WOMEN ON BOARD, FIRM SIZE AND CASH HOLDING: EMPIRICAL EVIDENCE FROM THE DEVELOPING COUNTRY

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Abstract

Effective corporate board supervision might be a viable solution to the agency problem of excessive cash holdings (Fama & Jensen, 1983). Thus, this study aims to examine how the participation of women on corporate boards affects cash management. The study looks at how the size of a company affects the relationship between female board members and cash holdings, especially at high and low cash holding levels. A total of 373 publicly-listed companies in seven industries from 2008 to 2017 were chosen as research samples using purposeful sampling. Furthermore, static panel data processing was also used. The results showed that women on boards had a favorable and important impact. This study discovered a positive and significant *WOB* (women on board) coefficient, implying that companies with women on board had relatively more cash on hand. This result supports the trade-off and gender role theory predictions. However, the relationship between firm size and cash keeping is negative, but insignificant for all models. Different impacts were discovered by separating a sub-sample of companies with high and low cash holding rates. Women on the board of companies with large cash holding have a significant negative effect on cash holding. The partnership between women on boards and cash holding yielded negligible results. These findings have implications for regulators and corporate decision-makers in terms of board gender equality.

Keywords: Cash Management, Women on Board, Firm Size, Cash Holding

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1. INTRODUCTION

Following the Asian financial crisis of 1997 and numerous financial scandals involving large corporations, good corporate governance (GCG) has become one of the most prominent topics in Indonesia. In the most recent case, major corporations, such as PT Garuda Indonesia, PT Tiga

Pilar Sejahtera Food Tbk, Jiwasraya, PT Hanson International Tbk, SNP Finance, and Indosat, were involved in financial scandals. The capital market regulators have issued regulations, such as Law No. 8 of 1995 on Capital Markets, Financial Services Authority Regulation No. 18/POJK.03/2014 concerning the Implementation of Integrated Good Corporate Governance for Financial Conglomerates and Financial Services Authority Regulation No. 18/POJK.03/2014 concerning the Implementation of Integrated Good Corporate. However, inadequate corporate governance rule enforcement is still common.

According to capital market regulators, GCG promotes businesses to increase the quality of financial reporting, including cash management, by promoting fairness, openness, accountability, and responsibility. Since high cash holdings increase the assets under the manager's supervision, managers are more likely to commit acts of cash misappropriation for personal benefit. Furthermore, a high cash holding represents management's failure to properly manage the company's money, as it missed out on the opportunity to earn returns on idle cash. Therefore, the cash-keeping strategy is the subject of this research.

Chief executive officers (CEOs) are the most important decision-makers in terms of corporate policies. According to previous research, female executives are less conformist and more outspoken than their male counterparts (Carter, D'Souza, Simkins, & Simpson, 2010). Furthermore, female directors bring various viewpoints and experiences to the board, which aid in resolving difficult problems through high-quality deliberations (Miller & Triana, 2009; Huang & Kisgen, 2013). This means that gender-diverse boards are more likely to participate in competitive dialogue, reducing the risk of groupthink in decision-making (Chen, Crossland, & Huang, 2016).

Studies have also shown gender disparities in taking financial risks. According to Sunden and Surettle (1998) and Agnew, Balduzzi, and Sundén (2003), females invest in less volatile assets from their portfolios. A Federal Reserve survey from 1989 showed that 63% of female single respondents could not take financial risks in their investments (versus 43% for a male single). Regarding asset allocation, females (46%) tend to have more risk-free assets than males (40%). Barber and Odean (2001) reviewed the account data for 35,000 US households from 1991 to 1997 due to this survey and discovered that men invest in risky assets more frequently than women. Moreover, women are significantly less equipped in terms of "digital literacy" when it comes to financial decision-making. (Fauzi, Antoni, & Suwarni, 2020) and in the absence of gender diversity having been declared a necessity for the public sector (Marenga, 2021).

