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The Impact of Geopolitical Risk, State Ownership, and Group Affiliations on Indonesian Firms' Cash Reserves

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Abstract

The purpose of this study is to examine whether geopolitical risks affect firms' cash reserves in Indonesia. Using a panel data analysis, we analyze the role of GPR (short for geopolitical risk) on firms' cash reserves from 2010 to 2020. The results reveal that firms spend their cash reserves when encountering geopolitical risk, specifically financially constrained firms. We extend our study by investigating the effects of state ownership and group affiliations on firms' attitudes towards GPR. State ownership positively affects the relation of GPR and firms' cash reserves, while group affiliation doesn't show a notable impact. The result was robust to endogeneity issues. However, further studies are still needed to determine the extent of geopolitical risk impacts firms' performances. This research is hoped to be useful for policy-makers to anticipate appropriate future regulations in order to help entrepreneurs and the country's economic growth. As for the practitioner itself, i.e., firms, business owners, and entrepreneurs, this research is expected to provide notable information about the impact of risk on firms in Indonesia. Since the economy is shifting to a borderless economy, it can be one of the considerations in making business or economic decisions when firms are faced with geopolitical uncertainty.

Keywords : geopolitical risk; cash reserves; state ownership; business group; Indonesia
JEL Classification : G19, G32

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1. INTRODUCTION

Uncertainty has been proven to influence a country's economy significantly. According to the Bank of England, at least three types of uncertainty affect a country's economic performance. Along with economic and policy uncertainty, geopolitical risk has a significant adverse effect on the economy(Carney, 2016).

Geopolitical risks have become a distinctive consideration for investors, policy-makers, business communities, and the public in making economic and business decisions. The World Bank and the International Monetary Fund have regularly monitored and highlighted the potential risk from geopolitical uncertainties (Caldara & Iacoviello, 2018). Based on the Caixa Bank Research, geopolitical risk is now a significant factor in explaining world growth, weighting 30% of factors explaining the world growth (Arenas, 2018). Moreover, Shahbaz et al. (2018) mentioned that geopolitical events such as the US-China conflict raised attention and concern over geopolitical risk's direct and indirect economic effects.

Interdependency between countries is influential in various industry sectors, such as the technology industry, export-import industries, and healthcare industry, ranging from medical equipment to medicines. Accordingly, PricewaterhouseCoopers (2018) ranked geopolitical uncertainty and terrorism as the top five business threats globally, exceeding other direct business risks such as exchange rate volatility and changing consumer behavior (C. C. Lee et al., 2021). Even when facing a global pandemic, geopolitical uncertainty is still ranked as the top 20 business threats globally (PricewaterhouseCoopers, 2021). The pandemic swiftly revealed that the interdependence of international trade and supply chains might harm certain national economies. Authorities are now urging local firms to re-shore productions and manufacturing to their home country to increase strategic autonomy. The extreme decline in those fields, mixed with the pre-existing tensions, may further create frictions. In addition, it may form segregation and independence, exposing the vulnerability of the global supply chain without assurance whether it will return to its original level, i.e., prioritizing cost-efficiency (Gaub & Boswinkel, 2020).

Geopolitical risk is associated with tensions between countries, such as diplomatic feuds and international wars. Mainly geopolitical occurrences where power struggles cannot peacefully resolve the market and business cycles, further causing financial pressures on firms (Caldara & Iacoviello, 2018). Cash reserve is one of the leading responses firms undertake to those financial pressures as it acts as emergency funds to secure firms from short-term unexpected financial needs. When facing uncertainty, firms are more driven to increase their cash reserves to act as a precautionary buffer against economic shocks and maintain operational continuity (Demir & Ersan, 2017; Phan et al., 2019). Moreover, firms lacking access to external financing hold more cash to shelter themselves from adverse and costly shocks. In addition, firms with decreasing credit ratings will heighten their cash ratio to stabilize liquidity (Khieu & Pyles, 2012).

The cash reserve of financially constrained firms is more responsive to cash flow volatility than unconstrained firms (Cardella et al., 2015). Cash reserve enables financially constrained firms to carry out a profitable project that would otherwise be neglected if external financing is too costly. Consequently, cash reserves are more valuable to financially constrained firms as they can alleviate post-crisis investment decreases (C. C. Lee & Wang, 2021). However, arduous access to external funding leads constrained firms to use more internal funds and reserves as uncertainty increases (Demir et al., 2019).

The role of financial constraints in firms, particularly state-owned enterprises (hereafter referred to as SOE) and group affiliated firms with their soft budget constraints, has drawn researchers' attention. SOE (short for state-owned enterprises) tends not to have a high cash reserve due to credit availability from state-owned financial institutions and banks, despite experiencing financial distress and losing access to other external funding (Megginson et al., 2014). Therefore, cash reserves in SOE are generally less sensitive to

uncertainty than non-SOEs. On the other hand, SOE has other priorities besides profit-maximizing, namely political and social goals. Therefore, it tends to make SOE raises its cash reserves (R. R. Chen et al., 2018). Combined with the assurance from political extraction, SOEs can support the costs of holding higher cash reserves (Kusnadi et al., 2015). Other than that, business group affiliates also exhibit soft budget constraints, albeit the weaker impact, due to easy access to the group's internal capital market and risk-sharing among affiliates. When facing a crisis, business group affiliates (in the future referred to as BGA) have a lower likelihood of bankruptcy than stand-alone firms (Komera & Jijo Lukose, 2014). Despite generally holding more cash reserves, Suk et al. (2019) found that cash reserves in BGAs (short for business group affiliates) remain consistent in a state of crisis compared to stand-alone firms, thus ascertaining the existence of soft budget constraints.

Several works of literature have studied the impact of geopolitical risk on countries, in particular emerging countries. Balcilar et al. (2018) studied the impact of geopolitical risk on the stock market dynamics of BRICS (Brazil, Russia, India, China, and South Africa), where they found a heterogeneous result and concluded that geopolitical occurrences generally actuated stock market volatility. Cheng & Chiu (2018) examined the importance of geopolitical risk on 38 emerging countries and found that global geopolitical risk shocks are a prominent9 source of economic fluctuations in emerging countries, including Indonesia. While Lu et al. (2020) empirically proved the detrimental effect of geopolitical risk on financial development, denoted by the domestic credit limitation in 18 emerging markets, one of which is Indonesia. Unfortunately, research on the impact of geopolitical risk on firms, particularly Indonesian firms, is rarely found. Therefore, this research aims to observe the impact of geopolitical risk on firms in Indonesia, namely their cash reserve, since cash is an essential liquid asset (Phan et al., 2019). Moreover, this research also wishes to observe the role of financial constraints on firms' cash reserves when facing geopolitical risk—considering financial constraints have a disciplinary role in corporate governance on cash management. In addition, this research will also observe the impact of soft budget constraints on state-owned enterprises' cash reserves and the impact of internal capital market on group affiliates' cash reserves when encountering geopolitical risk.

