

The Effect of Business Strategy on Cash Holdings: A Life-Cycle Perspective

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ABSTRACT

The study aims to explore the effect of business strategy and life cycle on non-financial Indonesian firms' cash holdings (CH) from 2017 to 2022. Miles and Snow's theoretical background was used to distinguish the contrasting business strategies (prospectors and defenders), then followed by Bentley's strategic composite index. Dickinson's life cycle is used to differentiate each life cycle phase. The authors have used multiple regression analysis to explore the association between business strategy and CH. The results show that business strategy is positively related to CH. Prospectors are more likely to hold higher cash levels than defenders. All life cycle phases affect CH, with the growth phase being the strongest. The results have valuable implications for researchers by introducing the relationship between corporate strategy and a firm's CH in emerging and developed countries. The empirical evidence based on industry sector and international samples would add value to the current literature. The findings could be helpful to financial managers and investment strategists who seek to maximize firm value by adopting an effective liquidity policy. This study supports the idea that strategic choice and cash management are important for firms.

Keywords: Cash holdings, Business strategy, Prospectors, Life cycle.

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1. INTRODUCTION

Cash information shows the company's liquidity and determines its ability to recover post-recession from the financial crisis. There are various reasons why a firm may hold cash; these reasons spin around precautionary, transaction, tax, and agency motives (Bates, Kahle and Stulz, 2009). Under the optimal capital structure challenge, defining the optimal cash level through balancing the costs and benefits of holding cash should be one of the most important corporate decisions (Opler *et al.*, 1999; Drobetz and Grüninger, 2007). Cash is a strategically important asset (Magerakis and Tzelepis, 2020). Cash holdings (CH) is an interesting research topic.

CH related to strategic effects for firms. In progress, cash can be considered an asset of great strategic importance (Magerakis and Tzelepis, 2020). It would be more interesting to see the effect of different strategic variables on CH, such as different typologies in business strategy (BS). BS explains how an organization competes in its existing business

(Hambrick, 1983). The Miles and Snow's BS (Miles *et al.*, 1978; Miles and Snow, 2003) is adopted because of its strong theoretical background. BS can be divided into prospectors (the most aggressive) and defenders (the most defensive). From the importance of liquidity and the need for support to fulfill strategic importance, we examine whether the CH decisions differ among BS choices.

The association of BS on CH has not received much attention from previous researchers. Previous studies have explored various determinant variables of CH from the financial, investment, and corporate governance aspects, as well as the crisis period (Ranjee and Pathak, 2019; Chang and Yang, 2022; Almagribi, Lukviarman and Setiany, 2023), for example, company size (Rajan and Zingales, 1995), growth, leverage, cash flow, net working capital, market-to-book ratio, research and development, industry volatility, investment, dividends (Opler *et al.*, 1999), capital expenditure (Ferreira and Vilela, 2004), debt and equity issuance (Bates, Kahle and Stulz, 2009), acquisitions (Oler and Picconi, 2014), profitability (Magerakis and Tzelepis, 2020) and Environmental, Social, and Governance (ESG) disclosure (Maharani *et al.*, 2025). Subsequent developments were carried out on important non-financial ratios and non-working capital variables, such as BS.

The effect of BS on CH decisions is limited in developed countries. BS was first used as the determinant of CH in developed countries in 2020 (Magerakis and Tzelepis, 2020). There is limited research on CH in developing countries, and there may be variations between developed and developing nations (Rafinda *et al.*, 2018). Additionally, motivations for CH differ in developed and developing financial markets (Akhtar, 2024). Therefore, studying CH in developing countries is crucial (Rafinda *et al.*, 2018). This latest research needs to cover the geographic area gap.

CH research can still be developed (Drobetz and Grüninger, 2007). The subsequent development and interest are related to the differences in the association of BS with CH during the phases of the company life cycle. This research develops Magerakis and Tzelepis's (2020) model by adding a company's life cycle as a moderating variable. The life cycle shows the company's survival ability (Habib and Hasan, 2019). Management's access to resources evolves during different life cycle phases (Al-Hadi *et al.*, 2019) due to the company's adjustment during the life cycle (Xin *et al.*, 2023).

A moderating variable of the company's life cycle (LC) is added and built from three arguments. The first argument for the use of the LC moderating variable was the inconsistency of previous research results both in the direction and significance of the influence of LC on CH (Faff *et al.*, 2016; Alzoubi, 2019; Chireka, 2020; Atif, Liu and Nadarajah, 2022), thus raising the potential for LC as a moderator. The second argument for using the LC moderation variable was the absence of a universalistic principle because differences in the interaction of BS with different phases of LC will produce different combinations of investment opportunities and cash flows and play a role in the financial policies taken. The interaction of BS and the LC to explain CH has not been studied, and there is a gap in theory/literature. The third argument for using life cycle moderating variables is using LC moderating variables in previous studies with different independent variables (Atif, Liu and Nadarajah, 2022; Xin *et al.*, 2023). We closed the gap in theory/literature by using contingency theory to explain the moderating role of LC on the association of BS with CH.

This paper contributes to prior literature on CH in several ways. First, it provides evidence for the emerging country, which is crucial (Rafinda *et al.*, 2018), extends a growing stream of CH research, which is dominated by results in US and EU banks to a unique setting of emerging capital markets, and needs to be covered to geographic areas gap. Second, it uses the life cycle as a moderating variable for better analysis to reconcile previous research. To better understand these mixed results and examine this fast-growing market, this paper narrows a gap in prior literature and provides relevant insight to regulators and policymakers.

