implies that external governance is necessary, as well as internal governance, and the practices of companies to enhance corporate governance may have little impact in environments having poor investor protection settings.

< Insert Figure 2>

4.3 Further analysis

As a further analysis, this work attempts to examine the effect of each component of CG on firms' cash holdings. To achieve this purpose, we use Equation (1) and estimate the effect of each CG component on cash holdings separately due to avoid the multicollinearity problems among the components[7]. The findings in Table 6 show that among the CG components, board independence (BI), CEO duality (CEO), and board diversity (BD) have a negative and statistically significant effect on firms' cash holdings. This implies that cash holdings are reduced by increasing CG through rising BI and BD, and also the nonduality of the CEO. The results corroborate prior work by Boubaker et al. (2015), which showed that increasing independent directors and splitting CEO and chair positions lead firms relatively holding less cash than those with less efficient boards. Likewise, the works by Atif et al. (2019) and Benjamin and Biswas (2019) revealed a significant negative nexus between board gender diversity and cash holdings. Cambrea et al. (2021) also showed that firms stockpile less cash by increasing independent directors and CEO nonduality in normal periods. Bitar (2022) uncovered that the presence of women on board can be beneficial for boards and the company itself. Badu (2022) also revealed that board gender diversity contributes positively to the social performance of microfinance institutions in Ghana. Obeitoh et al. (2023) showed a positive nexus between board gender diversity and financial performance in Nigerian firms.

< Insert Table 6>

Additionally, the current work assesses the impact of governance settings on firms' use of excess cash. Although holding cash helps reduce under-investment problems and external financing costs, it could increase the possibility of expropriation behavior by controlling shareholders. Based on agency theory, managers possibly disgorge excess cash by spending on internal investments which benefit managers instead of shareholders. Past works (e.g., Ammann et al., 2011; Jain et al., 2013) showed that companies with more effective governance settings spend less cash on internal investments. Besides, the study by Harford, et al. (2008) confirmed that companies operating in weak governance environments are less probable to spend cash on R&D investment and dividend payouts. According to the agency model of dividends proposed by La Porta et al. (2000), the dividend payouts policy behavior of firms operating in weak (strong) shareholder protection environments could be explained by the substitute (outcome) model, predicting that firms spend less (more) cash on paying dividends.

To understand how governance mechanisms impact firms' cash holdings, the present study probes the link between excess cash, corporate governance, and firms' possible ways of

[7] The estimation results are provided by request.

spending excess cash including internal investment decisions-namely capital expenditures, and R&D- and also dividend payouts policy by classifying countries into weak and strong investor protection. Countries are grouped into weak (strong) investor protection if a country's investor protection score is below (above) the overall average score of investor protection for the studied countries. In this study, the excess cash was measured using Equation (1) by performing the pooled regression with year and industry dummies as suggested by (Opler et al., 1999; Lee and Powell, 2011; Tran, 2020). The excess cash is described as the spread of actual and expected cash, and the predictions from the expected model can be used to define the excess cash. It's noteworthy to mention that we followed the prior studies and included also the operating cash flow, net working capital, and market-to-book firm-level control variables in estimating Equation (1).

Table 7 shows that firms operating in strong internal and external governance mechanisms allocate less excess cash in capital investment. In respect of economic significance, the results show that companies with weak (strong) corporate governance invest an insignificant 0.40% (-0.30%) more (less) in capital expenditures. In strong protection settings, the negative and statistically significant interaction effect (CG*Excess $cash_{t-1}$) also implies that companies with strong internal governance decrease capital investment, which supports the work by Shah et al. (2021). Besides, the findings reveal that companies operating in strong governance environments spend excess cash on R&D investment and dividend payouts. Regarding economic significance, the results show that companies with strong firm-level governance invest a significant 0.5% and 0.1% more in R&D and dividend payouts than their counterparts. In strong protection settings, the results also reveal that the coefficients of interaction factors are positive and significant, implying that the effect of CG is more pronounced and that companies with strong corporate governance (CG) increase investment in R&D and dividend payouts. This is while firms with weak internal and external governance mechanisms decrease spending excess cash on R&D investment and dividend payouts, supporting the work by Harford et al. (2008). Overall, the results confirm that internal and external governance mechanisms are complements, and enhancing governance settings lead to controlling the cash holdings policy and utilizing the usage of excess cash.

< Insert Table 7>

5. Robustness checks

The current work performs various robustness analyses. First, this study estimates Equations (1) and (2) by using an alternative dependent variable of "Log C/TA" (Chen et al., 2015; Xu et al., 2016). Tables 4 and 5 show the estimation results. In addition, the present study estimates Equations (1) and (2) by using another dependent variable of "Industry-Adjusted Cash Holdings" as proposed by Harford et al. (2008), which results are similar as shown in Tables 4 and 5 but are not reported separately for sake of brevity[8]. Second, the current work uses the Granger causality test. As presented in Table 8, the causality is running from CG, Ln (TA), TD/TA, NI/TA, CAPEX/TA, PP&E/TA, R&D/TA, SMC, CR, IP, and GEPU to C/TA.

< Insert Table 8>

[8] The estimation results are provided by request.

Third, this study estimates Equations (1) and (2) for all countries by performing the GMM in-Sys (Endogenous) methodology because the firm-level control variables are likely to be endogenous (Al-Najjar, 2013; Rizk and Sassine, 2023). Besides, we performed the Instrumental Variables (IV) as an alternative approach to test for the potential endogeneity between capital structure, dividend policy, and corporate governance factors. Following the works by Al-Najjar and Clark (2017) and Tran (2020), we used the instruments of lagged leverage, lagged dividends, and lagged corporate governance for controlling the endogeneity issue. To test the validity of the results, Shea's partial R^2, F-test of excluded instruments, and Kleibergen-Paap rank LM statistic test were applied. Remarkably, the high F-test statistic implies that IV is not weak. Also, the significant Kleibergen-Paap under-identification test statistic rejects the null hypothesis of the weak instruments. Table 9 shows the findings and provides evidence for the significant role of the investigated firm, country, and global-level determinants in explaining the Asian firms' cash holdings.

< Insert Table 9>

Fourth, this study also estimates Equations (1) and (2) by adding a country dummy to the regressions and also considering the new measurements of the "Net Income to Total Equities" (NI/TE) for gauging profitability, "Stock Market Turnover Ratio" (SMT) for measuring financial market development, and "Worldwide Governance Indicators" (WGI) score (Athari, 2022b) for measuring country-level governance quality. The data is collected from WorldScope and World Bank. Table 10 shows the estimation results. Similar to past research (e.g., Kusnadi, 2011; Al-Najjar, 2013; Chen et al., 2020), the results suggest that companies stockpile less cash in environments with strong governance mechanisms. Remarkably, Table 10 highlights that firms hold more cash by rising the country and global uncertainties (CR and GEPU). Moreover, the findings show that the (CG*WGI) negatively affects cash holdings, suggesting that the internal and external governance mechanisms are complements.

< Insert Table 10>

Fifth, we re-estimate the previous analysis presented in Table 10 by including new firm-level control variables namely net working capital (NWC/TA), market-to-book ratio (MtB), and operating cash flow (OCF/TA). The data is collected from WorldScope. Table 11 shows the estimation results and suggests that the results do not change by replacing and also adding new control variables.

< Insert Table 11>

Figure 3 shows the interactive effects of CG and WGI on companies' cash holdings. As presented, the extent of the impact of CG on cash holdings increases as moves from countries with below-average WGI to countries with above-average WGI. Likewise, it shows the CG effect is more prominent in countries with high governance quality (WGI).

< Insert Figure 3>

6. Conclusion

The present study fills the gap by probing the impacts of aggregate corporate governance, investor protection, and their interactions on Asian firms' cash holdings. Also, we attempt to

shed light by answering which components of corporate governance significantly impact cash holdings and how governance quality impacts firms' spending excess cash decisions.

The results show that the governance mechanisms negatively impact firms' cash holding policy and Asian firms stockpile more cash in weak governance settings, supporting the agency theory argument by Jensen (1986). Besides, the findings underscore that the extent of the impact of internal governance on a company's cash holdings increases as moves from countries with below-average investor protection to above-average investor protection, and its impact is more prominent in strong investor protection environments. This finding suggests that external governance is also necessary, in addition to internal governance, to control cash holdings and they are complements. Likewise, further analysis shows that board independence, CEO duality, and board diversity have a significant negative effect on cash holdings, implying that companies hold less cash by increasing independent directors, splitting CEO and chair positions, and also increasing the diversity of the board. The results also reveal that firms operating in a strong governance system spend less excess cash on capital investment whereas they increase spending on R&D investment and dividend payouts compared with firms operating in a weak legal system.

Moreover, the findings highlight that the firm-specific factors including size, leverage, capital expenditure, and intangible assets negatively impact cash holdings whereas profitability, dividend payouts, and R&D expenditure impact positively. For the country and global-specific factors, the results highlight that companies stockpile less cash as a transaction cost motive in the more advanced financial markets. However, the findings imply that a rise in the country and global risks trigger the precautionary motive of Asian companies to stockpile greater cash. The findings are robust and help understand the significant role of governance mechanisms in explaining the cash holdings policy.