Based on the theoretical framework and the empirical study previously described, this study investigates the relationship between women on board and cash holding in Indonesia. Also, it explores how free cash flow affects the relationship between a woman on board and cash holding, especially in the high and the low of the firm's free cash flow, using panel data of 422 companies, representing seven non-financial industries over the years 2008–2017. Purposive sampling was used to select 373 companies as test samples. We employ static panel data processing with three methods, including ordinary least squares (OLS), random-effect model (REM), and fixed-effect model (FEM). The empirical findings support our hypothesis that the roles of women on boards influence cash holdings in several ways. We discovered, in particular, that the interaction attempted to investigate the effectiveness of the role of women on board with the expanding size of the company in terms of cash holding. It is assumed that the woman on the board will not diminish cash holdings as the company grows in size.

We have found some contributions to gender diversity literature. This article fills a significant gap in the literature by examining the influence of different women on board roles and their impact on cash holdings, based on findings from both the trade-off and gender role theories literature. The relationship between women on board and cash holding has been investigated by several researchers with mixed results. Some show a negative relationship between women on board and cash holding. For instance, Zeng and Wang (2015) showed a strong negative correlation between female CEOs and cash holdings. Similarly, Atif, Liu, and Huang (2019) found a major negative association between board gender diversity and cash holdings. They discovered a detrimental impact of female directors' presence and voice on cash holding, which is in line with the critical mass principle. These findings support women's risk aversion, implying that such behavior in female corporate leaders makes companies less competitive in the market. Female directors hold more cash than men (Huang & Kisgen, 2013; Palvia, Vähämaa, & Vähämaa, 2015; Faccio, Marchica, & Mura, 2016; Adhikari, 2018; Cambrea, Tenuta, & Vastola, 2020). Women in executive roles have greater cash reserves to prevent negative consequences of important strategic decisions and ensure the company's smooth operation. To protect businesses from negative contingencies such as liquidity deficits, women need to make cash-flow decisions based on financial stability.

The following sections comprise the remainder of the paper: Section 2 reviews the literature and develops the research hypotheses, Section 3 discusses the data and the methodology used to collect them, Section 4 presents the research results and delves deeper into the relationship between women on corporate boards of directors and corporate cash holdings, Section 5 discusses the results, while Section 6 concludes the paper.

2. LITERATURE REVIEW

Cash on hand is a highly liquid commodity that can be used right away to meet the company's needs. It represents the cash required to meet the company's day-to-day operating needs, such as buying inventory, servicing loans, and funding other business operations. The cash inventory can be in the form of business cash inventory or cash in the bank that can be cashed quickly. The business belief that "cash is king" reflects the value of deciding the amount of cash held by the corporation as a whole. This perspective shows that cash is extremely important to the company, especially to

conduct daily operations, such as buying assets and making unexpected payments.

According to Keynes (1936), there are many reasons why businesses keep cash in a certain quantity, including transaction, precautionary, and speculative motives. The business may also save money for future expenses. Myers and Majluf (1984) stated that low-cost financing, where cash is used to finance a business, has lower funding costs since domestic investors are more comfortable with cash. However, there would be a significant agency dispute in companies that include management and shareholders, such as underinvestment and asset replacement (Myers, 1977; Jensen & Meckling, 1976).

There are several advantages to having cash on hand (Ferreira & Vilela, 2004). For instance, cash holdings minimize the risk of financial distress due to volatile economic conditions, and they may function as a contingency fund to prevent bankruptcy. Cash may also be used as a backup fund if the organization is having trouble obtaining external funds, one of which is the unpredictability of interest rates due to current economic conditions. Yudaruddin (2020) and Nguyen and Nguyen (2020) discussed the importance of having the right amount of liquid assets for a company's smooth operation. Second, since cash reserves as a source of internal funds do not incur costs like external sources of funds, cash holdings enable companies to make more efficient investment policies.

Effective corporate board oversight may be a possible solution to the agency issue of disproportionate cash holdings (Fama & Jensen, 1983). According to Fama (1980), a corporate board is an important control mechanism for safeguarding the interests of shareholders. As assessed by board supervision, impartial guidance, and oversight, the standard of corporate governance is crucial in shaping cash holding motivation (Dittmar, Mahrt-Smith, & Servaes, 2003; Harford, Mansi, & Maxwell, 2008). Internal governance influences firm cash reserves and managerial decision-making (Boubaker, Derouiche, & Nguyen, 2015). According to these studies, well-structured boards help reduce the agency problem. As a result, corporate boards' monitoring functions are critical in mitigating the agency problem of cash holdings.