2. LITERATURE REVIEW

2.1 Business Strategy

CH has low returns due to taxes, liquidity premium costs, and hidden opportunity costs (Wu, Rui and Wu, 2012). Management accumulates cash if there are opportunities (Opler *et al.*, 1999), and by agency theory, management as agents has more information than principals (investors). Normatively, the strategy is formulated by the management to ensure the company's survival (Puspaningsih, 2024). Management can make decisions related to cash and strategy that are less favourable to investors (Jensen, 2003), supported by management's incentives for motivation and optimism.

BS is the foundation for superior performance in adapting to its environment (Miles *et al.*, 1978) and is divided into three types (prospectors, analyzers, and defenders). The prospectors are on one side of the continuum line, and the defenders are on the opposite. Management, as the financially literate persons, allocates resource management driven by BS and related to the agent's motives (discretion). Otherwise, management discretion is based on management considerations that unconsciously prioritize self-interest (Jensen, 2003), do not always maximize company value (Jensen, 1993), and can create losses for investors regarding the current condition and prospects of the company by outside investors (Scott, 2015, pp. 22-23), which is related to agency theory (Jensen and Meckling, 1976; Jensen, 1993, 2003). As agents, management literacies prefer financial flexibility (Jensen, 1986) and engage in overinvestment (Jensen and Meckling, 1976). Management's opportunity to behave opportunistically by selectively releasing information and/or having management discretion reduces investors' ability to make sound investment decisions.

Each choice of BS typology (defenders and prospectors) has consequences on the amount of investment, cash accumulation, cash reserves, use of technology, administration, product innovation, and risk, ultimately providing cash and cash equivalents to finance them. All strategies have their respective advantages and disadvantages. Prospector prioritizes differentiation by quickly changing the product-market mix, exploring environmental changes to seek innovation opportunities, and continuously engaging in new product research and market development. Innovation for strengthening competitiveness is being emphasised more than ever as the business environment is increasingly dynamic, complex and unpredictable (Hwang, 2024). This strategy prefers innovation over efficiency and adapts better to market risk and industry volatility (Miles *et al.*, 1978; Hambrick, 1983; Miles and Snow, 2003). Prospectors have low-risk avoidance and high product and market exploitation, so a high level of CH is required to support company activities to achieve performance. Analyzers possess attributes of both defenders and prospectors simultaneously by stabilizing their actions over time to form a

consistent and stable response pattern to the environment (Miles and Snow, 2003). The defender has high-risk avoidance and low product and market exploitation, which means that defenders do not require a high level of CH to support company activities and achieve performance.

Strategic choices determine the trend of a company's CH. Prospectors will require more CH than defenders. This study proposes the following first hypotheses:

H1: BS positively affects CH.

2.2 Business Strategy and Life Cycle

The explanation about varying CH decisions during the phases of LC can be reasoned due to the inconsistent direct influence of LC. The gap in previous research results and the gap in theory/literature are related to the limitations of previous research in understanding the effect of strategic motives of prospectors on CH based on differences in LC phases. Each phase in the LC of a company indicates its ability to survive (Habib and Hasan, 2019). Substantial product innovation, expansion into new markets, and/or structural changes cause shifts across LC phases (Dickinson, 2011).

LC consists of five phases, namely the introduction phase, the growth phase, the mature phase, the shake-out phase, and the decline phase (Dickinson, 2011). The shake-out and the decline phases are combined. The mature phase and other phases have different roles in the influence of BS on CH.

Prospectors in the introduction phase have a greater initial investment value, innovation, technology investment, and market development to capture greater opportunities than defenders in the introduction phase. Meanwhile, in the introduction phase, the company does not yet have a customer base, potential income, or operational parameters, is unfamiliar with industry dynamics (Jovanovic, 1982), and makes a large initial investment (Spence, 1977, 1979, 1981). Much development is carried out when the company is in the introduction phase to compile a broad product-market domain, increase market acceptance, and increase capacity (Selling and Stickney, 1989). Prospectors need a lot of CH to fund company innovation, maintain the breadth of the product domain, invest in technology, and take business opportunities. In addition, the company's innovation and investment still generate small cash inflows, and there is no stable operating cash flow, so the existence of CH greatly helps the company's liquidity. Prospectors in the introduction phase require more CH, which differs from defenders. The positive effect of business strategy on CH increases when the company is in the introduction phase. The prospectors' need for more CH in the introduction phase will be greater than in other phases. This study proposes the following second hypotheses:

H2: Introduction phases positively moderates the association between BS and CH.

Prospectors in the growth phase require more CH than those with defenders in the growth phase to fund the company's many innovation efforts and maintain the breadth of product domains, technology investments, and other needs to take advantage of business opportunities. Meanwhile, the company continues to make large investments in the growth phase and still relies on external funding. The positive influence of BS on CH increases when the company is in the growth phase because the prospectors' need for CH in the growth phase will be greater than those in other phases. This study proposes the following third hypotheses:

H3: The growth phase positively moderates the association between business strategy and CH.

