

# Female at the Top Tier, Investment Efficiency: Does Life Cycle Matter?

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## Abstract

This study seeks to furnish empirical evidence that the inclusion of females on the board of commissioners and directors impacts investment efficiency, and that the company's life cycle moderates this influence on firm investment efficiency. The sample technique employed is purposive sampling. The sample comprised all non-financial companies listed on the Indonesia Stock Exchange from 2016 to 2021, yielding a total of 2,694 observations. The analytical approach employs panel data regression analysis. The study's findings empirically indicate that the presence of females on the board of directors and commissioners does not significantly affect investment efficiency, while the company's life cycle moderation variable exerts an independent influence on investment efficiency. The company's life cycle interaction may influence the representation of women on the board of directors, but it does not affect their representation on the board of commissioners.

**Keywords:** Investment Efficiency, Female on Boards of Commissioner, Female on Board of Director, Firm Life Cycle.

## Introduction

The representation of female on boards of directors and commissioners has been a subject of extensive research since the emergence of gender equality discussions. Numerous public corporations mandate the adherence to gender equality quotas and the recruitment of additional women inside their organizations. Prominent investors recognize gender diversity on corporate boards as a significant investing criterion, as companies with greater female participation on their boards generally outperform those lacking such diversity. The presence of gender diversity on corporate boards is regarded as a means to enhance organizational transparency and foster improved decision-making. The inclusion of women on the company's board of directors can enhance investment efficiency by improving corporate transparency, the quality of information disclosure, and facilitating sound decision-making. Female directors impact corporate governance functions (Abbott et al., 2012). Female board members and directors are significant in achieving a robust and stable financial system, since their inclusion enhances diversity and can lead to improved corporate

governance (Mateos & Ricardo, 2012). Organizations with a minimum of 30% female executives achieve 6% higher profitability; the presence of women on the board of directors contributes to financial efficiency advantages for the company (Franczak & Margolis, 2022). Investment efficiency is crucial for corporate profitability and ultimately fosters economic development at both the industrial and national levels (Hu et al., 2019).

The Indonesia Business Coalition for Women Empowerment conducted a 2022 study that revealed that there were only 8 female directors in 2021 (4%) in IDX200 companies, and this figure has not changed since 2019. Out of the 19 newly appointed directors in 2021, only 2 were female, although in terms of gender balance it has been found that 41 companies (21%) have achieved gender balance, yet 94 companies have no female executives at all on their executive teams (IBCWE, 2022). Females are a minority on most corporate boards (Martin *et al.*, 2008).

Indonesia's two-tier structure requires enterprises to maintain both a supervisory board and a board of directors. This is required by OJK rule number 33/POJK.04/2014. The Board of Commissioners engages in advocacy and oversight over the board of directors' administration of corporate operations; it is led by a president commissioner and consists of both independent and non-independent members (Jaffar et al., 2014). A two-tier governance structure is advantageous as it allows commissioners to remain uninvolved in the company's operations, thereby enhancing their independence and objectivity in monitoring and supervising the board of directors' performance (Jungmann, 2006). The Board of Directors plays a crucial role in the company's operations by advising and overseeing management decisions, including those related to financial reporting (Lara *et al.*, 2022). The company must ensure that the board of commissioners and directors possess the necessary knowledge to manage its finances, which reflects an initiative to enhance corporate governance and foster improved investments for stakeholders (Nugraha, 2022).

Female directors enhance the efficiency of company investments by optimizing monitoring and management practices, which reduces agency problems and facilitates more effective resource allocation (Mirza et al., 2019). Ullah, Zeb, et al. (2020); Saleh & Sun (2022). Firms exhibiting low profit quality facilitate investment anomalies (Bzeouich & Dammak, 2019). Both males and females must recognize that their roles are contingent upon their decision-making abilities in leadership (Huse & Solberg, 2006). Women in organizations are increasingly defined by their capabilities in leadership positions rather than traditional roles such as mothers, wives, or housewives, as the prevailing leadership role models tend to be male (Paoloni & Demartini, 2016). Female board members enhance company performance by exemplifying leadership roles that inspire and create opportunities for other women (Terjesen et al., 2009). Female directors are perceived as more independent than their male counterparts; companies with a higher proportion of female directors exhibit greater value (Carter et al., 2003). Female board members can influence the behavior of the board of directors through a leadership style that emphasizes values and ethics, thereby mitigating high risks (Huse & Solberg, 2006). Female board members exert a greater positive influence on company performance compared to female independent board members (Liu et al., 2014).