The present study has important policy recommendations. First, the findings indicate that the policymakers by improving the internal and external governance mechanisms could pressurize firms to hold less cash and alleviate agency problems. Also, the results stress that the policymakers by enhancing the governance quality could reduce the misuse behavior of managers by investing more excess cash in R&D and dividend payouts instead of capital investment. Especially, the results imply that policymakers should be enhanced corporate governance by increasing independent directors, splitting CEO and chair positions, and also increasing the diversity of the board. Second, the results suggest that the regularity bodies should be provided with more economically, financially, and politically stable environments to help Asian firms reduce significantly cash holdings and manage their related costs. A decline in the vulnerability of countries to economic, financial, and political risks could lead companies to have less cash volatility and shortage, which probably reduce the precautionary incentive of companies to stockpile more cash. Third, the results recommend that managers instead of increasing cash holdings should be diversified their assets portfolio to hedge against the spill-over impact of global risk for exploiting investment opportunities and eventually rising the rate of returns.

It would be useful for further works to test the impact of governance settings on cash holdings for other economies either individually or regionally. Also, it would be important to re-estimate this nexus by using a new measurement of the Cash-to-Sales ratio and also testing the effect of geopolitical risks on the cash holdings policy behavior of Asian companies. Moreover, it would be interesting to investigate the interaction effect of country control

variables (e.g., financial market development, country risk) and country-level investor protection in future studies.

References

Acemoglu, D., Johnson, S., Robinson, J., & Thaicharoen, Y. (2003). Institutional causes, macroeconomic symptoms: volatility, crises and growth. *Journal of Monetary Economics*, 50(1), 49-123.

Akhtar, T., Tareq, M. A., & Rashid, K. (2023). The role of shareholders and creditors' rights in affecting cash holdings and firm value: A recent evidence from ASEAN. *International Journal of Finance & Economics*, 28(1), 929-961.

Al-Najjar, B. (2013). The financial determinants of corporate cash holdings: Evidence from some emerging markets. *International Business Review*, 22(1), 77-88.

Al-Najjar, B., & Belghitar, Y. (2011). Corporate cash holdings and dividend payments: Evidence from simultaneous analysis. *Managerial and Decision Economics*, 32(4), 231–241.

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.

Ammann, M., Oesch, D., & Schmid, M. M. (2011). Corporate governance and firm value: International evidence. *Journal of Empirical Finance*, 18(1), 36-55.

Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics*, 68(1), 29-51.

Athari, S. A. (2022a). Does investor protection affect corporate dividend policy? Evidence from Asian markets. *Bulletin of Economic Research*, 74(2), 579-598.

Athari, S. A. (2022b). Examining the impacts of environmental characteristics on Shariah-based bank's capital holdings: role of country risk and governance quality. *The Economics and Finance Letters, Forthcoming*.

Athari, S. A., & Bahreini, M. (2023). The impact of external governance and regulatory settings on the profitability of Islamic banks: Evidence from Arab markets. *International Journal of Finance & Economics*, *28*(2), 2124-2147.

Athari, S. A., Adaoglu, C., & Bektas, E. (2016). Investor protection and dividend policy: The case of Islamic and conventional banks. *Emerging Markets Review*, 27, 100-117.

Athari, S. A., Kondoz, M., & Kirikkaleli, D. (2021). Dependency between sovereign credit ratings and economic risk: Insight from Balkan countries. *Journal of Economics and Business*, *116*, 105984.

Athari, S. A., Saliba, C., Khalife, D., & Salameh-Ayanian, M. (2023). The Role of Country Governance in Achieving the Banking Sector's Sustainability in Vulnerable Environments: New Insight from Emerging Economies. *Sustainability*, *15*(13), 10538.

Athari, S. A., Shaeri, K., Kirikkaleli, D., Ertugrul, H. M., & Ozun, A. (2020). Global competitiveness and capital flows: does stage of economic development and risk rating matter?. *Asia-Pacific Journal of Accounting & Economics*, 27(4), 426-450.

Atif, M., Liu, B., & Huang, A. (2019). Does board gender diversity affect corporate cash holdings?. *Journal of Business Finance & Accounting*, 46(7-8), 1003-1029.

Atif, M., Liu, B., & Nadarajah, S. (2022). The effect of corporate environmental, social and governance disclosure on cash holdings: Life-cycle perspective. *Business Strategy and the Environment*, 31(5), 2193-2212.

Awartani, B., Belkhir, M., Boubaker, S., & Maghyereh, A. (2016). Corporate debt maturity in the MENA region: does institutional quality matter?. *International Review of Financial Analysis*, 46, 309-325.

Badu, E. A. (2022). Board diversity and performance of microfinance institutions: new insight from Ghana. *EuroMed Journal of Management*, *4*(2), 148-166.
Baker, S. R., Bloom, N., & Davis, S. J. (2016). Measuring economic policy uncertainty. *The Quarterly Journal of Economics*, 131(4), 1593-1636.
Bates, T. W., Kahle, K. M., & Stulz, R. M. (2009). Why do US firms hold so much more cash than they used to?. *The Journal of Finance*, 64(5), 1985-2021.
Baum, C. F., Caglayan, M., Stephan, A., & Talavera, O. (2008). Uncertainty determinants of corporate liquidity. *Economic Modelling*, 25(5), 833-849.
Benjamin, S. J., & Biswas, P. (2019). Board gender composition, dividend policy and COD: the implications of CEO duality. *Accounting Research Journal*, 32(3), 454-476.
Bitar, G. (2022). Gender diversity: a qualitative review of Lebanese women contribution to boards of directors. *International Journal of Work Innovation*, *3*(1), 69-81.
Bloom, N. (2017). Observations on uncertainty. *Australian Economic Review*, 50(1), 79-84.
Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87(1), 115-143.
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 & Governance, 19, 341-370.
Boubakri, N., El Ghoul, S., & Saffar, W. (2013). Cash holdings of politically connected firms. *Journal of Multinational Financial Management*, 23(4), 338-355.
Brogaard, J., & Detzel, A. (2015). The asset-pricing implications of government economic policy uncertainty. *Management Science*, 61(1), 3-18.
Butt, A. A., Murtaza, S., Shahzad, A., & Ahmad, J. (2022). Effect of corporate governance on free cash flow via dividend payout. *Journal of Asia-Pacific Business*, 23(4), 277-301.
Cambrea, D. R., Calabrò, A., La Rocca, M., & Paolone, F. (2021). The impact of boards of directors' characteristics on cash holdings in uncertain times. *Journal of Management and Governance*, 1-33.
Chang, K., & Noorbakhsh, A. (2006). Corporate cash holdings, foreign direct investment, and corporate governance. *Global Finance Journal*, 16(3), 302-316.
Chang, K., & Noorbakhsh, A. (2009). Does national culture affect international corporate cash holdings?. *Journal of Multinational Financial Management*, 19(5), 323-342.
Chen, N., & Yang, T. C. (2017). Democracy, rule of law, and corporate governance—a liquidity perspective. *Economics of Governance*, 18, 35-70.
Chen, Q., Chen, X., Schipper, K., Xu, Y., & Xue, J. (2012). The sensitivity of corporate cash holdings to corporate governance. *The Review of Financial Studies*, 25(12), 3610-3644.
Chen, R. R., Guedhami, O., Yang, Y., & Zaynutdinova, G. R. (2020). Corporate governance and cash holdings: Evidence from worldwide board reforms. *Journal of Corporate Finance*, 65, 101771.
Chen, Y., Dou, P. Y., Rhee, S. G., Truong, C., & Veeraraghavan, M. (2015). National culture and corporate cash holdings around the world. Journal of Banking & Finance, 50, 1-18.
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), 77-143.
Das Gupta, R., & Pathak, R. (2021). Does the legal origin affect corporate cash holding?. *International Journal of Emerging Markets*, 16(8), 1964-1983.
Demir, E., & Ersan, O. (2017). Economic policy uncertainty and cash holdings: Evidence from BRIC countries. *Emerging Markets Review*, 33, 189-200.
Diaw, A. (2021). Corporate cash holdings in emerging markets. *Borsa Istanbul Review*, 21(2), 139-148.