Based on the background discussed above, the purpose of this research is to determine: the impact of geopolitical risk on Indonesian firms' cash reserves, particularly financially constrained firms; the influence of state ownership to geopolitical risk effect on firms' cash reserves; and the influence of group affiliation to geopolitical risk effect on firms' cash reserves.

This paper is arranged as follows: Section 1 describes the background and objectives of this research. Section 2 narrates the theoretical description of the elements studied, reviews of relevant literature, and development of research hypotheses. Section 3 explains the data, samples, and models used in this paper. Section 4 discusses the result that this research draws out and section 5 concludes.

2. RELATED LITERATURE AND HYPOTHESIS DEVELOPMENTS

Geopolitical Risk, Cash Reserves, and Financial Constraints

Geopolitics is defined as the act of nations to dominate and compete for territory. Consequently, geopolitical risk is characterized as risks across and within countries, usually correlated with wars and terrorist threats. Geopolitical risk covers the risk of actualizing geopolitical events and the advanced risk from the current geopolitical events.

Both can affect the regular and amicable international relations course, further causing financial pressures on firms (Caldara & Iacoviello, 2018).

The presence of political instability, terrorism, and social unrest has been long recorded to have an unfavorable influence on the economy wherein they occur. Political conflicts, including permanent terrorist threats, lead to increased uncertainty in the economy and reinforce the inherent risk firms face in making an economic decision (Colino, 2013). Theoretically, wars and other military conflicts will influence the trade between countries involved. The conflict, thus, disrupted trade and heightened the cost of international trade. Empirically, this disruption has a considerably prolonged consequence on trade. Even when the conflict has ended, it will take years before returning to its pre-war trade level (Glick & Taylor, 2010). Shifts in geopolitical tension and its impact on the economy have been comprehensively documented both at the international level (see: Omar et al., 2017) and in emerging countries (see: Balcilar et al., 2018; Cheng & Chiu, 2018; Lu et al., 2020). Including research of geopolitical uncertainty impacts firms' financing behavior, namely cash and cash reserves.

Cash reserves act as a hedge for future risks. The classic pecking order theory suggests that firms should first resort to internal financing (cash reserves, retained earnings, etc.) when in need of funding because it has the lowest risk and cost. Other empirical researches have studied the correlation between cash and risks associated with cash, including the uncertainty trinity (economic, policy, and geopolitical uncertainty). Alfaro et al. (2016) studied the impact of uncertainty shocks on firms' financial decisions: firms' cash holdings behavior. Lee & Wang (2021) found that geopolitical risk positively impacted firms' cash reserves in China. Furthermore, both Lee & Wang (2021) and Wang et al. (2021) found different effects of geopolitical uncertainty on firms' cash reserves in the oil and manufacturing sector in China. In contrast, Demir et al. (2019) found the geopolitical risk negatively affected hospitality firms' cash holdings in emerging countries.

Financial Constraints

During high geopolitical risk moments, firms' future cash flow is more volatile, and information asymmetry escalates, increasing the capital market's external financing cos(Khoo & Cheung, 2021). Financially constrained firms are substantiated to be more sensitive to geopolitical risk (Kotcharin & Maneenop, 2020; C. C. Lee & Wang, 2021). Constrained firms are predominantly more driven to modify their internal resources, such as holding more cash reserves and maintaining more debt capacity in times of financial distress (Almeida et al., 2011). In contrast with unconstrained firms, financially constrained firms are shown to increase their cash reserves when facing higher uncertainty (Im et al., 2017). Constrained firms increase their cash reserves due to escalation of cash flow volatility. While in unconstrained firms, changes in cash reserves are inconsequential to current cash flow nor future investment opportunities, albeit poor macroeconomic conditions and economic recession (Almeida et al., 2004).

Firms' financial constraints can be identified from indirect measurements such as size and dividend payout (Im et al., 2017). Research by Hadlock & Pierce (2010) indicates that firms' financial constraints originated from their characteristics, namely firms' Size and age, further developed as the Size-Age index. More prominent and mature firms—bigger Size and higher Size-Age index—are categorized as financially unconstrained. They have a more established reputation than their peers, hence can enjoy more profitable external financing. In contrast, smaller firms are more vulnerable to financial shocks due to insufficient buffer. Moreover, constrained firms prefer to relinquish dividend payout than

lose positive NPV investment opportunities because they deemed dividends zero NPV investment. Therefore, financially constrained firms habitually hold more cash reserves (Im et al., 2017)

Accordingly, Lee & Wang (2021) discovered that managers enhance their cash reserves as geopolitical risk increases, especially in financially constrained firms in China. Nevertheless, Almeida et al. (2011) found that constrained firms utilized their cash reserves rather too quickly in precarious times, leaving them with lower cash reserves at the end. Therefore, geopolitical risks may alternatively influence firms' cash reserves negatively. In accordance, Demir et al. (2019) discovered that constrained firms use more internal financing in response to increased uncertainty. In addition to geopolitical risk, other factors affect the level of cash reserves in companies, namely the cash reserves determinants, that will act as a control variable in this research.

Cash Reserves Determinants

Size - Due to economies of scale, larger firms hold less cash. Following Lee & Wang (2021), the researcher uses the natural logarithm of total assets to measure Size. Firms' Size is expected to negatively affect cash reserves since smaller firms hold more cash reserves due to more costly external financing.

market-to-book ratio - There are several measurements for investment opportunities. The researcher uses both market-to-book Tobin's Q ratio (*Mtb*), as it contains the most information about firms' investment opportunities, and market-to-book equity value (*Mbe*) since it does not necessitate a more complicated estimation. Firms with high growth opportunities value cash more and are expected to have higher cash reserves to maximize valuable unforeseen investment opportunities (Maheshwari & Rao, 2017).

Cash flow - Higher cash flow, especially in firms that profoundly utilize internal funds, supposedly raises cash reserves since it can lower the cost of financing. Firms with higher cash flow, cash flow volatility, and sales growth are observed to hold more cash. This research measures cash flow as the operating cash flow to total assets ratio (Lee et al., 2021).

Networking capital - Net working capital is defined as the difference between current assets and current liabilities, excluding cash. Hence it is a liquid asset substitute. However, (Lang et al., 1995) research indicates that selling non-core assets (i.e., networking capital) is not another viable substitute to holding cash.

Research and Development - Research and development (R&D) are calculated as R&D expense to sales and take the value of 0 when there are no R&D expenses. As R&D expense increases, it may trigger higher spending, thus lowering cash reserve.

Capital expenditure - Increases in capital expenditures are linked with higher spending and greater investment, despite the general fixed-assets increase. Capital expenditures could increase firms' debt capacity due to increased fixed assets that act as collateral (Bates et al., 2009). Thus, the researcher expects higher capital expenditures to result in lower cash reserves.

Leverage - Leverage is considered to act as a substitute for cash in a certain condition. However, to avoid the additional refinancing costs in funding investment and improve financial flexibility, firms may not use cash to reduce debts. In addition. firms with maturing debts are observed to increase their cash reserves (Harford et al., 2014).