According to empirical research on sexually diverse boards, female directors oversee more effectively and demand transparency. For instance, Gul, Srinidhi, and Ng (2011) and Adams and Ferreira (2009) stated that female executives want more transparency and audit equity in companies. This means that women on boards are tough monitors (Chen, Leung, & Goergen, 2017). Gender diversity on corporate boards also helps prevent groupthink, leading to a better competitive dialogue among board members (Gul et al., 2011) and better decision-making. Women's political and stronger leadership skills can be traced back to attributes such as monitoring and justice (Johnson & Eagly, 1990). Their varied backgrounds and distinct work style contribute to their ability to conduct high-quality deliberations (Daily & Dalton, 2003). As a result, female directors improve the board's ability to conduct oversight duties efficiently. However, Ozordi, Adetula, Eluyela, Aina, and Ogabi (2019) showed that women on boards have a detrimental influence on cash holding decisions.

The gender gap in risk preferences shown by Zeng and Wang (2015) indicated that female CEOs place a higher value on cash's precautionary position but are unconcerned about its opportunity cost for various reasons. For instance, since female CEOs are more risk-averse than male CEOs, they may have a higher level of corporate cash reserves to protect against possible risks and unpleasant events. Furthermore, when faced with investment opportunities, the risk-averse female CEOs may choose to use (safe) internal financing over (riskier) external financing. As a result, female CEOs are perceived to be more cautious and concerned with the precautionary motive of cash than male CEOs, resulting in a higher level of corporate cash holdings.

According to Huang and Kisgen (2013), men are more confident than women. However, female directors are less risk-averse than men (Palvia et al., 2015; Faccio et al., 2016). Due to the excessive prudence among female executives, fewer investment ventures are launched by woman directors, hence companies appear to expand more slowly (Huang & Kisgen, 2013). In addition to their risk aversion (Faccio et al., 2016; Bernile, Bhagwat, & Yonker, 2018), women in executive positions hold larger cash reserves to avoid the negative effects of important strategic decisions and ensure smooth business operation. Women need to make cash-making decisions in light of financial stability to protect companies from negative contingencies, such as liquidity deficits (Lins, Servaes, & Tufano, 2010) or the negative effects of cash flow volatility (Dittmar et al., 2003). Female executives could be less likely to take risks, resulting in higher liquidity reserves for risk mitigation (Adhikari, 2018). According to MengYun, Um-e-Habiba, Husnain, Sarwar, and Ali (2021), Cambrea et al. (2020), Alghadi, Mazlan, and Azhari (2019), female directors hold more cash than men.

The importance of firm size has been stressed in previous research on cash holding. Miller and Orr (1966) proposed economies of scale in cash management, which would make it simpler and less expensive for larger businesses to receive financing (Bigelli & Sánchez-Vidal, 2012). The fixed costs of borrowing are not proportional to loan size and are more burdensome for smaller businesses (Kim, Kim, & Woods, 2011). Furthermore, bigger businesses are more diversified and have a lower risk of going bankrupt (Rajan & Zingales, 1995). These variables point to a negative relationship between firm size and cash holdings. The majority of earlier studies (Opler, Pinkowitz, Stulz, & Williamson, 1999; Al-Najjar & Belghitar, 2011; Bigelli & Sánchez-Vidal, 2012) support the negative relationship between size and cash holdings, while a few found a positive impact (Hadjaat, Yudaruddin, & Riadi, 2021; Al-Najjar & Clark, 2017). In contrast, Yudaruddin (2019) found it to be insignificant.

The following hypotheses were suggested based on the above discussion of the relationship between women on boards, free cash flow, and cash holding:

H1: Woman on board has a positive effect on cash holding.

H2: Firm size has a negative effect on cash holding.

H3: The interaction of female directors and firm size has a positive effect on cash holding.