Dittmar, A., Mahrt-Smith, J., & Servaes, H. (2003). International corporate governance and corporate cash holdings. *Journal of Financial and Quantitative Analysis*, 38(1), 111–134.
Dogru, T., & Sirakaya-Turk, E. (2018). Cash holdings and corporate governance: theory and contrary evidence from hotel firms. *International Journal of Contemporary Hospitality Management*, 30(10), 3117-3134.
Ferreira, M. A., & Vilela, A. S. (2004). Why do firms hold cash? Evidence from EMU countries. *European Financial Management*, 10(2), 295-319.
Gupta, K., & Krishnamurti, C. (2023). Does employees' interest matter more than shareholders' interest in determining cash management policy?. *International Review of Economics & Finance*, 84, 568-589.
Harford, J., Mansi, S.A., & Maxwell, W.F. (2008). Corporate governance and firm cash holdings in the US. *Journal of Financial Economics*, 87(3), 535–555.
Hassanein, A., & Kokel, A. (2022). Corporate cash hoarding and corporate governance mechanisms: evidence from Borsa Istanbul. *Asia-Pacific Journal of Accounting & Economics*, 29(3), 831-848.
Hoshi, T., Kashyap, A., & Scharfstein, D. (1991). Corporate structure, liquidity, and investment: Evidence from Japanese industrial groups. *The Quarterly Journal of Economics*, 106(1), 33-60.
Huang, T., Wu, F., Yu, J., & Zhang, B. (2015). Political risk and dividend policy: Evidence from international political crises. *Journal of International Business Studies*, 46, 574-595.
Huang, Y., Elkinawy, S., & Jain, P. K. (2013). Investor protection and cash holdings: Evidence from US cross-listing. *Journal of Banking & Finance*, 37(3), 937-951.
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.
IMF. (2016). Global Financial Stability Report – "Corporate Governance, Investor Protection, and Financial Stability in Emerging Markets". (Retrieved from): https://www.elibrary.imf.org/view/IMF082/23493-9781513559582/23493-9781513559582/ch03.xml.
Inaba, K. I. (2021). Corporate cash and governance: A global look into publicly-traded companies' aggregate cash ratios. *International Review of Financial Analysis*, 78, 101808.
Jain, B. A., Li, J., & Shao, Y. (2013). Governance, product market competition and cash management in IPO firms. *Journal of Banking & Finance*, 37(6), 2052-2068.
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, 55-70.
Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Review*, 76(2), 323–329.
Jensen, M., & Meckling, W. (1976). Theory of the firm: Managerial behaviour, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360.
Kalcheva, I., & Lins, K. V. (2007). International evidence on cash holdings and expected managerial agency problems. *The Review of Financial Studies*, 20(4), 1087-1112.
Kato, K., Li, M., & Skinner, D. J. (2017). Is Japan really a "buy"? The corporate governance, cash holdings and economic performance of Japanese companies. *Journal of Business Finance & Accounting*, 44(3-4), 480-523.
Kim, C., Mauer, D., & Sherman, A. (1998). The determinants of corporate liquidity: theory and evidence. *Journal of Financial and Quantitative Analysis*, 33(3), 305–334.
Kondoz, M., Kirikkaleli, D., & Athari, S. A. (2021). Time-frequency dependencies of financial and economic risks in South American countries. *The Quarterly Review of Economics and Finance*, 79, 170-181.

Kuan, T. H., Li, C. S., & Chu, S. H. (2011). Cash holdings and corporate governance in family-controlled firms. *Journal of Business Research*, 64(7), 757-764.
Kuan, T. H., Li, C. S., & Liu, C. C. (2012). Corporate governance and cash holdings: A quantile regression approach. *International Review of Economics & Finance*, 24, 303-314.
Kusnadi, Y. (2011). Do corporate governance mechanisms matter for cash holdings and firm value?. *Pacific-Basin Finance Journal*, 19(5), 554-570.
La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (1998). Law and finance, *Journal of Political Economy*, 106(6), 1113–1155.
La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (2000). Agency problems and dividend policies around the world. *The Journal of Finance*, 55, 1-33.
Lee, E., & Powell, R. (2011). Excess cash holdings and shareholder value. Accounting & Finance, 51(2), 549-574.
Lei, J., Qiu, J., & Wan, C. (2018). Asset tangibility, cash holdings, and financial development. *Journal of Corporate Finance*, 50, 223-242.
Li, K., Griffin, D., Yue, H., & Zhao, L. (2013). How does culture influence corporate risk-taking?. *Journal of Corporate Finance*, 23, 1-22.
Liu, D., Li, Z., & Chen, S. (2021). The dynamic evolution of Chinese firms' cash holdings and R&D: external financing facilitation channels. *Applied Economics*, 53(18), 2093-2107.
Marwick, A., Hasan, M. M., & Luo, T. (2020). Organization capital and corporate cash holdings. *International Review of Financial Analysis*, 68, 101458.
Mitton, T. (2004). Corporate governance and dividend policy in emerging markets. *Emerging Markets Review*, 5(4), 409-426.
Myers, S.C. (1984). The capital structure puzzle. *Journal of Finance*, 39, 575–592.
Myers, S.C., & Majluf, N.S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13(2), 187–221.
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.
Ozkan, A., & Ozkan, N. (2004). Corporate cash holdings: An empirical investigation of UK companies. *Journal of Banking & Finance*, 28(9), 2103–2134.
Orlova, S. V. (2020). Cultural and macroeconomic determinants of cash holdings management. *Journal of International Financial Management & Accounting*, *31*(3), 270-294.
Obeitoh, O, O., Bulusson, M, A., & Yusuf, I. (2023). Board Characteristics and Firm Performance: The Moderating Role of Board Expertise. *EuroMed Journal of Management*. DOI: 10.1504/EMJM.2023.10054058.
Paskelian, O. G., Bell, S., & Nguyen, C. V. (2010). Corporate governance and cash holdings: A comparative analysis of Chinese and Indian firms. *The International Journal of Business and Finance Research*, 4(4), 59-73.
Petersen, M. A. (2009). Estimating standard errors in finance panel data sets: Comparing approaches. *The Review of Financial Studies*, 22(1), 435-480.
Phan, H. V., Nguyen, N. H., Nguyen, H. T., & Hegde, S. (2019). Policy uncertainty and firm cash holdings. *Journal of Business Research*, 95, 71-82.
Pinkowitz, L., Stulz, R., & Williamson, R. (2006). Does the contribution of corporate cash holdings and dividends to firm value depend on governance? A cross-country analysis. *The Journal of Finance*, 61(6), 2725-2751.
Pinkowitz, L., Stulz, R. M., & Williamson, R. (2003). Do firms in countries with poor protection of investor rights hold more cash? National Bureau of Economic Research Working Paper (No. 10188). DOI 10.3386/w10188.

Ramirez, A., & Tadesse, S. (2009). Corporate cash holdings, uncertainty avoidance, and the multinationality of firms. *International Business Review*, 18(4), 387-403.
Rizk, R., & Sassine, M. (2023). Equity financing and SME growth: evidence from the Eurozone. *International Journal of Work Innovation*. DOI: 10.1504/IJWI.2023.10057441.
Roodman, D. (2009). How to do xtabond2: An introduction to difference and system GMM in Stata. *The Stata Journal*, 9(1), 86-136.
Saliba, C., Farmanesh, P., & Athari, S. A. (2023). Does country risk impact the banking sectors' non-performing loans? Evidence from BRICS emerging economies. *Financial Innovation*, *9*(1), 1-30.
Scholtens, B., & Kang, F. C. (2013). Corporate social responsibility and earnings management: Evidence from Asian economies. *Corporate social responsibility and environmental management*, 20(2), 95-112.
Seifert, B., & Gonenc, H. (2018). The effects of country and firm-level governance on cash management. *Journal of International Financial Markets, Institutions and Money*, 52, 1-16.
Shah, I. A., Ali Shah, S. Z., Nouman, M., Khan, F. U., Badulescu, D., & Cismas, L. M. (2021). Corporate governance and cash holding: new insights from concentrated and competitive industries. *Sustainability*, 13(9), 4816.
Shleifer, A., & Vishny, R. W. (1992). Liquidation values and debt capacity: A market equilibrium approach. *The Journal of Finance*, 47(4), 1343-1366.
Singareddy, R. R. R., Chandrasekaran, S., Annamalai, B., & Ranjan., P. (2018). Corporate governance data of 6 Asian economies (2010–2017), *Data in Brief*, 20, 53-56.
Song, K. R., & Lee, Y. (2012). Long-term effects of a financial crisis: Evidence from cash holdings of East Asian firms. *Journal of Financial and Quantitative Analysis*, 47(3), 617-641.
Thakur, B. P. S., & Kannadhasan, M. (2019). Corruption and cash holdings: Evidence from emerging market economies. *Emerging Markets Review*, 38, 1-17.
Tran, Q. T. (2020). Financial crisis, shareholder protection and cash holdings. *Research in International Business and Finance*, 52, 101131.
Wang, P., Wen, Y., & Xu, Z. (2018). Financial development and long-run volatility trends. *Review of Economic Dynamics*, 28, 221-251.
Williamson, O. E. (1988). Corporate finance and corporate governance. *The Journal of Finance*, 43(3), 567-591.
World Bank (2020). Regional reports. https://archive.doingbusiness.org/content/dam/doingBusiness/media/Profiles/Regional/DB2020/EAP.pdf
World Bank (2020). Regional reports. https://archive.doingbusiness.org/content/dam/doingBusiness/media/Profiles/Regional/DB2020/SA.pdf
Xu, N., Chen, Q., Xu, Y., & Chan, K. C. (2016). Political uncertainty and cash holdings: Evidence from China. *Journal of Corporate Finance*, 40, 276-295.
Yang, D., Su, Z., & Zhu, X. K. (2023). International takeover laws and corporate cash holdings. *Journal of International Financial Management & Accounting*, https://doi.org/10.1111/jifm.12175