Dividend payout - This research identifies dividend payout with dummy variables to measure them as nominal data, not ratio data. Dividend-paying firms are considered less risky and could obliterate dividend payments when facing shocks. Nevertheless, firms that consistently pay dividends tend to make various efforts to continue paying dividends to shareholders, which involves increasing their cash reserves (Megginson et al., 2014).

Acquisition cost - Similar to capital expenditure, merger and acquisition costs are also expected to lower the cash reserves because investing activities involve substantial cash spending (Bates et al., 2009). Acquisition cost is calculated as merger and acquisition expenditures to book value of assets and equal to 0 if there are no merger and acquisition expenditures at the given period.

Industry cash flow volatility - Firms with high (industry) idiosyncratic risk are expected to have higher cash reserves due to precautionary motives (Cardella et al., 2015). This research calculates industry CF volatility using the average standard deviation of the industry's cash flow ratio in the last ten years, with a minimum of five firm-year observations.

Thus, based on the above discussions, the first hypothesis is,

Hypothesis 1: Geopolitical risk affects firms' cash reserves in Indonesia, particularly financially constrained firms.

State Ownership and Cash Reserves

State ownership has been observed to have various impacts on corporate finance. Differences in cash management policies, corporate governance, and agency conflict in state-owned enterprises (SOE) and non-SOE are based on ownership control. Research by Q. Chen et al. (2012) found that SOEs and non-SOEs in China lowered their cash levels after the share reform (i.e., exogenous shocks) for different reasons. Non-SOEs reductions were due to the free cash flow constraints, while SOEs reduced cash due to financing channel constraints. It confirms that in SOEs, the ability of insiders to use firms' assets—including cash—is more restricted due to differences in control.

SOEs' financial discipline differences are due to their soft budget constraints advantages, which explicitly and implicitly eases external funding resources. Coupled with their political connection, especially with the governing power, leads to easier access to commercial loans (W. Cheng & Wu, 2019). Businesses with soft budget constraints (state-owned enterprises) can always rely on other institutions (government) for financial support. The higher the level of state ownership, the greater the influence of soft-budget constraints, the lower the firm's need for cash and cash reserves due to the availability of credit from state-owned banks. Megginson et al. (2014) observed that SOE does not require a high level of cash due to the soft budget constraints compared to non-SOE.

On the other hand, SOEs—including firms with high state ownership—do not constantly prioritize profit-maximizing activities. They have other commitments besides economic goals. The success of SOEs is often assessed by the achievement of political and social goals rather than economics (Khaw et al., 2019). Therefore, managers generally increase their cash reserves and liquid assets to disregard minority shareholders to meet these other goals (R. R. Chen et al., 2018). Kusnadi et al. (2015) found that non-state-controlled firms hold a lower level of cash than state-controlled firms in China as an attempt to overcome political extraction risks. Caprio et al. (2013) observed that firms in high corruption level countries tend to lower cash reserves and distribute them to fixed

asset investments such as property, plant, and equipment or pay higher dividends. While R. R. Chen et al. (2018) suggest that these effects also apply in politically connected firms or firms that are majority controlled by the government, despite the privatization. They found that state-influenced firms have better access to external financing and reserve a high cash balance through that access.

With opposing views on the level of cash reserves in SOEs, we wish to examine the role of state ownership in the geopolitical risk impact on firms' cash reserves. While the literature on geopolitical risk and state ownership is rarely found, other literature studies the relationship between state ownership and uncertainty, i.e., economic policy uncertainty (EPU). Huang et al. (2018) found that an increase in EPU increased the debt-to-asset ratio of SOEs, whereas, in non-SOEs, the ratio decreased. They verify that it is easier for SOE to obtain external funding in times of high uncertainty. The comfort from soft budget constraints and government support suggests that SOE will be less affected by uncertainty than non-SOE. However, SOE continues to consider its social and political goals when facing uncertainty. A study by (W. Zhang et al., 2021) found that state ownership affects the level of corporate risk-taking when companies face increased (economic policy) uncertainty. They discovered that SOEs were more willing to avoid risky activities. Geopolitical risk is fundamentally a country-level global risk, which indicates that an increase in GPR (short for Geopolitical Risk) will impact the country and related entities more. Therefore, our second hypothesis is,

Hypothesis 2: State ownership influences geopolitical risk impact on firms' cash reserves.

Business Group Affiliation and Cash Reserves

Business group affiliates are legally independent firms that belong to a particular business group by formal and informal relations or through cross-ownership and stock pyramids. There is an inevitable intragroup relation inside the affiliations regarding financials, operations, policy, and monopoly power (Khanna & Yafeh, 2007). The benefits and drawbacks of business groups have been widely examined. Business groups may experience diversifications premium—or discounts (K. Lee et al., 2008). Firms may be exposed to a positive or negative reputation impact associated with a business group, leading to trouble-free or troublesome external financing access. Firms' performance—Tobin's Q—is affected positively by the involvement in a business group. Firms' profitability may be raised—or hampered—compared to non-affiliated firms (Ma et al., 2006). It can also loosen—or tighten—firms' financial constraints (Carney et al., 2011). One of the fascinating connections that economists often study is an internal capital market.

The internal capital market allows members to fund valuable investments that otherwise would not be able to if they depend solely on the external capital market. This then affects the affiliate's cash management policy. Internal capital market can lower information asymmetries, resulting in lower agency costs on affiliates. The presence of a business group also improves firms' external funding access, such as being affiliated to banks or having a reputable connection with banks, which results in higher monitoring activities. Affiliated firms were observed to have lower financial constraints and lower sensitivity to cash flows in making investment decisions (D. Zhang & Guo, 2019). Moreover, the internal capital market can diminish firms' motivation to reserve cash because it lowers firms' precautionary motives as the cross-subsidization of the group would assist them. Group business members also benefited from shared financial resources, which can serve as greater collateral in facilitating external funding

(Locorotondo et al., 2014). Previous studies found that affiliated firms adjust their intragroup credit terms to suit their liquidity preferences. Intragroup loans are proved useful to support financially limited affiliates (Gopalan et al., 2007).

Alternatively, affiliates are also observed to increase their cash holdings since they maintain their and the group's liquidities. To ensure the long-term sustainability of the business group, managers in charge are more sensitive to precautionary motives (Suk et al., 2019). In addition, to maintain reputation, affiliates infrequently declare insolvency albeit their poor performances (Gopalan et al., 2007)—affirming that members collectively must keep sufficient cash to secure their entire group. Moreover, affiliates often utilize cash for risk-reducing activities for their group members, then distribute the value created among members.

There are vast arrays of business group affiliations in emerging countries- including Indonesia. Due to the failure of institutional forms that harmed the business activities, business groups arose to fill that void. As a result, business groups have progressed to become the most influential and reputable affiliations. They hold a significant portion of the country's productive assets, such as the Korean chaebols and the Russian oligarch (Carney et al., 2011). Consequently, we consider group affiliations politically connected due to their established and crucial position in a country's economy. Thus, it indirectly entails a political connection to officials. Moreover, since group affiliations hold a significant portion of the country's assets, governments cannot afford to lose them as it may trigger economic instability. Politically connected firms benefit from the governments, from reduced regulations to support when facing financial distress (Faccio et al., 2002).