Prospectors in the mature phase require more CH than those with a defender in the mature phase. Companies in the mature phase have business stability, enjoy a higher reputation than other phases (Dickinson, 2011; Keasey, Martinez and Pindado, 2015), and reap the benefits of previous phases (Wernerfelt, 1985). In addition, companies in the mature phase have positive and stable operating cash flow and achieve maximum operating efficiency (Dickinson, 2011) and stable company profitability (Habib and Hasan, 2017, 2019), helps managers estimate future income and expenses more accurately (Biswas, Habib and Ranasinghe, 2022) so that the company does not depend on external funding. This study proposes the following fourth hypotheses:

H4: Mature phases positively moderate the association between BS and CH.

Companies in the shake-out and decline phase face various problems, such as decreasing profitability, decreasing resources, and having unstable operating cash flow. Companies in the shake-out and decline phase have few investment opportunities and reduced cash flow (Faff *et al.*, 2016) and experience instability (decrease) in operating cash flow, decreasing market share, resources, and profitability (Dickinson, 2011). The positive influence of the prospectors on CH increases when the company is in the shake-out/decline phase. This study proposes the following fifth hypothesis:

H5: Shake-out/decline phases positively moderate the association between business strategy and CH.

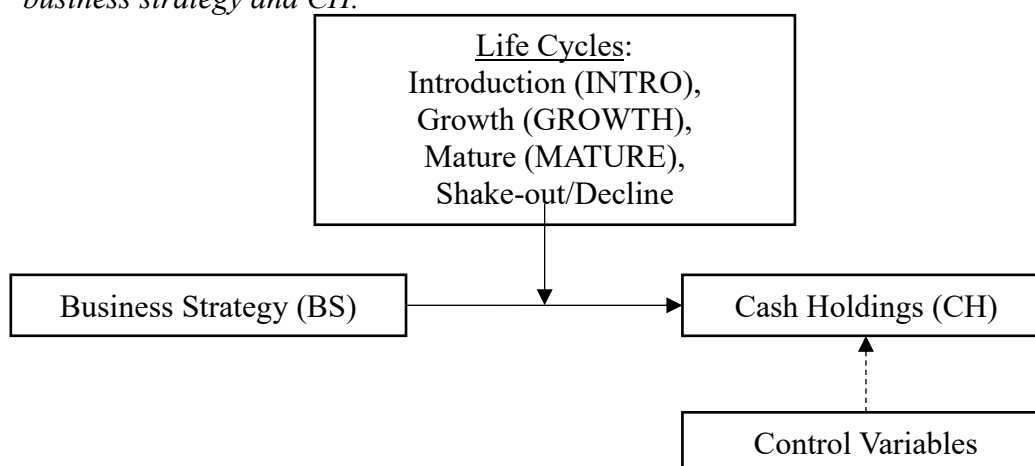


Figure 1. Research Model

3. RESEARCH ISSUE AND METHODOLOGY

3.1 Sample

The sample consists of 414 non-financial companies listed on the Indonesia Stock Exchange for a six-year study period (2017–2022) or 2167 firm-years (unbalanced panel data). All financial firms have been omitted from the sample to maintain uniformity throughout the data. In addition to using large observations, normality is obtained by using the winsorizing technique at 1% and 99%.

3.2 Variables

CH refers to the company's cash and cash equivalents (Almeida, Campello, Cunha dan Weisbach, 2014) and is measured as cash and cash equivalents divided by total assets

(Han & Qiu, 2007; Ismail et al., 2022; Magerakis & Tzelepis, 2020; Magerakis et al., 2020; Wang, Wu, Chen, & Dai, 2023), and as the primary measurement, it is the most traditional measurement of CH (Bates, Kahle and Stulz, 2009).

Business strategy (BS) refers to management's strategic tendencies when making operational decisions. BS is measured using a composite score of discrete strategies based on the Miles and Snow framework (1978, 2003). Bentley, Omer, and Sharp (2013) measure business strategy characteristics using six components: (i) the ratio of research and development to sales (which measures tendency to seek new products); (ii) the ratio of employees to sales (the company's ability to efficiently produce and distribute its goods and services); (iii) employee fluctuation measure (standard deviation of total employees); (iv) historical growth measure (1-year percentage change in total sales); (v) the ratio of selling, general, and administrative expenses (SG&A) to sales (a measure of the company's emphasis on marketing and sales); and (vi) capital intensity measure (net fixed assets scaled by total assets) (designed to capture the company's focus on production). If any values (data) are missing, zero will be used. All variables are calculated using a rolling average over the previous 5 years and ranked within each industry year.

The larger (smaller) the BS value, the more the company's characteristics are consistent with the prospector (defender) strategy. Prospectors and prospectors-like consist of companies with scores of 19-23 and 24-30, while defenders and defenders-like consist of companies with scores of 6-12 and 13-18. The larger (smaller) the BS value, the more the company's characteristics are consistent with the prospector (defender) strategy.