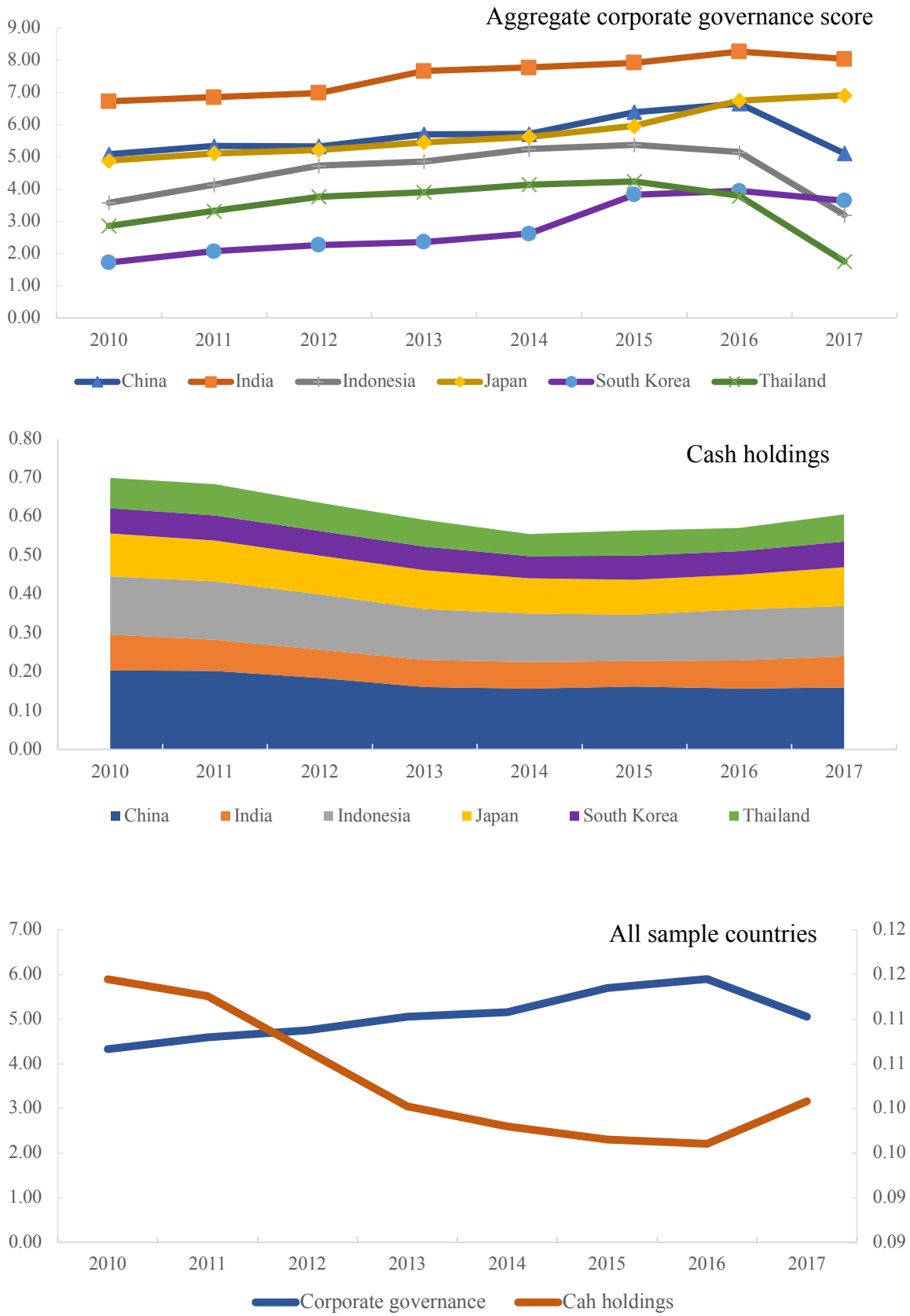

Figure 1. Time series plot of aggregate corporate governance scores and cash holdings in the sample Asian countries between 2010-2017.
(Source: Author's calculation)

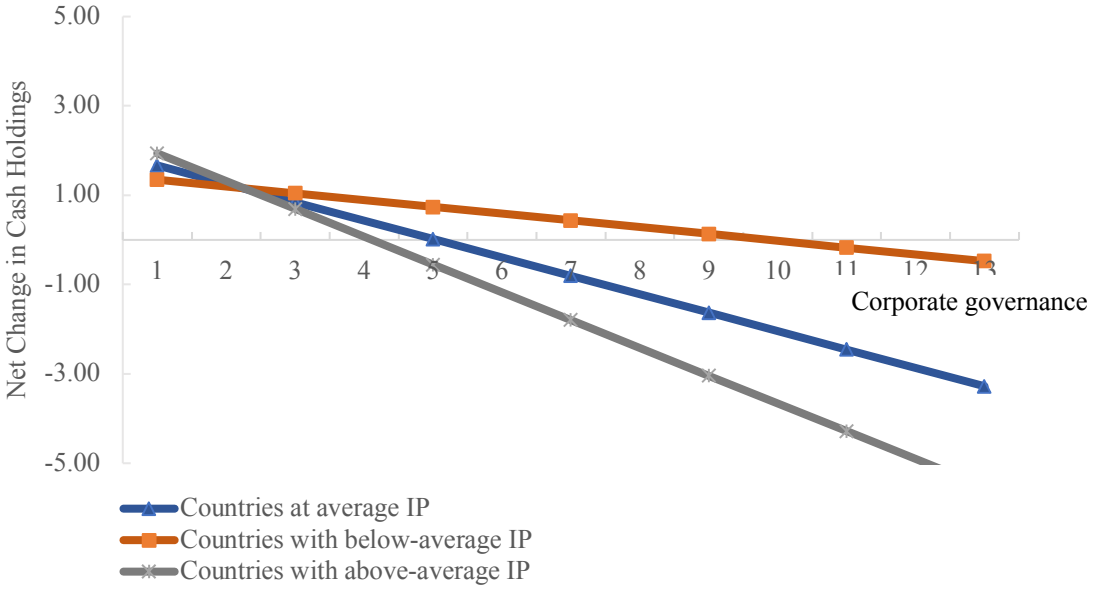

Figure 2. Cash holdings: corporate governance and investor protection (IP) interaction effects. (Source: Author's calculation)

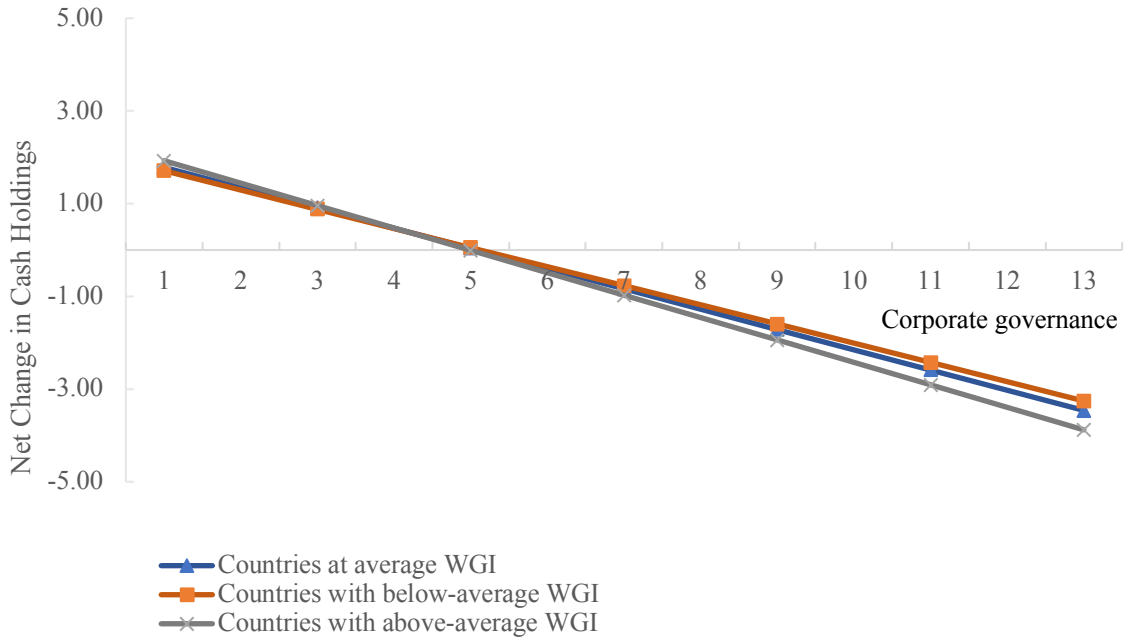

Figure 3. Cash holdings: corporate governance and Worldwide Governance Indicators (WGI) interaction effects.
(Source: Author's calculation)

Table 1. Variables' descriptions

Variables	Definitions	Sources
Dependent variable:		
Cash holdings	Cash and cash equivalent to total assets ratio (C/TA).	WorldScope
Independent variable:		
Firm-level control variables		
Corporate governance	It measured the aggregate corporate governance (CG) by the size of the board (BS), independence of the board (BI), the duality of CEO (CEO), board meeting attendance (BMA), audit committee independence (ACI), auditor ratification (AR), compensation committee count independence (CCCI), nomination committee independence (NCI), shareholder approved poison pill (SAPP), dual class unequal voting rights of common shares (DUVRCS), staggered board (SB), board diversity (BD), and duration of board (DB).	Bloomberg, Thomson Reuters
Size	Natural logarithm of total assets (Ln (TA)).	WorldScope
Leverage	Total debt to total assets ratio (TD/TA).	
Profitability	Net income to total assets ratio (NI/TA).	
Dividend	It's a dummy and equals one if a company pays out dividends and zero otherwise (DIVDUM).	
Capital expenditure	CAPEX to total assets ratio (CAPEX/TA).	
Intangible assets	PP&E to total assets ratio (PP&E/TA).	
R&D expenditure	R&D to total assets ratio (R&D/TA).	
Country and global-level control factors		
Financial market development	Stock market capitalization to GDP (SMC).	World Bank
Country risk	Country-level composite index scores (CR) (0-100).	www.prsgroup.com
Investor protection	Protecting minority investor index score (IP) (0-100). A high score means better investor protection quality.	www.doingbusiness.org
Global risk	Global economic policy uncertainty score (GEPU).	www.policyuncertainty.com

Note: Table 1 shows the descriptions, definitions, and sources of dependent and independent variables. The independent variables include firm, country, and global-level control variables.