3. RESEARCH METHODOLOGY

3.1. Sample and data

This study examines how women on boards affect cash holding and investigates how firm size affects the relationship between female board members and cash holding. There were 422 companies in this report, representing seven non-financial industries. Purposive sampling was used to select 373 companies as test samples. The number of samples companies in each sector include:

- 18 (4.83% of agriculture);
- 37 (9.92% of mining);
- 36 (9.65% of basic industry & chemicals);
- 60 (16.09% of miscellaneous industry);
- 26 (6.97% of consumer goods industry);
- 52 (13.94% of property real estate & building construction);
- 144 (38.61% of trade services & investment).

We take all firms available from the Indonesia Stock Exchange (IDX) and macroeconomic variables from the Central Bureau of Statistics (BPS).

3.2. Variables

Following Hadjaat et al. (2021), Atif et al. (2019), and Yudaruddin (2019), the dependent variable in this study is cash holding (*CASH*), measured using cash and cash equivalents to total assets. Independent variables consist of women on board (*WOB*) and firm size (*FSIZE*). *WOB* is a dummy variable considering the value 1 if the firm has a female director on the board and 0 otherwise. Firm size is the natural logarithm of total assets. We also include various control factors in our empirical model to avoid omitted variable bias. The control variables include leverage (*LEV*), dividend (*DIV*), profitability (*ROE*), inflation (*INF*), and growth of domestic product bruto (*GDP*). The dependent, independent, and control variables representing the constructs are given in Table 1.

Table 1. Definition and measure variables

Variables	*Symbol*	*Definition and measure*	*Expected sign*
Dependent			
Cash holding	*CASH*	Cash and cash equivalents to total assets (%)	
Independent			
Women on board	*WOB*	Dummy variable considering the value 1 if the firm has a female director on the board and 0 otherwise	+
Firms size	*FSIZE*	The natural logarithm of total assets	-
Control			
Leverage	*LEV*	The ratio of total debt to total equity (%)	+
Dividend	*DIV*	Dummy variable considering the value 1 if for the companies that paid dividend and 0 if not.	-
Profitability	*ROE*	The ratio of net profit to total equity (%)	-
Inflation	*INF*	Annual inflation rate (%)	-
GDP	*GDP*	Growth of GDP (%)	-

3.3. Research model

This study used a regression analysis technique to examine the relationship between women on board and cash holding. The analysis was carried out in the fourth stage, according to the methods used. As demonstrated in the following equation (1), women on board and firm size were regressed on cash holding and a set of control variables in the first stage:

$$CASH_{i,t} = \alpha_{i,t} + \beta_1 WOB_{i,t} + \beta_2 FSIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 DIV_{i,t} + \beta_5 ROE_{i,t} + \beta_6 INF_t + \beta_7 GDP_t + \varepsilon_{i,t} \quad (1)$$

where, *CASH* is an abbreviation for cash holding, *WOB* is women on board and *FSIZE* is firm size. A set of control variables are *LEV*, *DIV*, *ROE*, *INF*, *GDP*. In this configuration, the indices i and t represent firm and time, respectively, and ε represents the disturbance. In the second stage, we repeat estimation of the equation (1) for the high vs. low cash holding sub-sample. In the third stage, equation (1) was modified by including the interaction terms of a woman on board and firm size as shown in equation (2), respectively. In the last stage, we repeat equation (2) for estimation for the high vs. low cash holding sub-sample.

$$CASH_{i,t} = \alpha_{i,t} + \beta_1 WOB_{i,t} + \beta_2 FSIZE_{i,t} + \beta_3 WOB_{i.t} * FSIZE_{i,t} + \beta_4 LEV_{i,t} + \beta_5 DIV_{i,t} + \beta_6 ROE_{i,t} + \beta_7 INF_t + +\beta_8 GDP_t + \varepsilon_{i,t} \quad (2)$$

Following Hadjaat et al. (2021), Cambrea et al. (2020), Atif et al. (2019), and Yudaruddin (2019), the equations (1) and (2) is estimated using static panel model with three methods, including OLS, FEM, and REM. The Breusch-Pagan Lagrangian multiplier tests for random effects, while the Hausman test can be used to choose between the three methods (Baltagi, 2008). To compare the OLS and FEM models, the Breusch-Pagan Lagrangian multiplier test is used. FEM is the best model when the p-value is significant. To compare the FEM and REM models, the Hausman test is used. If the p-value is significant, FEM is the best model. Following Cambrea et al. (2020), we also include year dummies. Year dummies are used to account for unobservable effects and trend impacts that are common to all of the businesses evaluated (e.g., economic shocks).