The life cycle theory conceptualizes a company as an organism that undergoes birth, growth, and death. It adheres to specific policies that reflect each phase of its economic life

cycle, influenced by its financial development from inception to expansion. These policies are evident in the company's financial statements (Moshtagh et al., 2014). The company life cycle theory posits that a company's growth and capital capacity fluctuate across distinct stages, which are categorized into three phases: growth, maturity, and stagnation (Anthony & Ramesh, 1992). Analyzing the company's life cycle aids internal management and stakeholders in forecasting the company's operational patterns (Khuong et al., 2022).

Corporate strategic planning and financial planning are pertinent in tracking the evolution of each stage of the life cycle (Granlund & Taipaleenmäki, 2005), as revenue fluctuates across organizational stages. An effective company must be organically structured and adaptable in response to complex or turbulent environments at each life cycle stage (Quinn & Cameron, 1983). Companies in the introduction, growth, and decline phases exhibit a higher likelihood of errors in financial statement reporting compared to those in the maturity phase, highlighting the impact of life cycle stages on the quality of financial statements (Krishnan et al., 2021). Consequently, the presence of female directors overseeing financial aspects during the company's life cycle indicates that prior to the crisis, the board of commissioners exhibited a stronger identification, while post-crisis, they demonstrated a more pronounced identity by allocating resources for their supervisory functions (Thoranna Jonsdottir, 2009).

The life cycle significantly impacts operational efficiency, as managers exhibit varying objectives and behaviors throughout the company's phases (Mueller, 1972). The internal management behavior of the company, characterized by conflicts of high interests, leads to information asymmetry, significantly affecting both underinvestment and overinvestment (Bhutta et al., 2022). The company's investment efficiency is diminished during the introduction stage relative to other stages. The life cycle stage is crucial for a company's survival; therefore, life cycle management must be integrated into the investment planning process. Managers should develop investment management policies that align with the company's life cycle stage (Ahmed et al., 2021). Another study found that female directors significantly mitigated the issue of overinvestment, but did not address the problem of underinvestment (Mirza et al., 2019). Female directors exhibit a greater focus on the constraints of underinvestment, neglecting to enhance investment efficiency and address overinvestment issues in their investment decision-making processes (Ullah, Majeed, et al., 2020). The presence of females in top management may reduce the likelihood of overinvestment; an increase in female representation correlates with a decreased risk of overinvestment (Fan & Phromphitakkul, 2021).

Research examines the impact of female directors on corporate life cycles, focusing on the presence of women on boards, the duration of their tenure, and its correlation with bank risk. Findings indicate a negative relationship, suggesting that after a critical period, the association between female board representation and bank risk diminishes as the number of female directors increases. Research article examining the impact of female directors on the corporate life cycle (Birindelli et al., 2020). The study by Reutzell and Belsito (2015) indirectly examined the relationship between the presence of female board members and the life cycle of companies. In this research, the independent variable was the presence of female board members, while IPO underpricing served as the dependent variable. Given that IPO companies are typically in their early stages, the researchers included a control variable for

company age, ultimately yielding negative results regarding potential causes of IPO underpricing.

The presence of females on boards of commissioners and directors represents a significant research theme, as they constitute a minority among corporate directors (Martin et al., 2008). It is essential for both women and men to recognize that effective leadership relies on sound decision-making abilities (Huse & Solberg, 2006). Furthermore, the inclusion of female directors influences the corporate governance function (Abbott et al., 2012). Investment efficiency correlates with the company's life cycle; the board of directors must make appropriate decisions at each stage to mitigate risks. A company fails to achieve optimal growth if it either underinvests or overinvests, thereby hindering revenue maximization. The life cycle significantly influences operational efficiency (Mueller, 1972).

The life cycle theory posits that firms, akin to organic entities, undergo linear development through a series of sequentially predictable stages, beginning with inception, with their activities aligned to these growth phases (Miller & Friesen, 1980). The corporate life cycle consists of five distinct stages: birth, growth, maturity, revival, and decline, each characterized by notable differences (Miller & Friesen, 1980). The company's life cycle varies based on internal factors, including strategy, finance, and management capability, alongside external influences, which manifest in the strategic activities undertaken by the company (Dickinson, 2011; Bixia, 2007). The life cycle of a company has significant implications for management strategy, as each stage necessitates a suitable decision-making process (Kazanjian, 1988). The stages of the life cycle significantly influence financial statements, management practices, corporate governance, and the risk of bankruptcy (Ahmed et al., 2021).