Furthermore, Komera & Jijo Lukose (2014) found that business group affiliations exhibit a weak effect of soft budget constraints. Therefore, group affiliates do not need to increase cash reserves when facing cash flow uncertainty due to the internal capital market existence (Locorotondo, Dewaelheyns, and Van Hulle 2014). Hence, without the need to prioritize other goals than economic, the third hypothesis is as follows,

Hypothesis 3: Business group affiliations influence geopolitical risk impact on firms' cash reserves.

3. DATA AND EMPIRICAL MODEL

With regard to the geopolitical risk, this research uses the Geopolitical Risk (GPR) Index constructed by Caldara & Iacoviello (2018) in their literature titled *Measuring Geopolitical Risk*. GPR measurements are categorized into six (6) search groups. Group 1 covers a direct mention of geopolitical risks and military tensions involving the world's major regions. Group 2 involves nuclear threats and conflict. Groups 3 and 4 sequentially cover the military risk and terrorist threats. While groups 5 and 6 include media coverage of actual adverse geopolitical occurrences (not just risks) such as the beginning of a war and terrorist attacks, both of which are expected to increase geopolitical uncertainty. This measurement has already separated occasionally called geopolitical events, such as major political events and climate change.

They provided three major types of GPR indexes. First, the Benchmark GPR Index is a monthly GPR index obtained from eleven nationwide and worldwide newspapers and articles reporting geopolitical tensions since 1985, such as *The Daily Telegraph* and the *Wall Street Journal*. Second, the Historical GPR Index is a monthly GPR index that covers a more

extended period, specifically since 1899, in which it uses three accessible historical newspapers. Lastly, the Country-specific GPR Index (beta version) encloses the monthly GPR index on nineteen emerging countries, including Indonesia, which is used in this research (Caldara & Iacoviello, 2018).

The samples studied are listed companies in the Indonesian Stock Exchange, excluding firms from the finance and banking industry since they may have higher cash reserves due to capital requirements. The samples' financial data are obtained from the S&P Capital IQ database, starting from December 2010 to December 2020. In total, the sample consists of 499 listed Indonesian firms with 3,888 firm-year observations. The samples are observed annually, and the GPR index used is obtained by annually averaging the monthly Indonesian GPR.

For the second hypothesis, this research uses Indonesian state-owned enterprises (SOEs) publicly traded and listed in the Ministry of State-Owned Enterprises[1]. Publicly traded SOEs have strong state influences since the government owns more than 50% of their ownership, either directly or indirectly. We manually collect data for business group affiliates (BGAs) to meet the intended criteria regarding the third hypothesis. The criteria in question are large and diversified affiliated firms. This research eliminates samples without complete financial information, but the industry-related variables were calculated before omitting those samples. We use the 2-digit Indonesian Stock Exchange Industry Classifications (IDX-IC) code for the industry-related variables.

Empirical Model

The empirical model used in this research resembles earlier studies model (Bates et al., 2009; C. C. Lee & Wang, 2021; Phan et al., 2019) as following equation 1.

$$\frac{Cash_{i,t}}{TA_{i,t}} = \beta_0 + \beta_1 GPR_{t-1} + \beta_2 Size_{i,t} + \beta_3 Mtb_{i,t} + \beta_4 Cf_{i,t} + \beta_5 Nwc_{i,t} + \beta_6 Rd_{i,t} + \beta_7 Capx_{i,t} + \beta_8 Lev_{1,t} \quad (1) + \beta_9 Div\_dummy_{i,t} + \beta_{10} Acq_{i,t} + \beta_{11} Cfvol_{i,t} + firm\ fixed\ effects + \varepsilon_{i,t} \qquad (1)$$

The dependent variable is cash reserves represented by cash to total asset ratio, with one period lagged GPR as the explanatory variable to reduce endogenous issues. This model incorporated firms' industry effect to oversee the common industry factors, not year-fixed factors, since the GPR index used is in the same period for all samples. The same period control variables were used since they are deemed to affect firms' cash reserves (C. C. Lee & Wang, 2021).

The financial constraints on firms are identified from several criteria: the firms' size, Size-Age (SA) index, and dividend payout activity (Hadlock & Pierce, 2010). Smaller and younger firms—identified from firms' Size and SA index—are expected to be financially constrained because they are not as stable as bigger firms. Their assets and reputations are not established yet. The age used in the SA index is firms' age counted from their IPO year. Financially constrained firms are also expected not to pay dividends in a given sample period because it indicates a shortage of liquid assets. Constrained firms would prefer to retain cash reserves for positive NPV investment opportunities in the future.

[1] The data for Indonesian state-owned enterprises can be accessed through the website https://bumn.go.id/portfolio/cluster

To analyze the relationship between state ownership and business group affiliates on GPR impact on cash reserves, the researcher adds both interactions of GPR and state-owned enterprises and with business group affiliates, with the following regression model:

$$\frac{Cash_{i,t}}{TA_{i,t}} = \beta_0 + \beta_1 GPR_{t-1} + \beta_2 GPR_{t-1}.SOE_{i,t} + \beta_3 GPR_{t-1}.BGA_{i,t} + \beta_4 Size_{i,t} + \beta_5 Mtb_{i,t} + \beta_6 Cf_{i,t} \quad (2) + \beta_7 Nwc_{i,t} + \beta_8 Rd_{i,t} + \beta_9 Capx_{i,t} + \beta_{10} Lev_{1,t} + \beta_{11} Div\_dummy_{i,t} + \beta_{12} Acq_{i,t} + \beta_{13} Cfvol_{i,t} + firm\ fixed\ effects + \varepsilon_{i,t} \quad (2)$$

The model refers to several prior studies (R. R. Chen et al., 2018; Komera & Jijo Lukose, 2014). Furthermore, we also individually investigate the relationship between state ownership and GPR on cash reserves, with the following regression model in equation 3.

$$\frac{Cash_{i,t}}{TA_{i,t}} = \beta_0 + \beta_1 GPR_{t-1} + \beta_2 SOE\_dummy_{i,t} + \beta_3 GPR_{t-1}.SOE_{i,t} + \beta_4 Size_{i,t} + \beta_5 Mtb_{i,t} + \beta_6 Cf_{i,t} \quad (2a) + \beta_7 Nwc_{i,t} + \beta_8 Rd_{i,t} + \beta_9 Capx_{i,t} + \beta_{10} Lev_{1,t} + \beta_{11} Div\_dummy_{i,t} + \beta_{12} Acq_{i,t} + \beta_{13} Cfvol_{i,t} + firm\ fixed\ effects + \varepsilon_{i,t} \quad (3)$$

Furthermore, to individually examine the relationship between business group affiliations and GPR on cash reserves, see equation 4.