Table 2. Descriptive summary (2010-2017)

Panel (A): Sample coverage & descriptive statistics of firm-level variables

Sample Countries	Sample coverage		Cash (C/TA)		Size (Ln (TA))		Leverage (TD/TA)		Profitability (NI/TA)		Capital Exp. (CAPEX/TA)		Intangible assets (PP&E/TA)		R&D Exp. (R&D/TA)	
	Index	No. Obs.	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
China	SSE 180	162	0.17	0.13	11.16	10.94	0.26	0.24	0.04	0.03	-0.04	-0.02	0.24	0.16	0.01	0.00
India	BSE 100	101	0.07	0.04	12.59	12.48	0.23	0.20	0.03	0.03	-0.06	-0.05	0.27	0.24	0.01	0.00
Indonesia	IDX_LQ45	45	0.13	0.11	15.32	16.63	0.22	0.19	0.02	0.01	-0.06	-0.04	0.32	0.29	0.00	0.00
Japan	TSE 100	100	0.12	0.09	15.33	14.98	0.23	0.20	0.05	0.03	-0.04	-0.04	0.26	0.24	0.03	0.02
South Korea	KOSPI 100	100	0.06	0.05	16.25	16.21	0.23	0.21	0.03	0.02	-0.05	-0.04	0.29	0.31	0.03	0.01
Thailand	SIT	100	0.07	0.04	10.75	10.70	0.31	0.32	0.03	0.02	-0.06	-0.04	0.34	0.34	0.00	0.00
Total	---	608	0.11	0.08	13.17	13.30	0.25	0.23	0.03	0.02	-0.03	-0.02	0.28	0.25	0.01	0.00

Panel (B): Average aggregate corporate governance and its' components scores

	BS	BI	CEO	BMA	ACI	AR	CCCCI	NCI	SAPP	DUVRCS	SB	BD	DB	CG
China	1.00	0.43	0.72	0.77	0.31	0.13	0.19	0.23	0.00	0.04	0.79	0.50	0.54	5.67
India	1.00	0.83	0.62	0.86	0.84	0.26	0.52	0.52	0.00	0.85	0.01	0.60	0.63	7.54
Indonesia	0.89	0.62	0.68	0.54	0.11	0.06	0.05	0.07	0.00	0.62	0.34	0.23	0.33	4.54
Japan	1.00	0.12	0.53	0.09	0.14	0.00	0.19	0.26	0.11	0.99	0.90	0.38	0.99	5.68
South Korea	1.00	0.29	0.12	0.10	0.28	0.00	0.07	0.27	0.00	0.29	0.01	0.06	0.29	2.77
Thailand	1.00	0.29	0.30	0.32	0.34	0.06	0.10	0.24	0.00	0.33	0.01	0.24	0.31	3.52
Total	0.99	0.41	0.50	0.47	0.35	0.09	0.20	0.28	0.02	0.46	0.39	0.36	0.53	5.07

Panel (C): Average country and global-level variables

	Financial market development (SMC)	Investor protection (IP)	Country risk (CR)	Global risk (GEPU)
China	55.16	52.50	72.92	141.05
India	69.85	65.59	68.49	141.05
Indonesia	42.11	61.00	66.74	141.05
Japan	82.43	78.43	81.05	141.05
South Korea	90.82	82.44	80.73	141.05
Thailand	88.63	73.79	68.91	141.05
Total	72.49	67.99	73.69	141.05

Note: Table 2 shows the sample coverage and descriptive summary of the firm, country, and global-level variables. In addition, it shows the average aggregate corporate governance and its' components scores during the 2010-2017 period. The descriptions of variables are shown in Table 1. (Source: Author's calculation)

Table 3. Pearson correlation matrix

	CG	Ln (TA)	TD/TA	NI/TA	CAPEX/TA	PP&E/TA	R&D/TA	SMC	CR	IP	GEPU	VIF
CG	1.00											1.12
Ln (TA)	-0.27***	1.00										1.13
TD/TA	-0.09***	0.01	1.00									1.02
NI/TA	0.13***	0.11***	-0.12***	1.00								1.11
CAPEX/TA	-0.19***	0.18***	0.14***	-0.01	1.00							1.05
PP&E/TA	-0.15***	0.07***	0.27***	0.08***	0.27***	1.00						1.07
R&D/TA	-0.02	0.18***	-0.07***	0.10***	0.22***	-0.29***	1.00					1.15
SMC	-0.16***	-0.01	0.02	0.07***	0.13***	0.06***	0.11***	1.00				1.11
CR	-0.14***	0.11***	-0.09***	0.08***	0.19***	-0.05***	0.28***	0.21***	1.00			1.02
IP	-0.21***	0.10***	-0.01	0.06***	0.15***	0.08***	0.19***	0.30***	0.32***	1.00		1.07
GEPU	0.04***	-0.05***	-0.02	-0.04***	-0.04***	-0.03	-0.02	0.16***	0.07***	0.09***	1.00	1.13

Note: Table 3 shows the Pearson correlation matrix and Variance Inflation Factor (VIF) between the variables. CG is the corporate governance; Ln (TA) is the size; TD/TA is the leverage; NI/TA is the profitability; CAPEX/TA is the capital expenditure; PP&E/TA is the intangible assets; R&D/TA is the R&D expenditure; SMC is the financial market development; CR is the country risk; IP is the investor protection; GEPU is the global uncertainty. *** is statistically significant at 1%.

Table 4. The impacts of the internal and external governance mechanisms and their interaction effect on cash holdings using the fixed effects estimation approach

Independent variables	Dependent variable: C/TA		Dependent variable: Log (C/TA)	
	Fixed effects (FE)		Fixed effects (FE)	
	(1)	(2)	(1)	(2)
Lagged C/TA	0.263***	0.265***	0.203***	0.201***
	(3.65)	(4.63)	(3.61)	(3.59)
CG	-0.473***	-0.449*	-0.421***	-0.374*
	(-4.49)	(-1.91)	(-4.45)	(-1.65)
Ln (TA)	-0.079**	-0.081***	-0.01**	-0.002***
	(-2.10)	(-3.75)	(-2.06)	(-3.30)
TD/TA	-0.038**	-0.037**	-0.023	-0.011
	(-2.22)	(-2.25)	(-0.18)	(-0.25)
NI/TA	0.004***	0.003	0.001***	0.005***
	(2.74)	(1.15)	(4.55)	(4.14)
DIVDUM	0.003*	0.001	0.002**	0.001
	(3.06)	(0.68)	(2.06)	(0.55)
CAPEX/TA	-0.013***	-0.011***	-0.002*	-0.003*
	(-6.59)	(-6.61)	(-1.70)	(-1.80)
PP&E/TA	-0.094***	-0.097***	-0.002	-0.002
	(-3.80)	(-3.92)	(-0.42)	(-0.45)
R&D/TA	0.316***	0.313	0.001***	0.001***
	(4.26)	(1.17)	(3.38)	(3.35)
SMC	-0.266***	-0.252**	-0.022***	-0.017**
	(-2.73)	(-2.18)	(-2.72)	(-2.01)
CR	-0.847**	-0.791***	-0.015**	-0.012
	(-2.07)	(-3.57)	(-2.03)	(-0.97)
IP	-0.073***	-0.067**	-0.037**	-0.038**
	(-3.70)	(-2.11)	(-2.03)	(-2.12)
CG*IP	---	-0.013*	---	-0.012*
	---	(-1.87)	---	(-1.86)
GEPU	0.701*	0.712***	0.008**	0.009**
	(1.69)	(3.14)	(1.97)	(2.03)
Constant	-0.393	-0.342*	2.754***	1.479***
	(-0.87)	(-1.87)	(4.34)	(3.11)
Year dummy	Yes	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes	Yes
Observations	4256	4256	4256	4256
F-statistic	84.26***	77.58***	55.76***	53.93***
Adj.R^2	0.63	0.56	0.47	0.54

Note: Table 4 shows the impacts of the internal and external governance mechanisms and their interaction effect on cash holdings employing the fixed effects (FE) regression between 2010-2017. C/TA is the cash and cash equivalent to total assets ratio; Log (C/TA) is the natural logarithm of C/TA; CG is the corporate governance; Ln (TA) is the size; TD/TA is the leverage; NI/TA is the profitability; DIVDUM is the dividend payouts; CAPEX/TA is the capital expenditure; PP&E/TA is the intangible assets; R&D/TA is the R&D expenditure; SMC is the financial market development; CR is the country risk; IP is the investor protection; GEPU is the global uncertainty. Parentheses include the t-statistics. ***, **, and * reveal 1%, 5%, and 10% statistically significance levels, correspondingly.