The company's life cycle research encompasses various models. Prior studies have categorized the life cycle into three, four, five, or six stages. Our research references Anthony and Ramesh (1992), who classify the stages of the company's life cycle into three phases: growth, mature, and stagnant. The life cycle of a company is associated with funding and investment decisions, as evidenced by the level of retained earnings within its capital structure. During the growth stage, external equity typically finances all investments (Grabowski & Mueller, 1975). Growth stage companies typically exhibit minimal retained earnings due to the reinvestment of profits and the pursuit of external funding. As these companies innovate and mature, they begin to accumulate profits, resulting in an increased proportion of retained earnings within their capital structure (Owen & Yawson, 2010). Emerging firms characterized by elevated market-to-book (M/B) ratios and diminished operating cash flow typically issue stocks to finance investments. In contrast, established firms with lower M/B ratios tend to distribute dividends and finance investments through internal resources (DeAngelo et al., 2010). The theory of the life cycle, as proposed by DeAngelo et al. (2006), suggests that dividends are typically paid by established and mature companies. This reflects a financial life cycle in which young companies encounter numerous investment opportunities but possess limited resources, while mature companies are more suitable for dividend payments due to their higher profitability. Companies exhibiting low Retained Earnings relative to Total Equity (RE/TE) and Total Assets (RE/TA) are typically in the capital infusion phase. Conversely, companies with high RE/TE and RE/TA ratios are generally

more established, possessing substantial cumulative profits that enable self-financing and the capacity to distribute dividends.

Investment efficiency is dictated by the aggregate risk, return, and expenses related to the investment management framework, while conforming to the limitations set by the investor. These limits include both financial and non-financial variables, such as the investor's availability for investment management, fiduciary duties, and legal obligations. Consequently, investment efficiency ought to be regarded as a combination of financial and non-financial efficiency (Hodgson et al., 2000). Investment denotes the aggregate new expenditure on machinery, equipment, vehicles, land, buildings, and research and development, modified for the divestiture of fixed assets, and articulated in relation to the total assets retained by the company in year  $t$  (Biddle et al., 2009). The efficiency of investment profoundly impacts a company's operational success and financial sustainability (Ahmed et al., 2021). A corporation signifies an effective investment when it undertakes a project that generates a positive net present value (NPV), supposing conditions free from market frictions such as adverse elections or agency costs (Biddle et al., 2009). Net Present Value (NPV) denotes the disparity between discounted costs and revenues, employing the social opportunity cost of capital as the discount rate. Essentially, NPV is the computed disparity between the present value of cash inflows and the present value of cash outflows at a designated moment (Ikatan Bankir Indonesia, 2017). Investment efficiency is realized when there is no departure from the projected investment level; hence, any discrepancy between a company's actual investment and this expected level signifies a deficiency in investment efficiency (Gomariz & Ballesta, 2014). Investment efficiency is evaluated by examining discrepancies from projected investments, employing the investment prediction model as a function of revenue growth (Nor et al., 2017).

### **Theoretical Framework**

The upper echelon theory posits that an organization mirrors its top management. This theory suggests that the outcomes of organizational strategy decisions and certain performance metrics are influenced by managerial background characteristics, such as age, work experience, educational background, and socioeconomic status (Hambrick & Mason, 1984). This theory posits that directors' characteristics significantly influence company performance, as their prior knowledge, experience, and values shape strategic decision-making, thereby affecting the company's strategy. Experience, values, and personality notably affect how directors interpret situations, which subsequently influences their decisions (Hambrick, 2007). The upper echelon theory serves as an effective organizing framework, illustrating that the cognitive framework of the board of directors is influenced by the number of female members. Evidence indicates that females and males contribute distinct knowledge, experiences, and values to the boardroom. Consequently, one might anticipate variations in the board of directors' decisions regarding corporate responsibilities based on the gender composition of its members (Byron & Post, 2016). The company's directors, while not directly involved in the compilation of financial reports, establish the overarching tone that influences management decisions (Gounopoulos & Pham, 2018).

The upper echelon theory suggests that board decision-making related to corporate policy is influenced by the characteristics of its members. Evidence indicates that women and men contribute distinct knowledge, experience, and values to the boardroom, resulting in

variations in board decisions concerning corporate responsibilities based on the gender composition of the board of directors (Byron & Post, 2016). Behavior significantly influences each stage of an executive's career, with a competitive environment often facilitating their advancement (Guenzel & Malmendier, 2020). The upper echelon theory posits that the attributes of top management teams can impact a company's strategic decisions. However, research by Sitkin and Pablo (1992) indicates that risk tendencies overshadow the characteristics of actual situations perceived as determinants of risky behavior, with risk propensity exhibiting gender differentiation. High managerial skills positively influence the mitigation of overinvestment and underinvestment, indicating that investment efficiency tends to remain consistent across different levels of board monitoring (Gan, 2019).