$$\frac{Cash_{i,t}}{TA_{i,t}} = \beta_0 + \beta_1 GPR_{t-1} + \beta_2 BGA\_dummy_{i,t} + \beta_3 GPR_{t-1}.BGA_{i,t} + \beta_4 Size_{i,t} + \beta_5 Mtb_{i,t} + \beta_6 Cf_{i,t} \quad (2b) + \beta_7 Nwc_{i,t} + \beta_8 Rd_{i,t} + \beta_9 Capx_{i,t} + \beta_{10} Lev_{1,t} + \beta_{11} Div\_dummy_{i,t} + \beta_{12} Acq_{i,t} + \beta_{13} Cfvol_{i,t} + firm\ fixed\ effects + \varepsilon_{i,t} \quad (4)$$

Variable

Table 1. Operationalization of the Variable

Variable	Description	Operationalization of the Variable
Dependent Variable		
$\frac{Cash_{i,t}}{TA_{i,t}}$	Cash-to-asset ratio	$\frac{\text{Cash}_{i,t}}{\text{Total Asset}_{i,t}}$
Main Independent Variable		
$GPR_{i,t}$	GPR Indonesia	Annual Indonesian Geopolitical Risk (GPR) Index.
Control Variables		
$Size_{i,t}$	Firms' Size	ln(Total Assets)
$Mtb_{i,t}$	Investment opportunities	$\frac{\text{BV of Asset} - \text{BV of Equity} + \text{MV of Equity}}{\text{BV of Assets}}$
$Mte_{i,t}$	Investment opportunities	$\frac{\text{MV of Equity}}{\text{BV of Equity}}$
$Cf_{i,t}$	Cash flow	$\frac{\text{Net operating cash flow}}{\text{BV of Assets}}$
$Nwc_{i,t}$	Networking capital	$\frac{\text{Networking capital} - \text{cash}}{\text{BV of Assets}}$
$Rd_{i,t}$	Research and development expenditures	$\frac{\text{R\&D Expenses}}{\text{Sales}}$

Variable	Description	Operationalization of the Variable
$Capx_{i,t}$	Capital expenditures	$\frac{\text{Capital Expenditures}}{\text{BV of Assets}}$
$Lev_{1,t}$	Leverage ratio	$\frac{\text{BV of Total Debt}}{\text{BV of Assets}}$
$Div\_dummy_{i,t}$	Dividend payout	A dummy variable is valued as one of the firms paying dividends in a given period and 0 if not.
$Acq_{i,t}$	Merger and acquisition cost	$\frac{\text{Corporate acquisition expenditures}}{\text{BV of Assets}}$
$Cfvol_{i,t}$	Industry cash flow volatility	The average standard deviation of the ratio of CF to BV Assets over the last 10 years for companies in the same industry.
Categorization Variable		
$SOE\_dummy_{i,t}$	State-owned Enterprise	Dummy variable: valued as one if SOE and 0 otherwise.
$BGA\_dummy_{i,t}$	Business Group Affiliate	Dummy variable: value as one is affiliated with a business group, and 0 otherwise.

BV = Book Value; MV = Market Value

The value for *Rd* and *Acq* variables equals zero (0) when there were no corresponding expenditures. As for the SOE and BGA dummy variables, we intentionally categorize firms into state-owned enterprises (SOE) or business group affiliates (BGA) to distinguish the effect. Firms with high state ownership are classified as SOE since governments ought to be more dominant in corporate governance.

4. RESULT AND DISCUSSION

Our data set consists of 3,888 firm-year observations, where 4.5% of the observation was state-owned enterprises (SOEs) data, and 23.45% was business group affiliates (BGAs) data. Since firms are not required to have data for each sample period to be included in our observation, our data set is unbalanced panel data.

Descriptive Statistics

To minimize the effect of outliers, we winsorized all our variables at the 1% level except for GPR, Size, capital expenditures, researched and development expenditures, dividend, and cash flow volatility variables. The following table contains a descriptive statistic summary of our variables.

Table 2. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Cashta	3888	0.106	0.116	0.001	0.604
Cashneta	3888	0.147	0.224	0.001	1.523
*GPR (*100)*	38	0.567	0.103	0.447	0.777

Variable	Obs	Mean	Std. Dev.	Min	Max
	88				
Size	38 88	28.521	1.694	22.576	33.495
Mtb	38 88	1.675	1.716	0.319	12.263
Mbe	38 88	2.339	3.756	-1.298	27.068
Cf	38 88	0.061	0.098	-.228	0.407
Nwc	38 88	0.147	0.281	-1.1	0.798
Rd	38 88	0	0.002	0	0.047
Capx	38 88	0.05	0.063	0	0.878
Lev	38 88	0.503	0.314	0.042	2.378
Div_dummy	38 88	0.482	0.5	0	1
Acq	38 88	0.003	0.017	-0.001	0.138
Cfvol	38 88	0.118	0.028	0.048	0.231
BGA	38 88	0.235	0.424	0	1
SOE	38 88	0.045	0.207	0	1
EPU	38 88	0.13	0.09	0.017	0.322

Source: data processed by the author

The mean of *Cashta* is 0.106 showing that, on average, Indonesian firms possess cash equal to 10.6% of their total assets. *GPR* is calculated as a percentage of the annual Indonesian GPR index, which has a 56.7 average and ranges from 44.7 to 77.7 during the observation period. Indonesian firms' sizes vary moderately with a 1.694 standard deviation and 28.521 average. *Rd* has a zero mean, indicating that firms in Indonesia rarely have any research and development spending. While *Acq* also has a relatively low mean, which is 0.003, indicating that firms infrequently have merger and acquisition spending.

Furthermore, *Lev* has a 0.503 mean denoting that Indonesian firms use debt intensely. On average, 48.2% of Indonesian firms pay common dividends, given that the *Div_dummy* has a 0.482 mean. The industry cash flow volatility, represented by *Cfvol*, ranges from 4.8% to 23.1%, with an 11.8% average.

Table 3. Descriptive Statistics for Financially Constrained and Unconstrained Firms

Variable	Size		Size Age Index		Dividend payment	
	Constrained	***Unconstrained***	***Constrained***	***Unconstrained***	***Constrained***	***Unconstrained***
Obs.	1944	1944	1944	1944	2015	1873
Cashta	0.105	0.108	0.103	0.11	0.08	0.135
Cashneta	0.154	0.140	0.151	0.143	0.114	0.182
*GPR(*100)*	0.572	0.562	0.572	0.562	0.567	0.567
Size	27.171	29.871	27.184	29.858	27.997	29.085
Mtb	1.641	1.710	1.652	1.698	1.511	1.852
Mbe	2.186	2.492	2.201	2.477	2.031	2.670
Cf	0.048	0.074	0.05	0.071	0.033	0.091
Nwc	0.172	0.121	0.171	0.123	0.079	0.220
Rd	0	0	0	0	0	0
Capx	0.046	0.053	0.045	0.055	0.042	0.058
Lev	0.495	0.523	0.497	0.509	0.556	0.447
Div	0.352	0.611	0.359	0.604	0	1
Acq	0.003	0.004	0.002	0.004	0.004	0.004
Cfvol	0.12	0.117	0.12	0.117	0.118	0.119
BGA	0.248	0.221	0.241	0.228	0.218	0.252
SOE	0.007	0.083	0.007	0.083	0.02	0.072
EPU	0.132	0.128	0.131	0.129	0.130	0.131

Source: data processed by the author

Table 3 explicate the descriptive statistic for financially constrained firms. Both *Cashta* and *Cashneta* do not show any meaningful distinction across constraints classification, except for the dividend payment category, indicating that dividend-paying firms (unconstrained) typically have higher cash reserves to expedite their dividend payment. Differences between categories are also seen in *Nwc*. In the Size and SA categories, non-cash working capital on constrained firms is higher, with notable differences between both classifications. Constrained firms have a non-cash working capital far below the mean in the dividend payment category. We analyze that our results support the reasoning for this difference. Since we define financially constrained firms as non-dividend-paying firms, our results properly indicate that constrained firms do not have sufficient current assets—cash and non-cash working capital—to overcome the cost of paying dividends.