Table 5. The impacts of the internal and external governance mechanisms and their interaction effect on cash holdings using the GMM in-Sys estimation approach

Independent variables	Dependent variable: C/TA		Dependent variable: Log (C/TA)	
	GMM in-Sys (EXOG)		GMM in-Sys (EXOG)	
	(1)	(2)	(1)	(2)
Lagged C/TA	0.428***	0.416***	0.337***	0.325***
	(4.76)	(5.60)	(4.83)	(4.13)
CG	-0.407***	-0.412***	-0.433***	-0.410**
	(-4.35)	(-3.15)	(-4.59)	(-2.17)
Ln (TA)	-0.052***	-0.035***	-0.004***	-0.005***
	(-5.79)	(-3.57)	(-3.78)	(-2.98)
TD/TA	-0.048*	-0.012	-0.022**	-0.027
	(-1.69)	(-0.60)	(-2.06)	(-1.16)
NI/TA	0.006	0.004**	0.004***	0.003**
	(0.47)	(2.02)	(4.84)	(2.04)
DIVDUM	0.003***	0.002	0.004***	0.001
	(3.89)	(1.18)	(3.85)	(0.66)
CAPEX/TA	-0.046	-0.054**	-0.001	-0.002***
	(-0.47)	(-2.25)	(-0.70)	(-4.23)
PP&E/TA	-0.046***	-0.036***	-0.002***	-0.001
	(-3.84)	(-2.84)	(-3.29)	(-0.61)
R&D/TA	0.117***	0.112***	0.001	0.002
	(5.39)	(4.94)	(1.44)	(1.25)
SMC	-0.377	-0.412*	-0.034	-0.025**
	(-0.78)	(-1.80)	(-0.79)	(-2.17)
CR	-0.457***	-0.589***	-0.013**	-0.014***
	(-4.36)	(-4.90)	(-2.01)	(-3.90)
IP	-0.083***	-0.059**	-0.049***	-0.045**
	(-4.09)	(-2.07)	(-4.28)	(-2.13)
CG*IP	---	-0.021***	---	-0.014**
	---	(-3.14)	---	(-2.16)
GEPU	0.577**	0.185***	0.007***	0.001
	(2.17)	(4.51)	(2.62)	(0.29)
Constant	-0.137	0.362	1.311***	1.266***
	(-0.96)	(0.86)	(3.75)	(3.52)
Year dummy	Yes	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes	Yes
Observations	4256	4256	4256	4256
Hansen-test	(0.521)	(0.468)	(0.561)	(0.574)
Sargan-test	(0.364)	(0.526)	(0.433)	(0.516)
Wald chi-square	95.67***	89.37***	78.63***	86.74***
AR (1)	(0.043)	(0.025)	(0.031)	(0.064)
AR (2)	(0.378)	(0.347)	(0.424)	(0.446)

Note: Table 5 shows the impacts of the internal and external governance mechanisms and their interaction effect on cash holdings using the GMM-in-Sys (EXOG) between 2010-2017. Except for the lagged C/TA, the explanatory variables assume to be exogenous (EXOG). C/TA is the cash and cash equivalent to total assets ratio; Log (C/TA) is the natural logarithm of C/TA; CG is the corporate governance; Ln (TA) is the size; TD/TA is the leverage; NI/TA is the profitability; DIVDUM is the dividend payouts; CAPEX/TA is the capital expenditure; PP&E/TA is the intangible assets; R&D/TA is the R&D expenditure; SMC is the financial market development; CR is the country risk; IP is the investor protection; GEPU is the global uncertainty. Parentheses include the t-statistics. ***, **, and * reveal 1%, 5%, and 10% statistical significance levels, correspondingly.

Table 6. The impacts of corporate governance components on firms' cash holdings

Independent variables	Dependent variable: C/TA												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Lagged C/TA	0.202***	0.241***	0.325**	0.207***	0.228***	0.203**	0.221***	0.318***	0.272***	0.216**	0.223***	0.214***	0.322***
	(3.12)	(5.08)	(2.17)	(4.14)	(3.09)	(2.17)	(3.38)	(4.56)	(3.75)	(2.22)	(3.96)	(4.07)	(4.09)
CG	-0.152	-0.032***	-0.024**	-0.031	0.017	-0.145	-0.039	0.016	-0.058	0.026	-0.081	-0.031***	-0.012
	(-1.18)	(-4.81)	(-2.06)	(-0.69)	(0.38)	(-1.59)	(-0.81)	(0.41)	(-0.22)	(0.48)	(-1.28)	(-4.42)	(-0.36)
Firm, country, and global-level control variables	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Constant	0.893	0.629**	0.735*	0.805***	0.527**	0.115	0.745**	0.813	0.365	0.306**	0.699***	0.628**	0.257
	(1.05)	(2.19)	(1.69)	(5.14)	(2.05)	(0.83)	(2.11)	(1.20)	(1.06)	(2.14)	(4.39)	(2.10)	(1.13)
Year dummy	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry dummy	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
F-statistic	43.96***	55.46***	44.85***	52.64***	43.92***	54.55***	42.78***	47.89***	53.90***	55.31***	44.05***	54.93***	47.89***
Adj. R^2	0.59	0.47	0.58	0.56	0.44	0.57	0.52	0.54	0.59	0.48	0.55	0.46	0.54

Note: Table 6 shows the impacts of corporate governance components on cash holdings using the fixed effects (FE) regression between 2010-2017. C/TA is the cash and cash equivalent to total assets ratio. CG is corporate governance. Instead of CG, its components employed in each regression namely the Board size (1), Board independence (2), CEO duality (3), Board meeting attendance (4), Audit committee independence (5), Auditor ratification (6), Compensation committee count independence (7), Nomination committee independence (8), Shareholder approved poison pill (9), Dual-class unequal voting rights of common shares (10), Staggered board (11), Board diversity (12), and Duration of board (13). The firm, country, and global-level control variables include size (Ln (TA)), leverage (TD/TA), profitability (NI/TA), dividend payouts (DIVDUM), capital expenditure (CAPEX/TA), intangible assets (PP&E/TA), R&D expenditure (R&D/TA), financial market development (SMC), country risk (CR), investor protection (IP), and global uncertainty (GEPU). Parentheses include the t-statistics. ***, **, and * reveal 1%, 5%, and 10% statistical significance levels, correspondingly

Table 7. The impacts of governance settings on excess cash.

Independent variables	Dependent variable: ΔIndustry-adjusted capital expenditure			Dependent variable: ΔIndustry-adjusted R&D			Dependent variable: ΔIndustry-adjusted dividend		
	Weak investor protection	Strong investor protection	Difference test	Weak investor protection	Strong investor protection	Difference test	Weak investor protection	Strong investor protection	Difference test
Excess $cash_{t-1}$	0.025**	0.012*	0.275***	0.024	0.002**	0.381***	0.013	0.005***	0.232***
	(2.02)	(1.71)	---	(1.28)	(2.16)	---	(1.15)	(3.66)	---
CG	0.004	-0.003	0.012	-0.002	0.005**	0.194**	0.016	0.001*	0.211**
	(1.18)	(-1.26)	---	(-0.78)	(2.08)	---	(0.94)	(1.68)	---
CG*Excess $cash_{t-1}$	0.011	-0.003**	0.119***	-0.002**	0.007*	0.302***	-0.004**	0.002**	0.374***
	(1.37)	(2.13)	---	(-2.11)	(1.71)	---	(2.07)	(2.06)	---
Firm, country, and global-level control variables	YES	YES	---	YES	YES	---	YES	YES	---
Constant	-0.825***	0.202	---	0.635	0.425*	---	0.385**	0.612	---
	(-3.35)	(0.97)	---	(1.14)	(1.71)	---	(2.02)	(1.14)	---
Year dummy	YES	YES	---	YES	YES	---	YES	YES	---
F-statistic	65.58***	72.31***	---	48.32***	45.26***	---	63.52***	55.26***	---
Adj. R^2	0.42	0.38	---	0.32	0.52	---	0.46	0.36	---

Note: Table 7 shows the effect of governance settings on using excess cash by the fixed effects (FE) regression between 2010-2017. Excess cash is described as the spread of actual and expected cash, and the predictions from the expected model can be used to define the excess cash. CG is corporate governance. The firm, country, and global-level control variables include size (Ln (TA)), leverage (TD/TA), profitability (NI/TA), dividend payouts (DIVDUM), capital expenditure (CAPEX/TA), intangible assets (PP&E/TA), R&D expenditure (R&D/TA), market to book ratio (MtB), operating cash flows (OCF/TA), net working capital (NWC/TA), financial market development (SMC), country risk (CR), investor protection (IP), and global uncertainty (GEPU). MtB ratio is calculated as the ratio of the market value of assets to the book value of assets. OCF/TA is measured as net operating cash flows scaled by total assets. NWC/TA is measured as current assets less cash and current liabilities scaled by total assets. The dependent variables are the change in industry-adjusted capital expenditure ratio (Δindustry adjusted capital expenditure), change in industry-adjusted R&D ratio (Δindustry adjusted R&D), and change in industry-adjusted dividend (Δindustry adjusted dividend). Countries are grouped into weak (strong) investor protection if a country's investor protection score is below (above) the overall average score of investor protection for the studied countries. Parentheses include the t-statistics. ***, **, and * denote 1%, 5%, and 10% statistical significance levels, correspondingly.