4. RESULTS

Table 2 shows descriptive statistics on the variables used in this research. The sample's average cash holding (*CASH*) is 9.1136 percent, with a standard deviation of 8.5855 percent. Women on board (*WOB*) is a dummy predictor with 36 percent of overall findings of businesses that have women on board. Except for the profitability variable, the sum of the variables is greater than the standard deviation, indicating a fair representation of the variables.

Table 2. Descriptive statistics for all variables

Variables	All samples			Samples with high cash holding			Samples with low cash holding		
	Obs.	Mean	Std. dev.	Obs.	Mean	Std. dev.	Obs.	Mean	Std. dev.
CASH	2742	9.1136	8.5855	1377	14.389	8.6800	1365	3.7915	3.9594
WOB	2742	0.3599	0.4800	1377	0.3848	0.4867	1365	0.3347	0.4720
FSIZE	2742	23.544	4.8400	1377	23.343	4.9824	1365	23.746	4.6852
LEV	2742	49.583	19.687	1377	52.796	19.866	1365	46.341	18.968
DIV	2742	0.3453	0.4755	1377	0.3108	0.4629	1365	0.3802	0.4856
ROE	2742	11.930	16.870	1377	16.007	15.998	1365	7.8183	16.733
INF	2742	5.5127	2.6802	1377	5.4814	2.6679	1365	5.5443	2.6931
GDP	2742	12.746	5.3450	1377	12.742	5.3359	1365	12.750	5.3560

In panel regression analysis, the degree of association between the explanatory variables is shown in Table 3. The correlation matrix shows that none of the explanatory variables are highly correlated, suggesting that multicollinearity is not an issue. Multicollinearity was also examined using variance inflation factor (VIF), but there is no VIF value higher than 10. In this case, multicollinearity is not a problem.

Table 3. Correlation matrix

Variables	WOB	FSIZE	LEV	DIV	ROE	INF	GDP	VIF
WOB	1.0000							1.01
FSIZE	0.0892	1.0000						1.02
LEV	0.0060	0.0479	1.0000					1.02
DIV	-0.0398	-0.0039	0.0353	1.0000				1.06
ROE	0.0007	-0.0681	0.0804	-0.0428	1.0000			1.03
INF	-0.0035	0.0098	-0.0754	0.0216	0.0353	1.0000		1.57
GDP	-0.0400	0.0341	-0.0847	0.0287	0.0955	0.6018	1.0000	1.60

Table 4 shows the effects of the relationship between cash holding (*CASH*) and the explanatory variables. Static panel data analysis was used to estimate the specification. Control variables, firm characteristics, macroeconomic variables, and year dummies in the specifications section were also used. The F-test value is 0.0000, which is smaller than 0.05. Similarly, the Chi-square value is also 0.0000, which is smaller than 0.05, based on the Breusch-Pagan Lagrangian multiplier test performance results. Since the null hypothesis is dismissed, the FEM approach outperforms the OLS method. Additionally, the p-value was less than 0.05, equivalent to 0.0000, as shown by the Hausman test performance. As a result, the null hypothesis is dismissed, and the FEM approach is preferred over REM in this analysis.

5. DISCUSSION

In Table 4, this study tested the effect of women on board, and firm size hypothesized variables. The results show a positive and significant coefficient of *WOB* (women on board), which implied that companies with women on board hold higher cash than those without women on board, supporting *H1*. The empirical finding is consistent with Huang and Kisgen (2013), Palvia et al. (2015), Zeng and Wang (2015), Faccio et al. (2016), Adhikari (2018), Alghadi et al. (2019), Cambrea et al. (2020), and MengYun et al. (2021), supporting the argument that women on board have a positive effect on cash holding. This finding confirms the predictions based on trade-off and gender role theory. This indicates that female CEOs are more vigilant and worried about cash safety than male CEOs, leading to a higher level of corporate cash holdings. This study supports the claim that having more women on boards has a positive impact on cash holding. However, the relationship between firm size and cash holding is tested in Model 1. This study finds a negative, but insignificant impact for all models, showing that firm size does not influence the cash holding of sample companies. Therefore, it does not support H2. This result is in line with Yudaruddin (2019). A possible reason for such a finding could be that large and small companies can still easily access liquidity to avoid holding more or less cash.