In line with our previous statement, constrained firms have lower *Cf* across categories, indicating that constrained firms do, in general, have lower cash than their unconstrained peers. Furthermore, state ownership is more related to the firm's constraints

than group affiliation. SOEs are often categorized as unconstrained firms, while BGAs have a well-distributed frequency.

Table 4. Descriptive Statistics for State-owned Enterprises and Business Group Affiliates

Variable	SOE		BGA		Stand-alone	
	Obs	Mean	Obs	Mean	Obs	Mean
Cashta	175	0.147	912	0.112	2801	0.102
Cashneta	175	0.196	912	0.156	2801	0.141
*GPR (*100)*	175	0.569	912	0.568	2801	0.566
Size	175	30.729	912	28.467	2801	28.401
Mtb	175	1.998	912	1.499	2801	1.713
Mbe	175	3.269	911	2.014	2801	2.386
Cf	175	0.077	912	0.064	2801	0.059
Nwc	175	0.122	912	0.17	2801	0.141
Rd	175	0	912	0	2801	0
Capx	175	0.059	912	0.054	2801	0.048
Lev	175	0.559	912	0.445	2801	0.519
Div_dummy	175	0.766	912	0.518	2801	0.452
Acq	175	0.004	912	0.003	2801	0.004
Cfvol	175	0.115	912	0.117	2801	0.119
BGA	175	0	912	1	2801	0
SOE	175	1	912	0	2801	0

Source: data processed by the author

Table 4 presents the descriptive statistics for state-owned enterprises, business group affiliates, and stand-alone firms. The highest mean of *Cashta* is in SOEs at 0.147, followed by BGAs at 0.112, and ended with 0.102 in stand-alone firms. *Mtb* is also highest in SOEs, reflecting that the market highly values SOEs' growth opportunities. This could be due to the competition effect in which SOE can monopolize several sectors with little competition. Moreover, on average, SOEs pay dividends more frequently than non-SOEs, which may be due to the signaling effect. Firms with high growth opportunities will signal the market by continuously paying dividends.

Our result suggests that business group affiliates hold higher cash reserves than stand-alone firms, affirming the findings of Suk et al. (2019). The highest average of non-cash net working capital is 17% in BGAs, complemented with the lowest level of leverage at 44.5%, implicating that BGAs are less dependent on debt and have sufficient liquidity that may be caused by the availability of their internal capital market (Komera & Jijo Lukose, 2014).

Regression Results

When regressing with the initial model, we found that the lagged variable GPR was always insignificant in all types of panel data regression models—pooled OLS, fixed effect,

and random effect model. Thus, we changed the model, adopting the same GPR variable as the dependent variable. The regression model we wound up using is the following model:

$$\frac{Cash_{i,t}}{TA_{i,t}} = \beta_0 + \beta_1 GPR_t + \beta_2 Size_{i,t} + \beta_3 Mtb_{i,t} + \beta_4 Cf_{i,t} + \beta_5 Nwc_{i,t} + \beta_6 Rd_{i,t} + \beta_7 Capx_{i,t} + \beta_8 Lev_{1,t} \quad (3) + \beta_9 Div\_dummy_{i,t} + \beta_{10} Acq_{i,t} + \beta_{11} Cfvol_{i,t} + firm\ fixed\ effects + \varepsilon_{i,t} \quad (1)$$

We suspect that geopolitical risk effects on Indonesian firms' cash reserves will not be long-lasting from this change. After conducting the Hausman and Chow test, we concluded that our regression model is a fixed effect panel data. We also performed the classical assumptions test. The acquired result was that our data set has both heteroscedasticity and autocorrelation problems. Unfortunately, the cross-sectional dependence test could not be done due to our unbalanced data set. However, considering that the other classical assumptions were violated, we assumed that there was also a cross-sectional dependence violation. Accordingly, to overcome these violations, we use the Driscoll-Kraay Standard Errors.

Table 5. Geopolitical Risk and Cash Reserves

	***Cash to Total Asset* (p-value)**		***Cash to Net Asset* (p-value)**	
GPR	-0.019	(0.044)**	-0.039	(0.008)***
Size	-0.013	(0.001)***	-0.025	(0.000)***
Mtb	0.006	(0.003)***	0.013	(0.019)**
Mbe	-0.000	(0.458)	-0.000	(0.953)
Cf	0.220	(0.000)***	0.359	(0.000)***
Nwc	0.225	(0.000)***	0.427	(0.000)***
Rd	-1.659	(0.072)*	-5.175	(0.029)**
Capx	-0.067	(0.027)**	-0.161	(0.006)***
Lev	0.063	(0.000)***	0.125	(0.000)***
Div_dummy	0.008	(0.020)**	0.009	(0.109)
Acq	-0.130	(0.184)	-0.330	(0.078)*
Cfvol	-0.194	(0.068)*	-0.446	(0.045)**
_cons	0.411	(0.001)***	0.768	(0.000)***

****, **, * represent the significance levels which equate to 1%, 5%, and 10% levels, respectively.*

Source: data processed by the author

To clearly understand the cash reserves position on firms, we also regressed the model with cash to net assets as the dependent variable. The regression results (Table 5) show that geopolitical risk has a significant negative effect on Indonesian firms' cash reserves. By a coefficient of -0.019, GPR influences a reduction in firms' cash reserves, with one standard deviation increase in GPR affecting cash equal to -1.85%.

Our findings contradict the previous research, which found a positive impact of geopolitical risk on firms' cash reserves in China because of the precautionary motives (C. C. Lee & Wang, 2021). The discrepancy is presumably due to the great difference between Indonesia's and China's GPR Indexes. Over the research period, the monthly average of GPR Indonesia was 57.21 while GPR China was twice as big, valued at 115.19. Furthermore,

Indonesia has the lowest GPR index value compared to the other nineteen (19) countries. In addition, our result shows a significant effect of same period GPR—not lagged GPR—hence, we argue that geopolitical risk has a significant momentarily effect on Indonesian firms. Firms temporarily experienced the impact of geopolitical risk, causing the precautionary motives of increasing cash reserves have not occur yet. Instead, they utilize cash reserve deliberately as geopolitical risk increases.