We controlled for several firms- and industry-level attributes that may influence CH. Leverage (LEV) is the ratio of total liability divided by total assets (Bates, Kahle, & Stulz, 2009; Ferreira & Vilela, 2004; Faff et al., 2016). Net working capital (Δ NWC) was calculated as the difference between NWC this year reduced with NWC last year (Faff et al., 2016), with NWC for each year calculated as the difference between current assets less cash and cash equivalents less current liabilities, then divided by total assets (Magerakis and Tzelepis, 2020). Cash flows (CF) is the ratio of operating cash flows divided by *total assets* (Opler et al., 1999). Firm size (SIZE) is measured as the natural logarithm of total assets (Bates et al., 2009; Faff et al., 2016). Market-to-book (MTB) is measured as the market value of assets divided by total assets (Bates, Kahle and Stulz, 2009), with the market value of assets acquired from the book value of total assets less the book value of total equity plus the market value of equity. RND is measured as the ratio of research and development expenses divided by net sales (Bates, Kahle, & Stulz, 2009). Capital expenditure (CAPEX) is the ratio of capital expenditure divided by total assets (Opler et al., 1999). Acquisition (AQCA) is the acquisition cost ratio divided by total assets (Opler et al., 1999). Net debt issuance (DEBT) is measured as the ratio of annual long-term debt in this year minus the reduction in annual long-term debt in the last year, then divided by total assets (Bates et al., 2009). Net equity issuance (EQUITY) is measured as the ratio of net equity issuance divided by total assets, where net equity issuance is calculated as the difference between the sale of common and preferred stock minus equity repurchases (Bates et al., 2009). Loss (LOSS) is measured as the ratio of a binary variable as a measure of company profitability, taking the value 1 when the return on equity (ROE) is negative (loss-making company) in a given year and zero otherwise (Bates et al., 2009). Herfindahl–Hirschman Index (HHI) is measured as the ratio of the sum of the squares of the market shares of all companies within the same sector code

annually on the stock exchange (Magerakis and Tzelepis, 2020), where 0 indicates perfect competition, and 1 indicates a monopoly. Industry cash flow risk (INDRISK) is a measure of industry volatility (Bates, Kahle and Stulz, 2009) and is measured as the average variance of cash flows of companies within the same industry for the sample period (Magerakis and Tzelepis, 2020). Dividend payment (DIV) represents cash outflows for dividend payments. It is measured with a binary variable, taking the value 1 for the year the company pays dividends to shareholders and zero otherwise. YER is year dummies. IND is industry dummies.

3.3 Research methods and model specification

Testing the selection of panel data models for panel data regression consists of three possible best models, namely the pooled OLS model or common effect model (CEM), fixed effects least square dummy variable (LSDV) or fixed effects within-group model, and random effects model (REM). The first test is the F-Restricted Test which is used to select the best model between CEM and FEM. The second test is the Hausman Test which is used to select the best model between REM and FEM. The third test is the Lagrange Multiplier Test, which selects the best between CEM and REM. The results show that the best model is pooled PLS.

The model for testing each LC phase are divided into three model, namely:

$$CH_{i,t} = \alpha_1(BS_{i,t}) + \alpha_2(LEV_{i,t}) + \alpha_3(\Delta NWC_{i,t}) + \alpha_4(CF_{i,t}) + \alpha_5(SIZE_{i,t}) + \alpha_6(MTB_{i,t}) + \alpha_7(RND_{i,t}) + \alpha_8(CAPEX_{i,t}) + \alpha_9(AQCA_{i,t}) + \alpha_{10}(DEBT_{i,t}) + \alpha_{11}(EQUITY_{i,t}) + \alpha_{12}(LOSS_{i,t}) + \alpha_{13}(HHI_{i,t}) + \alpha_{14}(INDRISK_{i,t}) + \alpha_{15}(DIV_{i,t}) + (YER_{i,t}) + (IND_{i,t}) + \varepsilon_{i,t} \quad (1)$$

$$CH_{i,t} = \alpha_1(BS_{i,t}) + \alpha_2(INTRO_{i,t}) + \alpha_3(GROWTH_{i,t}) + \alpha_4(MATURE_{i,t}) + \alpha_5(SHAKE_DEC_{i,t}) + \alpha_6(LEV_{i,t}) + \alpha_7(\Delta NWC_{i,t}) + \alpha_8(CF_{i,t}) + \alpha_9(SIZE_{i,t}) + \alpha_{10}(MTB_{i,t}) + \alpha_{11}(RND_{i,t}) + \alpha_{12}(CAPEX_{i,t}) + \alpha_{13}(AQCA_{i,t}) + \alpha_{14}(DEBT_{i,t}) + \alpha_{15}(EQUITY_{i,t}) + \alpha_{16}(LOSS_{i,t}) + \alpha_{17}(HHI_{i,t}) + \alpha_{18}(INDRISK_{i,t}) + \alpha_{19}(DIV_{i,t}) + (YER_{i,t}) + (IND_{i,t}) + \varepsilon_{i,t} \quad (2)$$

$$CH_{i,t} = \alpha_1(BS_{i,t}) + \alpha_2(INTRO_{i,t}) + \alpha_3(GROWTH_{i,t}) + \alpha_4(MATURE_{i,t}) + \alpha_5(SHAKE_DEC_{i,t}) + \alpha_6(BS_INTRO_{i,t}) + \alpha_7(BS_GROWTH_{i,t}) + \alpha_8(BS_MATURE_{i,t}) + \alpha_9(BS_SHAKE_DEC_{i,t}) + \alpha_{10}(LEV_{i,t}) + \alpha_{11}(\Delta NWC_{i,t}) + \alpha_{12}(CF_{i,t}) + \alpha_{13}(SIZE_{i,t}) + \alpha_{14}(MTB_{i,t}) + \alpha_{15}(RND_{i,t}) + \alpha_{16}(CAPEX_{i,t}) + \alpha_{17}(AQCA_{i,t}) + \alpha_{18}(DEBT_{i,t}) + \alpha_{19}(EQUITY_{i,t}) + \alpha_{20}(LOSS_{i,t}) + \alpha_{21}(HHI_{i,t}) + \alpha_{22}(INDRISK_{i,t}) + \alpha_{23}(DIV_{i,t}) + (YER_{i,t}) + (IND_{i,t}) + \varepsilon_{i,t} \quad (3)$$

We test all the equation using robustness method for the heteroscedasticity and autocorrelation. Thus, we test equation 1 for each LC phase for the robustness test. The consistent results of significance mean the model is robust.