Table 4. Impact of women on board and firm size on cash holding: Baseline

Explanatory variable	*Dependent variable: CASH*		
	(OLS)	*(REM)*	*(FEM)*
WOB	0.6950** (0.3231)	0.8247** (0.3565)	0.8234** (0.3826)
FSIZE	-0.0443 (0.0306)	-0.0422 (0.0608)	0.0048 (0.0848)
LEV	0.1091*** (0.0082)	0.1110*** (0.0128)	0.1131*** (0.0151)
DIV	-0.6749** (0.3207)	-0.2618 (0.3161)	-0.2264 (0.3360)
ROE	0.1307*** (0.0094)	0.0738*** (0.0107)	0.0579*** (0.0111)
INF	0.0041 (0.1006)	-7.1502** (3.3785)	0.1255 (0.0740)
GDP	0.0842 (0.0533)	1.5789* (0.8705)	-0.0292 (0.0473)
Constant	1.4499 (1.1424)	12.5836*** (4.3520)	2.2548 (2.2548)
Year dummy	Yes	Yes	Yes
R-squared	0.1578	0.1070	0.1081
F-test	32.74		9.73
Prob > F	0.0000		0.0000
Wald chi2		167.46	
Prob > chi2		0.0000	
Breusch and Pagan Lagrangian multiplier test for random effects	chibar2(01) = 2210.31 Prob > chibar2 = 0.0000		
Hausman test		chi2(10) = 25.45 Prob > chi2 = 0.000	
Observation	2742	2742	2742

*Notes: * Levels of significance at 10%, ** Levels of significance at 5%, and *** Levels of significance at 1%.*

This study also investigates the impact of a woman on board and firm size on cash holding in companies with high and low cash holding levels. There are different impacts on separating a sub-sample of companies with high and low cash holding rates, as shown in Table 5. Women on board have a negative and significant impact on cash holding. Moreover, there were insignificant results on the relationship between women on board and cash holding. The results confirm that the trade-off and gender role theories explain the relationship between women on board and cash holding applies to companies with high levels of cash holding. The empirical result supports Huang and Kisgen (2013), Palvia et al. (2015), Zeng and Wang (2015), Faccio et al. (2016), Adhikari (2018), Alghadi et al. (2019), Cambrea et al. (2020), and MengYun et al. (2021) who point out that having more women on board positively affect cash holding. Furthermore, the results showed a negative and significant relationship between firm size and cash holding using OLS in sample companies with low cash holding, supporting *H2*.

Table 5. Impact of women on board and firm size on cash holding: High vs. low cash holding

Explanatory variable	*Dependent variable: CASH*					
	High cash holding			*Low cash holding*		
	(OLS)	*(REM)*	*(FEM)*	*(OLS)*	*(REM)*	*(FEM)*
WOB	0.5058 (0.4486)	1.1444** (0.5273)	1.3669** (0.6039)	-0.1553 (0.2244)	-0.1562 (0.2749)	-0.1620 (0.3883)
FSIZE	0.0399 (0.0427)	-0.0192 (0.0756)	-0.0417 (0.1294)	-0.0449** (0.0206)	-0.0367 (0.0304)	0.0359 (0.0944)
LEV	0.1230*** (0.0111)	0.1409*** (0.0172)	0.1615*** (0.0242)	0.0179** (0.0060)	0.0256** (0.0084)	0.0566*** (0.0150)
DIV	0.2070 (0.4696)	-0.1168 (0.5283)	-0.3973 (0.6003)	-0.2069 (0.2196)	-0.0979 (0.2371)	0.0816 (0.2946)
ROE	0.0993*** (0.0148)	0.0945*** (0.0177)	0.0935*** (0.0193)	0.0351*** (0.0062)	0.0315*** (0.0071)	0.0229** (0.0093)
INF	-0.0375 (0.1472)	-16.5295*** (5.4454)	0.2547** (0.1285)	0.0156 (0.0706)	6.2275 (3.2676)	0.0040 (0.0696)
GDP	0.0875 (0.0783)	3.4661** (1.4243)	-0.1244 (0.0839)	0.0527 (0.0385)	-1.3299 (0.8265)	0.0661 (0.0400)
Constant	3.3086** (1.6476)	28.9819*** (6.6311)	5.3388 (3.5929)	2.9458*** (0.8393)	-6.0500 (4.3302)	-0.8341 (2.5273)
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.1650	0.1775	0.1785	0.0512	0.0430	0.0536
F-test	17.95		11.49	4.40		5.48
Prob > F	0.0000		0.0000	0.0448		0.0000
Wald chi2		172.85			46.08	
Prob > chi2		0.0000			0.0000	
Observation	1377	1377	1377	1365	1365	1365