Hence, our finding does not support the precautionary motivation theory for cash reserves, but it proves the actuality of the pecking order theory in Indonesia. The pecking order theory states that firms resort to internal financing when in need of funding, which is cash reserves. Our argument is supported by Demir et al. (2019). They found that hospitality companies in emerging countries employ cash reserves intensely in conditions of high geopolitical risk to fulfill current costs.

As for the other control variable, we find a heterogeneous result. All control variables have a significant effect, except for acquisition cost (*Acq*) and market-to-book equity (*Mbe*). *Size, Rd, Capx*, and *Cfvol* have a significant negative coefficient, exhibiting a reducing effect on firms' cash reserves. While *Mtb, Nwc, Lev,* and *Div_dummy* have a positive significant coefficient, indicating an additive effect on cash reserves. The control variables' relation directions are mostly consistent with prior studies (Bates et al., 2009; C. C. Lee & Wang, 2021; Phan et al., 2019) except for net working capital, R&D expenses, leverage, and dividend. We found that networking capital has a positive effect on cash reserves. It indicates that in our observations, non-cash working capital does not act as a viable substitute for liquid assets (Lang et al., 1995). Leverage also positively affects cash reserves, meaning that increases in leverage result in an increased cash reserve which suggests that firms prepare themselves beforehand to meet those debt obligations (Guney et al., 2007). Dividend also positively affects firms, indicating that dividend-paying firms continue to ensure streamlined payments to shareholders (Megginson et al., 2014). In contrast, R&D expenses are negatively related to cash reserves, suggesting that firms treat R&D as cash-consuming activities rather than growth opportunities.

Financial Constraints

For the financial constraints, we use the criteria that represent firms' internal characteristics, namely Size and Size-Age index, as well as dividend payments activities. Financially constrained firms are categorized as firms with a Size and Size-Age index below the median or do not pay a common dividend at a given period.

Table 6. Geopolitical Risk, Cash Reserves, and Financial Constraints

Cash to	**Size**		**Size Age Index**		**Dividend payment**	
total asset	*Constrained*	*Unconstrained*	*Constrained*	*Unconstrained*	*Constrained*	*Unconstrained*
GPR	-0.020	-0.010	-0.020	-0.015	-0.025	0.015
	(0.014)**	(0.298)	(0.037)**	(0.211)	(0.051)*	(0.503)
Size	-0.009	-0.012	-0.010	-0.015	-0.014	0.004
	(0.003)**	(0.001)***	(0.001)**	(0.000)***	(0.003)**	(0.115)
Mtb	0.006	0.004	0.006	0.005	0.008	0.000

	(0.005)***	(0.274)	(0.004)***	(0.141)	(0.003)***	(0.885)
Cf	0.243	0.203	0.244	0.184	0.177	0.266
	(0.000)***	(0.000)***	(0.004)***	(0.000)***	(0.000)***	(0.000)***
Nwc	0.202	0.254	0.208	0.264	0.171	0.401
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Rd	-2.518	1.227	-2.470	1.243	-27.469	-0.971
	(0.003)***	(0.279)	(0.003)***	(0.255)	(0.001)***	(0.120)
Capx	-0.054	-0.072	-0.046	-0.080	-0.000	-0.111
	(0.089)*	(0.030)**	(0.138)	(0.024)**	(0.990)	(0.001)***
Lev	0.061	0.054	0.055	0.065	0.046	0.058
	(0.000)***	(0.002)***	(0.000)***	(0.001)***	(0.000)***	(0.019)**
Div_dummy	0.012	0.005	0.010	0.005		
	(0.012)**	(0.182)	(0.055)*	(0.104)		
Acq	-0.138	-0.038	-0.138	-0.068	-0.147	0.177
	(0.120)	(0.677)	(0.110)	(0.491)	(0.284)	(0.117)
Cfvol	-0.054	-0.202	-0.027	-0.176	-0.258	0.008
	(0.703)	(0.070)*	(0.821)	(0.110)	(0.050)*	(0.950)
_cons	0.282	0.403	0.308	0.491	0.473	-0.132
	(0.002)***	(0.000)***	(0.001)***	(0.000)***	(0.002)***	(0.120)

****, **, * represent the significance levels which equate to 1%, 5%, and 10% levels, respectively.*

Source: data processed by the author

Table 6 reports the effect of financial constraints on the correlation between GPR and cash reserves. In financially constrained firms, geopolitical risk significantly negatively affects Indonesian firms' cash reserves. While in unconstrained firms, geopolitical risk is not significant. Thus, we affirm that financial constraints influence firms' cash management behavior in facing geopolitical risk. This effect is similar to previous research by Lee & Wang (2021), only with a reverse relation direction between GPR and cash reserves. The reason for that is financially constrained firms use up their cash reserves almost instantly when faced with uncertainty (Almeida et al., 2004). Therefore, geopolitical risk is more pronounced on financially constrained firms.

State ownership and Business Group Affiliation

Table 7. Geopolitical Risk, Cash Reserves, with State-owned Enterprises and Business Group Affiliates

	Cash to total asset (p-value)		*Cash to total asset* (p-value)		*Cash to total asset* (p-value)	
GPR	-0.026	(0.014)**	-0.017	(0.091)*	-0.027	(0.017)**
GPRSOE	0.157	(0.001)***			0.157	(0.001)***
GPRBGA			-0.008	(0.522)	0.005	(0.331)
Size	-0.012	(0.001)***	-0.013	(0.001)***	-0.012	(0.001)***
Mtb	0.006	(0.002)***	0.006	(0.003)***	0.006	(0.002)***
Cf	0.219	(0.000)***	0.219	(0.000)***	0.219	(0.000)***
Nwc	0.224	(0.000)***	0.224	(0.000)***	0.224	(0.000)***
Rd	-1.676	(0.066)*	-1.650	(0.073)*	-1.674	(0.067)*
Capx	-0.067	(0.028)**	-0.067	(0.027)**	-0.067	(0.029)**
Lev	0.063	(0.000)***	0.062	(0.000)***	0.063	(0.000)***
Div_dummy	0.008	(0.016)**	0.008	(0.021)**	0.008	(0.016)**
Acq	-0.125	(0.192)	-0.130	(0.183)	-0.125	(0.191)
Cfvol	-0.195	(0.068)*	-0.193	(0.067)*	-0.195	(0.067)*
_cons	0.402	(0.001)***	0.408	(0.001)***	0.401	(0.001)***

****, **, * represent the significance levels which equate to 1%, 5%, and 10% levels, respectively.*

Source: data processed by the author

To examine the second and third hypotheses, we include the interaction of state ownership and business group affiliations with geopolitical risk in table 7, which GPRSOE and GPRBGA, respectively represent. The result showed that state ownership interaction is positively significant at 1%. This time, opposite from prior findings, geopolitical risks positively affect state-owned enterprises' cash reserves with an additional coefficient of 0.157. Thus, an increase of one standard deviation of geopolitical risk in state-owned enterprises equals an 8.18% increase in cash reserves. This positive effect is due to the multiple-purpose nature of SOEs where they have other objectives besides economic goals, thus having higher incentives for precautionary motives. Moreover, geopolitical risks directly impact relations between states, which automatically affect state-owned companies. With better access to external funding, SOEs benefit from a more comfortable way of funding their increasing cash reserves (R. R. Chen et al., 2018). At the same time, our results show that group affiliation does not significantly affect geopolitical risks impact firms' cash reserves.