4. RESULTS

4.1 Descriptive statistics

The characteristics of the company's strategy have a prospector tendency. The mean is higher than 18, meaning prospectors are slightly more than defenders during 2017-2022. The observation proportion in the introduction phase was 13.7%, the growth phase was 19.8%, the mature phase was 47.4%, and the shake-out and decline phase was 19.1%. The mature companies dominate the sample.

Table 1 Descriptive Statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
CH	2167	25.729	2.389	19.238	31.015
BS	2167	18.895	3.523	9.000	27.000
INTRO	2167	0.137	0.344	0	1.000
GROWTH	2167	0.198	0.398	0	1.000
MATURE	2167	0.474	0.499	0	1.000
SHAKE_DEC	2167	0.191	0.393	0	1.000
LEV	2167	0.613	1.109	0.047	19.948
ΔNWC	2167	(0.012)	0.194	(2.314)	0.884
CF	2167	0.066	0.113	(0.451)	0.766
SIZE	2167	28.793	1.715	24.463	32.726
MTB	2167	2.700	13.455	0.303	244.791
RND	2167	0.000	0.002	0	0.019
CAPEX	2167	0.967	0.179	0	1.000
AQCA	2167	(0.005)	0.051	(0.269)	0.308
DEBT	2167	0.234	0.789	0.002	18.022
EQUITY	2167	0.004	0.028	(0.056)	0.287
LOSS	2167	0.277	0.448	0	1.000
HHI	2167	0.123	0.160	0.033	0.884
INDRISK	2167	0.052	0.054	0.001	0.376
DIV	2167	0.490	0.500	0	1.000

Source(s): Researcher, 2025

Notes: Abbreviations: CH is CH; BS is business strategy; LEV is leverage; ΔNWC is net working capital; CF is cash flows; SIZE is firm size, MTB is market-to-book-value, RND is research and development; CAPEX is capital expenditure; AQCA is acquisition; DEBT is net debt issuance; EQUITY is net equity issuance; LOSS is loss; HHI is Herfindahl–Hirschman Index or industry concentration; INDRISK is industry cash flow risk; DIV is dividend, YER is year dummies; IND is industry dummies.

The collinearity in Table 2 does not indicate substantial collinearity (values less than 0.9). SIZE and DEBT show high collinearity (values more than 0.8). The control variables SIZE and DEBT were deleted. Then, the model met the multicollinearity test.

Table 2 Pairwise Correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	
(1)CH	1.000																		
(2)BS	0.274*	1.000																	
(3)INTRO	-0.151*	-0.038	1.000																
(4)GROWTH	0.071*	0.006	-0.198*	1.000															
(5)MATURE	0.225*	0.025	-0.379*	-0.471*	1.000														
(6)SHAKE_DEC	-0.226*	-0.004	-0.194*	-0.241*	-0.462*	1.000													
(7)LEV	-0.168*	0.01	0.080*	-0.014	-0.079*	0.045	1.000												
(8)ΔNWC	0.091*	-0.024	0.027	-0.02	0.047	-0.064*	-0.378*	1.000											
(9)CF	0.359*	0.053	-0.431*	-0.009	0.477*	-0.220*	-0.062*	-0.018	1.000										
(10)MTB	-0.118*	0.01	0.021	0.007	-0.044	0.03	0.538*	-0.198*	0.01	1.000									
(11)RND	0.04	-0.039	-0.034	-0.037	0.106*	-0.068*	-0.031	0.015	0.099*	0.011	1.000								
(12)CAPEX	0.280*	0.05	0.029	0.053	0.130*	-0.244*	-0.039	0.035	0.107*	-0.067*	0.013	1.000							
(13)AQCA	-0.148*	-0.063*	-0.080*	-0.248*	-0.081*	0.424*	0.080*	-0.107*	-0.117*	0.005	0.017	-0.014	1.000						
(14)EQUITY	0.029	0.005	0.082*	0.083*	-0.115*	-0.01	-0.025	0.099*	-0.094*	-0.013	-0.025	0.008	-0.141*	1.000					
(15)LOSS	-0.314*	-0.128*	0.167*	-0.051	-0.187*	0.143*	0.005	-0.048	-0.268*	-0.022	-0.060*	-0.075*	0.087*	0.021	1.000				
(16)HHI	-0.017	0.094*	-0.021	-0.032	0.007	0.042	-0.004	-0.002	0.02	0.042	-0.039	-0.031	0.025	0.03	0.019	1.000			
(17)INDRISK	0.082*	-0.046	0.028	0.000	-0.031	0.015	0.062*	-0.007	0.027	0.072*	-0.017	-0.019	-0.053	-0.022	-0.063*	-0.013	1.000		

(18)DIV 0.545* 0.225* -0.133* -0.004 0.244* -0.190* -0.149* 0.055 0.294* -0.070* 0.089* 0.177* -0.079* -0.082* -0.386* 0.000 0.061* 1.000
 Notes: Abbreviations: CH is CH; BS is business strategy (prospectors); LEV is leverage; ΔNWC is net working capital; CF is cash flows; SIZE is firm size, MTB is market-to-book-value, RND is research and development; CAPEX is capital expenditure; AQCA is acquisition; DEBT is net debt issuance; EQUITY is net equity issuance; LOSS is loss; HHI is Herfindahl–Hirschman Index or industry concentration; INDRISK is Industry cash flow risk; DIV is dividend, YER is year dummies; IND is industry dummies. ***significant at 1%. **significant at 5%. *significant at 10%.