Table 8. Granger causality test

Null Hypothesis			F-statistics	[Prob. value]	Causality
CG	→	C/TA	2.462***	[0.002]	Yes
Ln (TA)	→	C/TA	5.622***	[0.000]	Yes
TD/TA	→	C/TA	4.546***	[0.002]	Yes
NI/TA	→	C/TA	3.927**	[0.025]	Yes
CAPEX/TA	→	C/TA	3.457***	[0.001]	Yes
PP&E/TA	→	C/TA	4.727**	[0.017]	Yes
R&D/TA	→	C/TA	4.516***	[0.001]	Yes
SMC	→	C/TA	4.597***	[0.000]	Yes
CR	→	C/TA	3.746**	[0.023]	Yes
IP	→	C/TA	5.663***	[0.000]	Yes
GEPU	→	C/TA	3.465***	[0.000]	Yes

Note: Table 8 shows the Granger causality test between variables. C/TA is the cash and cash equivalent to total assets ratio; CG is the corporate governance; Ln (TA) is the size; TD/TA is the leverage; NI/TA is the profitability; CAPEX/TA is the capital expenditure; PP&E/TA is the intangible assets; R&D/TA is the R&D expenditure; SMC is the financial market development; CR is the country risk; IP is the investor protection; GEPU is the global uncertainty. Parentheses include the t-statistics. ***, **, and * reveal 1%, 5%, and 10% statistical significance levels, correspondingly.

Table 9. Robustness test I

Independent variables	Dependent variable: C/TA				Dependent variable: Log (C/TA)			
	GMM in-Sys (ENDG)		Inst. Variables (IV)		GMM in-Sys (ENDG)		Inst. Variables (IV)	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Lagged C/TA	0.397***	0.369***	0.263**	0.224*	0.358***	0.348***	0.212*	0.237**
	(4.49)	(4.41)	(2.05)	(1.73)	(2.16)	(4.04)	(1.68)	(2.14)
CG	-0.323***	-0.424**	-0.156*	-0.211**	-0.432***	-0.512**	-0.246**	-0.188*
	(-2.84)	(-2.04)	(-1.73)	(-2.14)	(-2.85)	(-2.02)	(-2.04)	(-1.69)
Ln (TA)	-0.018	-0.017***	-0.003	-0.014**	-0.002	-0.003***	-0.001	-0.002
	(-1.06)	(-3.80)	(-0.88)	(-2.06)	(-1.08)	(-2.88)	(-1.23)	(-0.79)
TD/TA	-0.053**	-0.025	-0.024**	-0.008	-0.033	-0.032*	-0.016*	-0.004
	(-1.97)	(-0.51)	(-1.97)	(-1.04)	(-1.03)	(-1.68)	(-1.71)	(-1.35)
NI/TA	0.005***	0.002	0.001	0.003	0.004*	0.002	0.006**	0.004
	(4.15)	(0.68)	(1.43)	(0.76)	(1.88)	(0.64)	(2.12)	(0.56)
DIVDUM	0.002**	0.001	0.003***	0.001	0.002	0.004***	0.001	0.005**
	(2.04)	(1.10)	(5.65)	(0.96)	(1.04)	(4.20)	(1.15)	(2.13)
CAPEX/TA	-0.015	-0.029*	-0.011	-0.018	-0.003***	-0.004**	-0.016**	-0.007
	(-0.91)	(-1.82)	(-1.24)	(-1.07)	(-4.42)	(-2.14)	(-2.03)	(-0.83)
PP&E/TA	-0.023	-0.045***	-0.008	-0.012	-0.003***	-0.001	-0.015***	-0.004
	(-1.53)	(-3.10)	(-0.78)	(-1.15)	(-4.75)	(-0.87)	(-4.55)	(-1.22)
R&D/TA	0.066***	0.125	0.047**	0.006	0.002**	0.002	0.021**	0.018*
	(2.75)	(0.53)	(2.12)	(0.44)	(2.12)	(0.68)	(2.17)	(1.71)
SMC	-0.321*	-0.465	-0.016	-0.337**	-0.035***	-0.038	-0.011	-0.002
	(-1.73)	(-0.76)	(-1.14)	(-2.11)	(-3.65)	(-0.71)	(-0.77)	(-0.62)
CR	-0.449***	-0.854***	-0.331*	-0.205	-0.016***	-0.017***	-0.012	-0.332**
	(-5.17)	(-4.43)	(-1.68)	(-0.73)	(-6.18)	(-6.23)	(-1.54)	(-2.11)
IP	-0.065***	-0.045**	-0.057**	-0.023	-0.058***	-0.054***	-0.036***	-0.012
	(-4.33)	(-2.08)	(-2.17)	(-1.14)	(-6.60)	(-4.07)	(-4.56)	(-1.33)
CG*IP	---	-0.023*	---	-0.008**	---	-0.022*	---	-0.012*
	---	(-1.79)	---	(-2.13)	---	(-1.69)	---	(-1.69)
GEPU	0.349**	0.393**	0.105	0.271*	0.002	0.003	0.216**	0.067
	(2.04)	(2.08)	(1.36)	(1.69)	(1.14)	(0.43)	(2.09)	(1.08)
Constant	-0.687	0.561	0.152	-0.323	1.665***	0.692***	0.251*	0.142
	(-0.81)	(1.08)	(0.76)	(-0.74)	(3.31)	(6.43)	(1.73)	(0.59)
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hansen-test	(0.622)	(0.580)	---	---	(0.463)	(0.547)	---	---
Sargan-test	(0.535)	(0.426)	---	---	(0.337)	(0.484)	---	---
Wald chi-square	84.34***	76.65***	---	---	86.27***	78.58***	---	---
AR (1)	(0.065)	(0.047)	---	---	(0.038)	(0.074)	---	---
AR (2)	(0.376)	(0.329)	---	---	(0.424)	(0.436)	---	---
Shea's partial R^2	---	---	0.095	0.078	---	---	0.086	0.092
F-test (Excl. Inst)	---	---	55.53*	47.36*	---	---	52.24*	49.87*
Kleibergen-Paap rank LM statistic	---	---	18.213*	19.154*	---	---	21.557*	20.164*

Note: Table 9 shows the robust results of employing the GMM-in-Sys (ENDG) and Instrumental Variables (IV) between 2010-2017. The lagged C/TA and the firm-level control variables assume to be endogenous (ENDG). C/TA is the cash and cash equivalent to total assets ratio; Log (C/TA) is the natural logarithm of C/TA; CG is the corporate governance; Ln (TA) is the size; TD/TA is the leverage; NI/TA is the profitability; DIVDUM is the dividend payouts; CAPEX/TA is the capital expenditure; PP&E/TA is the intangible assets; R&D/TA is the R&D expenditure; SMC is the financial market development; CR is the country risk; IP is the investor protection; GEPU is the global uncertainty. Parentheses include the t-statistics. ***, **, and * denote 1%, 5%, and 10% statistical significance levels, correspondingly.