On the contrary, group affiliations interaction was not significant, standing at a p-value of 52.5%, and instead lessen geopolitical risk influence on firms' cash reserves—significance drop to 10% level from the prior 5% level. Although we do not further empirically study this insignificant relation, we argue that group affiliates are more resilient to geopolitical risk and shocks due to several theoretical reasons—as studied by previous research. First is the existence of an internal capital market in the form of fund transfers and intragroup loans. Internal capital markets help reduce firms' precautionary motives of cash reserves (Locorotondo et al., 2014).

Furthermore, our sample consisted of established and well-diversified firms. Hence their dependency on cash reserves was lower because of the reliable group reputation and advantageous external financing access. In addition, business groups are usually controlled by a business elite or family who has strong motivation to gain political connections for better policies and maintain the status quo (Buysschaert et al., 2008). Politically connected firms are also proven to enjoy substantial support, such as low taxation. With its two-tier corporate board system in Indonesia, a political connection is substantiated beneficial. Politically connected supervisory boards have an impact on lowering firms' cost of capital (Joni et al., 2020). Moreover, despite being politically connected, business groups do not have an obligation to pursue other goals other than economic. Hence, unlike state-owned enterprises, business group affiliates have a lower incentive for increasing cash reserves.

Robustness Test

Table 8. Correlation of Different Measures of GPR

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) GPR	1.000							
(2) GPRBM	-0.479***	1.000						
(3) GPRT	-0.514***	0.998***	1.000					
(4) GPRA	0.437***	0.171***	0.107***	1.000				
(5) GPRB	-0.439***	0.973***	0.975***	0.111***	1.000			
(6) GPRN	-0.477***	0.999***	0.998***	0.151***	0.974***	1.000		
(7) EPU	-0.115***	-0.104***	-0.079***	-0.423***	-0.048***	-0.080***	1.000	
(8) Resid	0.993***	-0.494***	-0.526***	0.391***	-0.447***	-0.490***	0.000	1.000

*** p<0.01, ** p<0.05, * p<0.1

Source: data processed by the author

Geopolitical uncertainty is highly correlated with economic policy uncertainty (EPU). Hence to verify that the reduction of cash reserves is solely stimulated by geopolitical risk (GPR), we estimate the residual of GPR to EPU. The residual obtain factors explained by GPR but not related to EPU. Thus, we repeated regression equation (3) and replaced the

GPR with the residual. We also replaced the main independent variable (i.e., GPR) with other measures for GPR, such as GPR Benchmark.

Table 9. Residual Geopolitical Risk and Cash Reserves

	Cash to Total Asset **(p-value)**		***Cash to Net Asset*** **(p-value)**	
Resid	-0.018	(0.066)**	-0.038	(0.019)***
Size	-0.013	(0.001)***	-0.025	(0.000)***
Mtb	0.006	(0.003)***	0.013	(0.019)**
Cf	0.220	(0.000)***	0.360	(0.000)***
Nwc	0.225	(0.000)***	0.427	(0.000)***
Rd	-1.658	(0.072)*	-5.171	(0.029)**
Capx	-0.067	(0.027)**	-0.160	(0.006)***
Lev	0.062	(0.000)***	0.125	(0.000)***
Div_dummy	0.008	(0.020)**	0.009	(0.109)
Acq	-0.130	(0.184)	-0.330	(0.079)*
Cfvol	-0.194	(0.071)*	-0.444	(0.048)**
_cons	0.401	(0.001)***	0.744	(0.000)***

****, **, * represent the significance levels which equate to 1%, 5%, and 10% levels, respectively.*

Source: data processed by the author

Likewise, we find that geopolitical risk (both residuals and different measures of GPR) is negatively related to Indonesian firms' cash reserves. The result (table 9) is similar to the initial regression with the same significance level—5% and 1%—and a slightly different coefficient. Therefore, after settling the endogeneity issue, we are confident of the association between geopolitical risk and cash reserves.

We also classified and regressed the residual model in terms of financially constrained firms, and the results remained consistent. For state ownership, the coefficient and significance level of residual GPR is exactly the same as GPR. For group affiliation, the result remained insignificant, and instead, the residual and BGA interaction leads to a higher p-value of residual. However, because most residual GPR regression results are identical to the initial GPR results, we conclude that Indonesian firms utilize their cash reserves in times of geopolitical risk.

5. CONCLUSION AND LIMITATION

This study found that geopolitical risk stimulates a higher usage of cash reserves in Indonesian firms. Especially financially constrained firms because they are more sensitive to shocks yet do not have adequate access to external funding. Hence, they resort to cash reserves almost immediately. However, firms with high state ownership have a significant positive relation of geopolitical risk and cash reserves. We argue that state-owned enterprises have the ability to increase cash reserves through convenient external funding access. It indicates the presence of soft budget constraints in Indonesian state-owned enterprises that lower firms' financial constraints. At the same time, being part of a business group does not distinctively influence the effect of geopolitical risk on firms' cash reserves.

Business group affiliates financially coexist through an internal capital market that is provided and utilized by them. This results in a lessened sensitivity to geopolitical risk.

Economically, we observe that geopolitical risk in Indonesia has not had a continuous effect yet on firms, particularly their cash reserves. However, there is a limitation in this research due to resource scarcity. In our observation period of 2010 to 2020, the precautionary motives impact of geopolitical risk has not yet been felt on firms. Nevertheless, with the COVID-19 pandemic, the influence of geopolitical risk may be more notable. Therefore, further studies are needed when the observational period suffices. Along with rapid economic globalization and increased countries' interdependency, international relations are not only dominated by states but also companies, such as export-import trade firms. Hence, we recommend that future researchers investigate the effect of geopolitical risk on other aspects of firms' financial performance. And seeing that the research on geopolitical risk impact in firms, particularly Indonesian firms, is still deprived, this research aspires to become the pacesetter for future academicians to conduct further studies on the influence of geopolitical risk in Indonesia.

Moreover, Indonesia is one of the fastest-growing emerging markets in the world, with its diverse archipelago. Equipped with a strategic location that connects vital lanes for international trade, Indonesia has a great opportunity to strengthen its economy. Thus, this research is hoped to be useful for policy-makers to anticipate appropriate future regulations in order to help entrepreneurs and the country's economic growth. As for the practitioner itself, namely firms, business owners, and entrepreneurs, this research is expected to provide notable information about the impact of risk on firms in Indonesia. Since the economy is shifting to a borderless economy, it can be one of the considerations in making business or economic decisions when firms are faced with geopolitical uncertainty.

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