4.2 Results

The H1 was answered through the significance of the BS coefficient in model 1 (Table 3). The results showed that the BS significantly positively affected CH at the 1% level, with a coefficient = 0.559 (Table 3, model 1). The significantly positive result suggests that prospectors' CH is higher than defenders' CH. Therefore, H1 is accepted.

The H2 was answered through the significance of the BS_INTRO coefficient in model 3 (Table 3). The results showed that INTRO phases significantly positively moderated the relationship between BS and CH at the 1% level, with a coefficient of 0.543 (Table 3, model 3). The significantly positive result suggests that the need for more CH from prospectors in the introduction phase will be greater than in other phases. Therefore, H2 is accepted.

The H3 was answered through the significance of the BS_GROWTH coefficient in model 3 (Table 3). The results showed that GROWTH phases significantly positively moderate the relationship between BS and CH at the 1% level, with a coefficient of 0.572 (Table 3, model 3). The significantly positive result suggests that the need for more CH from prospectors in the growth phase will be greater than in other phases. Therefore, H3 is accepted.

The H4 was answered through the significance of the BS_MATURE coefficient in model 3 (Table 3). The results showed that GROWTH phases significantly positively moderate the relationship between BS and CH at the 1% level, with a coefficient of 0.540 (Table 3, model 3). The significantly positive result suggests that the need for more CH from prospectors in the mature phase will be greater than in other phases. Therefore, H4 is accepted.

The H5 was answered through the significance of the BS_SHAKE_DEC coefficient in model 3 (Table 3). The results showed that GROWTH phases significantly positively moderate the relationship between BS and CH at the 1% level, with a coefficient of 0.514 (Table 3, model 3). The significantly positive result suggests that the need for more CH from prospectors in the shake-out/decline phase will be greater than in other phases. Therefore, H5 is accepted.

All life cycle phases strengthen the relationship between business strategy and CH. The role of all life cycle phases in the association of BS with CH is a quasi-moderator because all life cycle phases directly affect CH. These were concluded through the significance of INTRO, GROWTH, MATURE, and SHAKE_DEC coefficient in model 2 (Table 3, model 2), consistent with the coefficient of the interaction between BS and each life cycle phase (Table 3, model 3).

Table 3 Regression Result

Variables	(1)	(2)	(3)
BS	0.559*** (22.199)	0.126*** (10.455)	-0.421** (-2.402)
LEV	0.010 (0.088)	-0.127*** (-2.620)	-0.127*** (-2.592)
ΔNWC	0.522 (1.057)	0.280 (1.092)	0.271 (1.049)

CF	5.668*** (8.209)	3.730*** (7.712)	3.801*** (7.778)
MTB	-0.006 (-0.592)	-0.008 (-1.615)	-0.008 (-1.587)
RND	-20.478 (-0.695)	-21.284 (-1.123)	-21.561 (-1.128)
CAPEX	9.486*** (15.111)	2.236*** (8.928)	2.258*** (8.953)
AQCA	-0.762 (-0.560)	-0.751 (-0.796)	-0.713 (-0.753)
EQUITY	7.211*** (3.356)	5.191*** (3.305)	5.212*** (3.307)
LOSS	0.566*** (3.353)	-0.351*** (-3.512)	-0.342*** (-3.420)
HHI	4.480*** (7.298)	-0.136 (-0.364)	-0.130 (-0.345)
INDRISK	9.188*** (6.616)	2.801*** (3.302)	2.827*** (3.352)
DIV	1.265*** (9.362)	1.710*** (18.571)	1.702*** (18.468)
INTRO		20.302*** (50.598)	20.348*** (32.270)
GROWTH		20.535*** (52.279)	20.039*** (31.754)
MATURE		20.365*** (50.916)	20.473*** (45.276)
SHAKE_DEC		20.117*** (53.692)	20.703*** (35.915)
BS_INTRO			0.543*** (3.274)
BS_GROWTH			0.572*** (3.279)
BS_MATURE			0.540*** (3.090)
BS_SHAKE_DEC			0.514*** (2.995)
R ²	0.98781	0.99537	0.99539
Adj.R ²	0.98765	0.9953	0.99531
N	2167	2167	2167
F-stat	9489.073	16157.131	14415.237

Notes: t statistics in parentheses. ***significant at 1%. **significant at 5%. *significant at 10%. Abbreviations: CH is CH; BS is business strategy (prospectors); LEV is leverage; ΔNWC is net working capital; CF is cash flows; SIZE is firm size, MTB is market-to-book-value, RND is research and development; CAPEX is capital expenditure; AQCA is acquisition; DEBT is net debt issuance; EQUITY is net equity issuance; LOSS is loss; HHI is Herfindahl–Hirschman Index or industry concentration; INDRISK is Industry cash flow risk; DIV is dividend, YER is year dummies; IND is industry dummies. ***significant at 1%. **significant at 5%. *significant at 10%.