The presence of women in senior leadership positions is associated with increased involvement in social and environmental initiatives. Participation positively influences environmental and social outcomes, enhances the quality, transparency, and sustainability of reporting, and consequently improves financial performance and value (Bannò et al., 2021). Female directors on boards affect strategic decision-making, thereby influencing investment efficiency. The upper echelon theory supports this premise, suggesting that the presence of women in boardrooms influences investment efficiency across different stages of a company's life cycle. This study analyzes the representation of female members on the board of directors in each sampled company. Female directors demonstrate increased accountability, characterized by formal constraints on the authority and orientation of board members. Boards with three or more female directors tend to facilitate more effective communication with stakeholders. Investment-related board decisions encompass the identification of investment projects, resource allocation across segments, determination of optimal cash reserves, and strategies for external growth (Guenzel & Malmendier, 2020).

The increased diversity of the board of commissioners enhances monitoring functions, mitigates agency problems, and facilitates access to resource capabilities, thereby improving the company's investment efficiency (Ullah, Zeb, et al., 2020). Female leadership significantly enhances company performance (Bjuggren et al., 2018). Firms with female representation on the board of commissioners demonstrate a reduced tendency to engage in overinvestment (Shin et al., 2020). One perspective posits that the effectiveness of the board of commissioners does not influence the company's investment efficiency (Saputra & Wardhani, 2017); additionally, female board members exert a more significant positive impact on company performance compared to female independent board members, indicating that the executive effect surpasses the monitoring effect (Liu et al., 2014). The presence of female commissioners in a monitoring capacity is perceived to mitigate the company's deficiencies and excessive investments. The initial hypothesis is established:

H1 : The presence of female in the board of commissioners has a positive effect on investment Efficiency.

According to Arayssi et al. (2016), having women on the board of directors influences the company's investment and risk. The presence of female top management significantly reduces the likelihood of overinvestment behavior within a company; a higher proportion of female senior executives correlates with a decreased occurrence of excessive investment behavior (Fan & Phromphitakkul, 2021). Research indicates that overconfident managers tend to overestimate project returns and perceive external funding as excessively costly,

leading to overinvestment when internal funds are plentiful (Malmendier & Tate, 2005). An increased ratio of female directors to board members enhances investment efficiency. Female directors significantly influence investment efficiency, supporting the notion of prudential mediation in the relationship between the proportion of female directors and a company's investment efficiency (Saleh & Sun, 2022). Female board members exhibit a heightened focus on mitigating investment shortcomings during the decision-making process (Ullah, Majeed, et al., 2020). Companies that include female board members demonstrate superior performance compared to those with male board members (Lückerath-Rovers, 2013). Conversely, another study indicated that while a greater proportion of female board members correlates with investment efficiency, it is associated with a lower level (Jin et al., 2014). The board of directors is primarily responsible for the company's investment decisions. By incorporating aspects of information processing and problem-solving, a diverse board facilitates participation from members of various social classes in the decision-making process, thereby ensuring a range of perspectives are considered prior to making decisions. The Board of Directors is anticipated to mitigate changes in investment or ineffective decision-making, particularly regarding adjustments in investment levels that could adversely affect the company's future performance expectations. The inclusion of females on the board of directors is anticipated to enhance company management and oversight of managerial discipline, thereby mitigating agency problems and curbing excessive investment by the company. The second hypothesis is formulated as follows:

H2 : The presence of female in the board of directors has a positive effect on investment efficiency.

The presence of female commissioners enhances the effectiveness of board oversight (Adams & Ferreira, 2009). Females are recognized for their capacity to mitigate income volatility, enhance oversight of managerial activities, and demonstrate diligence in their work. The inclusion of women on the board of directors positively impacts the company's risk and investment strategies (Arayssi et al., 2016). Firms that include female members on their boards of commissioners exhibit a reduced tendency to engage in overinvestment (Shin et al., 2020). In the early stage, companies tend to engage in comparatively larger and growth-oriented investments, whereas in the mature stage, their investments are predominantly focused on maintaining existing assets (Richardson, 2006). Investment efficiency is a critical determinant of a company's operational effectiveness and financial viability during the growth phase of its lifecycle. The company's investment efficiency is suboptimal. The board of directors must adopt a more proactive approach and enhance decision-making to improve this efficiency, particularly during the introduction and decline stages. During the company's life cycle, investment efficiency peaks at the mature stage. Subsequently, in the phase following maturity and preceding decline, a decrease in investment efficiency occurs. At this juncture, female directors may exhibit enhanced performance and greater caution, potentially leading to an increase in investment efficiency (Ahmed et al., 2021).