Table 10. Robustness test II

Independent variables	Dependent variable: C/TA					
	Fixed effects (FE)		GMM in-Sys (EXOG)		GMM in-Sys (ENDG)	
	(1)	(2)	(1)	(2)	(1)	(2)
Lagged C/TA	0.267***	0.266***	0.426***	0.425***	0.356***	0.345***
	(4.43)	(3.76)	(4.09)	(4.93)	(3.77)	(4.45)
CG	-0.463***	-0.421**	-0.471***	-0.436***	-0.353***	-0.429**
	(-4.45)	(-2.25)	(-3.01)	(-3.16)	(-3.26)	(-2.03)
Ln (TA)	-0.082***	-0.081***	-0.033***	-0.022	-0.012	-0.013***
	(-4.01)	(-4.66)	(-3.15)	(-1.43)	(-0.51)	(-4.42)
TD/TA	-0.041*	-0.042**	-0.013	-0.031*	-0.015***	-0.016
	(-1.68)	(-2.14)	(-1.07)	(-1.85)	(-4.44)	(-1.13)
NI/TE	0.002***	0.001	0.004**	0.001	0.006**	0.001
	(2.74)	(1.23)	(2.12)	(1.12)	(2.14)	(0.74)
DIVDUM	0.002	0.003**	0.004***	0.002	0.003*	0.001
	(1.06)	(2.04)	(4.15)	(0.54)	(1.67)	(1.16)
CAPEX/TA	-0.135***	-0.131***	-0.013	-0.039**	-0.029	-0.012
	(-4.62)	(-5.64)	(-0.76)	(-2.03)	(-1.15)	(-0.44)
PP&E/TA	-0.101*	-0.078***	-0.026*	-0.032*	-0.042***	-0.043***
	(-1.82)	(-3.65)	(-1.72)	(-1.82)	(-3.06)	(-3.36)
R&D/TA	0.106***	0.110	0.083**	0.085***	0.012	0.116***
	(5.77)	(1.13)	(2.21)	(3.24)	(1.55)	(5.43)
SMT	-0.173**	-0.122	-0.244***	-0.294***	-0.326***	-0.315**
	(-2.14)	(-1.45)	(-3.03)	(-3.51)	(-5.14)	(-2.12)
CR	-0.572*	-0.569	-0822*	-0.603**	-0.406**	-0.702
	(-1.67)	(-1.34)	(-1.69)	(-2.12)	(-2.08)	(-1.15)
WGI	-0.033***	-0.084	-0.078**	-0.052*	-0.064	-0.053**
	(-3.31)	(-0.63)	(-2.03)	(-1.67)	(-1.08)	(-2.03)
CG*WGI	---	-0.021**	---	-0.029*	---	-0.024***
	---	(-2.25)	---	(-1.71)	---	(-4.16)
GEPU	0.556**	0.503**	0.466	0.233	0.502*	0.412
	(2.32)	(2.11)	(1.15)	(1.02)	(1.67)	(1.32)
Constant	-0.317**	-1.552	-0.164	0.443*	-0.932	0.407
	(-2.17)	(-0.24)	(-1.53)	(1.67)	(-1.42)	(0.83)
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes
Country dummy	No	Yes	No	Yes	No	Yes
F-statistic	54.55***	76.45***	---	---	---	---
Adj.R^2	0.62	0.54	---	---	---	---
Hansen-test	---	---	(0.534)	(0.472)	(0.545)	(0.426)
Sargan-test	---	---	(0.437)	(0.331)	(0.464)	(0.565)
Wald chi-square	---	---	76.55***	84.48***	75.12***	82.86***
AR (1)	---	---	(0.032)	(0.045)	(0.026)	(0.051)
AR (2)	---	---	(0.446)	(0.346)	(0.464)	(0.427)

Note: Table 10 shows the robust results by using alternative proxies and performing fixed effects (FE), GMM-in-Sys (EXOG), and GMM-in-Sys (ENDG) between 2010-2017. C/TA is the cash and cash equivalent to total assets ratio; CG is the corporate governance; Ln (TA) is the size; TD/TA is the leverage; NI/TE is the profitability; DIVDUM is the dividend payouts; CAPEX/TA is the capital expenditure; PP&E/TA is the intangible assets; R&D/TA is the R&D expenditure; SMT is the financial market development; CR is the country risk; WGI is the Worldwide Governance Indicators; GEPU is the global uncertainty. Parentheses include the t-statistics. ***, **, and * denote 1%, 5%, and 10% statistical significance levels, correspondingly.

Table 11. Robustness test III

Independent variables	Dependent variable: C/TA					
	Fixed effects (FE)		GMM in-Sys (EXOG)		GMM in-Sys (ENDG)	
	(1)	(2)	(1)	(2)	(1)	(2)
Lagged C/TA	0.352**	0.284***	0.383*	0.337***	0.254***	0.429***
	(2.06)	(4.33)	(1.69)	(5.14)	(3.48)	(3.69)
CG	-0.358*	-0.361**	-0.269**	-0.332	-0.329**	-0.208
	(-1.71)	(-2.14)	(-2.06)	(-1.25)	(-2.11)	(-1.17)
WGI	-0.024**	-0.062	-0.033***	-0.052	-0.047	-0.028***
	(-2.09)	(-1.24)	(-5.14)	(-1.67)	(-1.15)	(-4.46)
CG*WGI	---	-0.017**	---	-0.025**	---	-0.019***
	---	(-2.04)	---	(-2.19)	---	(-3.78)
NWC/TA	-0.226	-0.147	-0.361*	-0.097	-0.353**	-0.105
	(-0.68)	(-1.26)	(-1.71)	(-1.44)	(-2.16)	(-1.17)
MtB	0.084***	0.065	0.072	0.094**	0.104	0.088**
	(3.48)	(1.22)	(0.98)	(2.13)	(1.56)	(2.07)
OCF/TA	0.121	0.086	0.135***	0.106	0.152**	0.144
	(1.33)	(0.87)	(4.25)	(1.29)	(2.02)	(1.19)
Firm, country, and global-level control variables	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.855	-0.626	-0.337**	0.106	-0.544***	0.215
	(-1.24)	(-0.65)	(-2.12)	(0.88)	(-3.66)	(1.52)
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes
Country dummy	No	Yes	No	Yes	No	Yes
F-statistic	48.66***	66.34***	---	---	---	---
Adj.R^2	0.56	0.48	---	---	---	---
Hansen-test	---	---	(0.321)	(0.354)	(0.451)	(0.316)
Sargan-test	---	---	(0.265)	(0.239)	(0.502)	(0.292)
Wald chi-square	---	---	68.24***	73.26***	65.89***	69.65***
AR (1)	---	---	(0.026)	(0.016)	(0.022)	(0.019)
AR (2)	---	---	(0.382)	(0.424)	(0.351)	(0.339)

Note: Table 11 shows the robust results by using and adding alternative proxies and also performing fixed effects (FE), GMM-in-Sys (EXOG), and GMM-in-Sys (ENDG) between 2010-2017. C/TA is the cash and cash equivalent to total assets ratio; CG is the corporate governance; WGI is the Worldwide Governance Indicators; NWC/TA is the net working capital; MtB is the market to book ratio; OCF/TA is the operating cash flows. NWC/TA is measured as current assets less cash and current liabilities scaled by total assets. The MtB ratio is calculated as the market value of assets divided by the book value of assets. OCF/TA is measured as net operating cash flows scaled by total assets. The firm, country, and global-level control variables include size (Ln (TA)), leverage (TD/TA), profitability (NI/TE), dividend payouts (DIVDUM), capital expenditure (CAPEX/TA), intangible assets (PP&E/TA), R&D expenditure (R&D/TA), financial market development (SMT), country risk (CR), and global uncertainty (GEPU). Parentheses include the t-statistics. ***, **, and * denote 1%, 5%, and 10% statistical significance levels, correspondingly.

Appendix:

Table A1. Measurement of corporate governance

Components	Measurements
Board size	Value more than or equal to 5 is one and zero otherwise
Board independence	Value more than or equal to 50% is one and zero otherwise
CEO duality	No is one and zero otherwise
Board meeting attendance	Value more than or equal to 66.67% is one and zero otherwise
Audit committee independence	Value more than or equal to 50% is one and zero otherwise
Auditor ratification	Yes is one and zero otherwise
Compensation committee count independence	Value more than or equal to 3 is one and zero otherwise
Nomination committee independence	Value more than or equal to 50% is one and zero otherwise
Shareholder-approved poison pill	Yes is one and zero otherwise
Dual class unequal voting rights of common shares	No is one and zero otherwise
Staggered board	No is one and zero otherwise
Board diversity	Value more than or equal to 1 is one and zero otherwise
Duration of board	Value less than 9 is one and zero otherwise
Corporate governance score	Value ranges from 0 to 13

Note: Table A1 shows the measurement of aggregate corporate governance and its components.

Table A2. Descriptive summary of the full sample

Variables	Minimum	First quartile	Median	Mean	Third quartile	Maximum	Standard Dev.
C/TA	0.001	0.036	0.079	0.109	0.142	0.892	0.108
CG	1.000	1.000	5.000	5.069	8.000	12.000	3.251
Ln (TA)	4.682	10.838	13.301	13.169	15.405	20.842	2.951
TD/TA	0.002	0.094	0.230	0.249	0.372	3.232	0.189
NI/TA	-0.934	-0.024	0.021	0.029	0.332	0.639	9.637
CAPEX/TA	-0.663	-0.061	-0.021	-0.029	0.000	0.356	0.065
PP&E/TA	0.001	0.081	0.250	0.279	0.437	0.922	0.226
R&D/TA	0.000	0.000	0.000	0.010	0.011	0.452	0.028
SMC	39.877	61.289	69.024	72.489	89.002	113.055	20.039
CR	64.687	68.979	72.041	73.688	79.771	83.208	5.544
IP	50.000	56.000	73.400	67.992	78.100	84.000	11.835
GEPU	102.140	120.144	132.581	141.050	165.875	189.058	28.641

Note: Table A2 shows the descriptive summary of the full sample between 2010-2017. C/TA is the cash and cash equivalent to total assets ratio; CG is the corporate governance; Ln (TA) is the size; TD/TA is the leverage; NI/TA is the profitability; CAPEX/TA is the capital expenditure; PP&E/TA is the intangible assets; R&D/TA is the R&D expenditure; SMC is the financial market development; CR is the country risk; IP is the investor protection; and GEPU is the global uncertainty.