4.3 Robustness Test

For robustness, this study employed tests in many phases. The model is estimated using an ordinary model without interactions. The independent and control variables are the same as those in the model (1), excluding firm size and debt. Table 4 shows that all inferences are robust enough to implement alternative tests.

Table 4 Robustness Test Result

Variables	(1) Introduction	(2) Growth	(3) Mature	(4) Shake- Out/Decline
Constanta	19.771*** (24.679)	18.642*** (15.050)	21.708*** (22.171)	20.465*** (28.195)
BS	0.144*** (4.350)	0.154*** (5.024)	0.132*** (8.394)	0.079** (2.473)
LEV	-0.019 (-0.271)	-0.102 (-0.455)	-0.136** (-2.373)	-0.095 (-1.568)
Δ NWC	0.480 (0.998)	0.565 (0.523)	0.052 (0.121)	0.369 (0.929)
CF	3.926* (1.925)	1.645 (0.727)	4.026*** (7.969)	4.225*** (4.480)
MTB	-0.026*** (-3.490)	-0.021*** (-3.691)	-0.010* (-1.884)	0.006*** (2.838)
RND	115.192* (1.938)	23.943 (0.590)	-25.922 (-1.303)	-144.630*** (-2.916)
CAPEX	1.822*** (2.716)	3.211*** (3.432)	1.013 (1.164)	2.329*** (8.834)
AQCA	-4.257 (-1.550)	-3.975** (-2.154)	-1.179 (-0.710)	2.783* (1.723)
EQUITY	9.160** (2.581)	4.922** (2.283)	-1.982 (-1.096)	2.722 (0.992)
LOSS	-0.225 (-0.938)	-0.221 (-0.899)	-0.505*** (-3.079)	-0.242 (-1.248)
HHI	0.352 (0.227)	-0.766 (-0.953)	-0.154 (-0.318)	-0.015 (-0.019)
INDRISK	2.695 (1.467)	1.206 (0.520)	3.691*** (3.092)	0.868 (0.574)
DIV	1.680*** (6.355)	1.893*** (9.213)	1.430*** (10.619)	2.261*** (10.988)
R ²	0.41532	0.43589	0.39505	0.53296
Adj.R ²	0.35663	0.39781	0.37872	0.50030
N	297	428	1028	414
F-stat	.	16.756	27.775	21.571

Notes: t statistics in parentheses. ***significant at 1%. **significant at 5%. *significant at 10%. Abbreviations: CH is CH; BS is business strategy (prospectors); LEV is leverage; Δ NWC is net working capital; CF is cash flows; SIZE is firm size, MTB is market-to-book-value, RND is research and development; CAPEX is capital expenditure; AQCA is acquisition; DEBT is net debt issuance; EQUITY is net equity issuance; LOSS is loss; HHI is Herfindahl–Hirschman Index or industry concentration; INDRISK is Industry cash flow risk; DIV is dividend, YER is year dummies; IND is industry dummies. ***significant at 1%. **significant at 5%. *significant at 10%.

5 DISCUSSION

5.1 Prospectors Increase CH

The more BS tends to be prospectors; the more CH will be increased than defenders because prospectors are more aggressive in resource management, product, and market exploitation, differentiation by quickly changing the product-market mix, exploring environmental changes to find innovation opportunities and investment, and continuously engaging in new product research and market development. Prospectors prioritize efficiency after innovation (Miles *et al.*, 1978; Hambrick, 1983; Miles and Snow, 2003). However, management may make excessive and risky investments and fund financial

flexibility, so prospectors need large CH to support activities to achieve performance.

Meanwhile, defenders seek to minimize costs and operational efficiency by maintaining a narrow, stable product focus and prioritizing low cost (cost leadership). Defender plans carefully before making decisions, minimizing risk, and maintaining organizational and operational stability. The more (less) innovation, investment, and financial flexibility, the more (smaller) CH. The larger (smaller) CH means lower (higher) efficiency, the larger (smaller) information asymmetry between management and investors, and the lower (higher) quality of investors' investment decisions.

The results support the previous research findings (Lyandres and Palazzo, 2016; Magerakis and Tzelepis, 2020), which show that strategy (which has components of innovation activities) affects CH in the United States. Thus, this research begins to show consistent results in an emerging country. Furthermore, these findings close the contextual gap in geographic areas to explain the effect of business strategy on CH in Indonesia.

The results confirm agency theory (Jensen and Meckling, 1976; Jensen, 1993, 2003). Management discretion is seen in BS choices and corporate cash accumulation. Managers do not automatically act to maximize corporate value, especially when it conflicts with management interests (Jensen, 1993). CH reflects liquidity and financial flexibility. Meanwhile, CH has a low rate of return, liquidity premium costs, and opportunity costs (Wu, Rui dan Wu, 2012). CH is tied to the company's business strategy choices, from defender to prospector. The trend of CH is influenced by the business strategy choices, where this consistent pattern results from management discretion for the benefit of management.

5.2 All phases of the life cycle strengthen the relationship between BS and CH

Prospectors need more CH than defenders at all company life cycle phases. The introduction, growth, maturity, and shake-out/decline phases act as strengthening factors in the association of BS with CH because the phases of the life cycle represent the ability to adapt (survive) and a combination of internal and external factors to follow developments in the environment, market, and technology. The increase in CH in companies that tend to have a prospector strategy is highest when they are in the growth phase, followed by the introduction phase, then the mature phase, and the lowest in the shake-out/decline phase.