*Notes: * Levels of significance at 10%, ** Levels of significance at 5%, and *** Levels of significance at 1%.*

There was also an interaction between the woman onboard variable and the firm size, as reported in Table 6. This interaction aimed to explore the effectiveness of the role of women on board with the increasing size of the company towards cash holding. It is expected that with the larger the company size, the woman on board will not reduce cash holdings. The women in executive positions have large cash reserves to avoid the negative effects of strategic decisions as the company grows to ensure the smooth running of the business. The results of this study are in line with expectations, where the impact of the interaction between the woman on board and firm size variables on cash holding is positive and significant, supporting *H3*. This study is in line with Faccio et al. (2016) and Bernile et al. (2018).

Table 6. Impact of women on board and firm size on cash holding: High vs. low cash holding

Explanatory variable	*Dependent variable: CASH*		
	(OLS)	*(REM)*	*(FEM)*
WOB	-2.3716 (1.5311)	-2.9810 (1.8318)	-3.5991* (1.9324)
SIZE	-0.0889** (0.0365)	-0.1016 (0.0685)	-0.0663 (0.0944)
*WOB * FSIZE*	0.1287** (0.0636)	0.1591** (0.0759)	0.1845** (0.0802)
LEV	0.1101*** (0.0082)	0.1129*** (0.0129)	0.1157*** (0.0151)
DIV	-0.6790** (0.3204)	-0.2605 (0.3143)	-0.2207 (0.3340)
ROE	0.1303*** (0.0094)	0.0734*** (0.0106)	0.0575*** (0.0110)
INF	0.0047 (0.1006)	-7.2624** (3.3817)	0.1268 (0.0737)
GDP	0.0834 (0.0532)	1.6194* (0.8715)	-0.0294 (0.0470)
Constant	2.4579** (1.2180)	13.9058** (4.4492)	3.7913 (2.4045)
Year dummy	Yes	Yes	Yes
R-squared	0.1590	0.1098	0.1111
F-test	30.68		9.43
Prob > F	0.0000		0.0000
Wald chi2		171.18	
Prob > chi2		0.0000	
Observation	2742	2742	2742

*Notes: * Levels of significance at 10%, ** Levels of significance at 5%, and *** Levels of significance at 1%.*

Then, the joint impact of a woman on board and firm size on cash holding in Indonesia for two distinct subsamples (high cash holding and low cash holding) were estimated, as reported in Table 7. Based on the Breusch-Pagan Lagrangian multiplier and Hausman test, the FEM approach is preferred. The bigger the company and the woman on board, the greater the cash holdings. This finding is more pronounced in companies with high cash holding. The results support the assertion that women in executive roles have significant cash reserves to avoid the detrimental impact of strategic decisions as the organization expands, ensuring that the business runs smoothly.