These results have confirmed the hypotheses. One type of BS can be used in different life cycle phases. Each BS and life cycle phase has different CH needs. The fit of the BS and the life cycle factors result in CH decisions.

In the introduction phase, prospectors aggressively differentiate by changing the product-market mix, exploring environmental changes, innovating, and researching new products and market development. CH is needed to make payments for operating, investing, and financing transactions in the introduction phase. Meanwhile, companies in the introduction phase have negative cash flows from operating and investing activities and positive cash flows from financing activities (Dickinson, 2011). Prospectors make many investments and have many development opportunities but face high uncertainty of results, so large CH provides financial flexibility for management. Also, management is incentivized to grow the company to its optimal size and optimistic motivation for increasing future sales, so CH's existence greatly supports management. The existence of an aggressive business strategy, the absence of stable positive cash flow from operating activities and investment activities, the absence of maximum operating efficiency in the

introduction phase, and management motivation cause companies to prepare sufficient CH to meet operational and investment needs.

In the growth phase, prospectors cause them to face uncertainty. CH is needed to make payments for operating, investment, and financing activities in the growth phase. Meanwhile, companies in the growth phase already have positive cash flow (although not yet stable) from operating activities, negative cash flow from investment activities, and positive cash flow from financing activities (Dickinson, 2011) because the company continues to make large investments and still relies on external funding. Prospectors continually make many investments and have many development opportunities but face high uncertainty of results, so large CH provides financial flexibility for management. Also, management is incentivized to grow the company to its optimal size and optimistic motivation for increasing future sales, so CH's existence greatly supports management.

The mature phase life cycle also plays a positive role in the influence of business strategy on CH. CH is needed to make payments for operating, investment, and financing activities. In the mature phase, prospectors still accumulated CH, but less than introduction and growth phases because the company has reached its optimal size, has fewer investment opportunities and investment cash flow expenditures than in earlier phases, and has positive and stable operating cash flow (Dickinson, 2011), business stability and highest reputation (Dickinson, 2011; Keasey, Martinez and Pindado, 2015). In addition, prospectors in the mature phase should not do much development, not make large investments in innovation (Dickinson, 2011), shift the focus from obtaining funding to debt repayment, and issue less debt than other life cycle phases (Faff *et al.*, 2016) distribute excess funds to shareholders. Not only that, in the mature phase, the company obtains positive operating cash flow and stable company profitability (Dickinson, 2011; Habib and Hasan, 2017, 2019) so that future revenue and expense estimates can be made more accurately (Biswas, Habib and Ranasinghe, 2022). The survival ability of mature-phase companies is the highest (Dickinson, 2011). Another argument is that management is accustomed to maintaining CH motives as in other phases.

High uncertainty about the results of the innovation, investment, and development process to achieve low market risk can be caused by prospectors' aggressiveness in the shake-out/decline phase. Meanwhile, companies in the shake-out/decline phase have variations (negative and positive) in cash flow from operating, investment, and financing activities (Dickinson, 2011) because companies face various problems, such as declining profitability, declining resources, liquidating assets to pay off debts, and supporting operations. In addition, prospectors in the shake-out and decline phases still make many investments but face high uncertainty of results, so large CH provides financial flexibility for management. Management still has incentive motivation to grow and optimistic motivation for increasing future sales, so CH greatly supports management.

Management needs to consider BS and life cycle phases in determining CH. The choice of BS has consequences for the need for operations, investment, expansion, efficiency, and risk funds. In addition to BS, each phase of the life cycle shows the focus of management and unique characteristics of the company, such as cash flow and business patterns from operating activities, investment and financing, and company challenges. The results can close the limitations of previous studies in understanding the differences in the influence of BS on CH based on differences in life cycle phases.

6. CONCLUSION

BS positively affects CH in companies listed on the IDX (except the financial sector). Prospectors increase CH, while defenders decrease CH. This practice is based on agency theory, where management decides to choose BS and determine the level of CH when needed and is motivated by management's interests. As a form of management discretion and a basis for performance in environmental adaptation, prospectors require more cash and face higher risks than defenders.

All life cycle phases moderate the effect of BS on CH. The introduction, growth, maturity, and shake-out/decline phases strengthen the BS's effect on CH. The rank order of prospectors' CH from highest to lowest was the growth, introduction, mature, and shake-out/decline phases. The combination of BS and life cycle factors produces a combination of performance. Thus, it differentiates CH based on agency across all life cycle phases. The robustness test shows the consistency of the association of BS with CH when tested under different phases.

The study's limitation is the results generalization to emerging capital markets and other developed countries, such as the US and EU countries, because of the confirmed result in those countries about the effect of business strategy on cash holdings. Further research can be done in specific industry sectors and comparison of some industry for comparison and supporting business analysis. Moreover, empirical evidence based on international samples with macroeconomic factors would add value to the current literature. The empirical evidence based on one industry sector for atomic view, comparison of some industries, or international samples for holistic view would add value to the current literature.

For financial managers and investment strategists who seek to maximize firm value by adopting an effective liquidity policy, this study supports the perspective that strategic choice and cash management are important in valuing firms. The results enrich the association of BS on firms' financing policy and contribute to the empirical literature on CH determinants.

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