Table 7. Impact of interaction between women on board and firm size on cash holding: High vs. low cash holding

Explanatory variable	*Dependent variable: CASH*					
	High cash holding			*Low cash holding*		
	(OLS)	*(REM)*	*(FEM)*	*(OLS)*	*(REM)*	*(FEM)*
WOB	0.3820 (2.1280)	-2.1740 (2.6932)	-4.7128 (2.8136)	-1.7945* (0.9628)	-1.8570 (1.2225)	-2.6025 (1.8126)
SIZE	0.0381 (0.0531)	-0.0679 (0.0901)	-0.1215 (0.1410)	-0.0688** (0.0259)	-0.0627 (0.0360)	-0.0117 (0.1012)
*WOB * FSIZE*	0.0052 (0.0888)	0.1404 (0.1120)	0.2572** (0.1187)	0.0687* (0.0411)	0.0708 (0.0532)	0.1001 (0.0760)
LEV	0.1231*** (0.0113)	0.1423*** (0.0175)	0.1639*** (0.0243)	0.0180** (0.0060)	0.0261** (0.0084)	0.0583*** (0.0149)
DIV	0.2067 (0.4698)	-0.1201 (0.5280)	-0.3904 (0.5964)	-0.2084 (0.2195)	-0.0984 (0.2356)	0.0839 (0.2926)
ROE	0.0993*** (0.0148)	0.0934*** (0.0176)	0.0919*** (0.0190)	0.0355*** (0.0062)	0.0319*** (0.0071)	0.0230* (0.0093)
INF	-0.0374 (0.1473)	-16.7856*** (5.4453)	0.2609** (0.1275)	0.0145 (0.0704)	6.2006 (3.2768)	0.0025 (0.0697)
GDP	0.0874 (0.0783)	3.5556* (1.4256)	-0.1270 (0.0830)	0.0536 (0.0385)	-1.3228 (0.8273)	0.0673 (0.0402)
Constant	3.3486 (1.7594)	30.1041*** (6.7326)	7.0306* (2.7961)	3.4957*** (0.9050)	-5.4301 (4.4402)	0.2220 (2.6355)
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.1650	0.1806	0.1822	0.0539	0.0448	0.0557
F-test	16.80		11.07	3.40		2.69
Prob > F	0.0000		0.0000	0.0000		0.0000
Wald chi2		173.31			49.44	
Prob > chi2		0.0000			0.0000	
Observation	1377	1377	1377	1365	1365	1365

*Notes: * Levels of significance at 10%, ** Levels of significance at 5%, and *** Levels of significance at 1%.*

6. CONCLUSION

This study aimed to examine how the presence of women on boards of directors affects cash holding. Additionally, this study investigated how firm size influences the relationship between female board members and cash holding, especially at the high and low cash holding levels. Purposive sampling was used to select 373 companies as test samples. Static panel data processing was used in this report with three methods, including OLS, FEM, and REM. This study discovered a positive and significant *WOB* (women on board) coefficient, implying that companies with women on board had relatively more cash on hand. This result supports the trade-off and gender role theory predictions. However, the relationship between firm size and cash keeping is negative, but insignificant for all models. Different impacts were discovered by separating a sub-sample of companies with high and low cash holding rates. Women on the board of companies with large cash holding have a significant negative effect on cash holding. The partnership between women on boards and cash holding yielded negligible results. The findings show that the trade-off and gender role theory, which explains the connection between women on boards and cash holding, is true for companies with much cash. Furthermore, the larger the business and the more women on the board, the higher the cash reserves. The importance of including women on the board of directors when it comes to cash management is recognized. Overall, the results have implications on board gender equity for regulators and corporate decision-makers.

Another important and relevant implication is that this study has practical consequences for practitioners. The findings of this study advise managers to think about the gender makeup of governance boards and the responsibilities that women play, as these factors have a major impact on cash policies. Indeed, as more women enter the workforce in response to legal and cultural demands for gender equality, management choices, particularly those involving liquidity, will be influenced by the more diverse and inclusive board of directors. The findings of this study may be useful to corporate audiences as they examine financial flexibility, cost of capital, cash flow volatility, and transaction expenses, as well as the need for more strict cash resource control. However, like with other studies, this one has significant limitations that may serve as recommendations for future research. To begin, our study concentrated on seven non-financial sectors. As a result, the findings may not be generalizable to all sectors of the stock market. Future studies might focus on the financial industry. Second, this analysis analyzed only listed firms, which almost likely benefit from more favorable financial conditions in terms of access to external financing non-listed firms. As a result of the difficulties in getting liquidity, future studies may examine the role of women in unlisted firms.

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