The efficiency of a company's investments significantly influences its operational effectiveness and financial sustainability. During the growth phase, characterized by lower investment efficiency, the board of directors must adopt a proactive approach and enhance decision-making to improve investment efficiency. Mature companies exhibit superior rankings in governance activities and demonstrate greater accountability relative to other stages of the life cycle (Hussain et al., 2020). The company's efficiency is low during the early

stages of its life cycle, peaking at the mature stage. Subsequently, in the stagnant phase, investment efficiency declines. During this period, female board members may perform more effectively and with greater caution, potentially leading to an increase in investment efficiency (Ahmed et al., 2021). The findings support the notion that the stages of a company's life cycle are crucial to its ongoing operations, indicating that life cycle management should be incorporated into the investment planning process. As a result, it is anticipated that having women on the board of commissioners will both prevent underinvestment in adult companies, as their investments are more likely to be focused on maintaining current assets, and curb overinvestment behavior in the early stages of the life cycle, when companies tend to make more costly investments. The third hypothesis is articulated as follows:

H3 : The company's life cycle strengthens the influence of female's presence on the board of commissioners on investment efficiency.

The inclusion of women on the board of directors positively impacts the company's risk management and investment strategies (Arayssi et al., 2016). Firms that include female board members demonstrate a reduced likelihood of overinvestment (Shin et al., 2020). Female board members enhance investment efficiency by fulfilling monitoring roles, disciplining managers, mitigating agency problems, and improving resource allocation. Their presence on the board also significantly reduces issues related to overinvestment (Mirza et al., 2019). Early-stage companies frequently encounter numerous investment opportunities (Khuong et al., 2022), indicating the presence of various projects with positive present value or initiatives capable of generating long-term profits. At this stage, the board of directors is anticipated to effectively prevent modifications in investment or suboptimal decision-making, particularly regarding reductions or investments in period costs, which can adversely affect the company's future performance expectations, especially in growth-stage companies. In the early stages, companies tend to engage in larger, growth-oriented investments, whereas in the mature stage, their investments are primarily focused on maintaining existing assets (Richardson, 2006).

Investment efficiency is a critical determinant of operational effectiveness and financial sustainability for companies in the growth phase. The company's investment efficiency is suboptimal, necessitating a more proactive approach from the board of directors to enhance decision-making and improve overall investment efficiency. The company's efficiency is diminished during the introduction and decline stages. The efficiency of company investments peaks during the mature stage of the company's life cycle. Subsequently, in the stagnant phase, which follows maturity but precedes decline, a decline in investment efficiency occurs. During this period, female directors may exhibit enhanced performance and caution, potentially leading to improved investment efficiency (Ahmed et al., 2021). The presence of females on the board of directors is anticipated to mitigate overinvestment behavior during the early stages of the corporate life cycle, as companies typically engage in larger investments. Additionally, it is expected to address underinvestment in mature companies, as their investments are more likely to focus on the maintenance of existing assets. The subsequent hypothesis is proposed:

H4 : The company's life cycle strengthens the influence of female's presence on the board of directors on Investment efficiency.



## Methodology

This research utilizes data from 722 non-financial companies listed on the Indonesia Stock Exchange between 2016 and 2021, resulting in 2,694 observations. The independent variables in this study were Female on the Board of Commissioners (FBC) and Female on the Board of Directors (FBD). This research classifies gender using individuals' first names. If this approach yields inconclusive results, we then utilize internet-based sources for further classification based on the first name of each individual. In cases where gender identification from the list of names on the website remains inconclusive, we utilize LinkedIn and Google for further research to determine whether a specific name is associated with males or females (Faccio et al., 2016). The representation of females on the board of commissioners and directors is quantified using a binary variable, assigned a value of 1 if the company includes female directors and 0 if it does not.

Chen et al. (2011) conducted a study to evaluate investment efficiency by measuring the divergence from anticipated investment, utilizing a model that predicts investment based on growth potential. Both underinvestment, defined as a negative deviation from anticipated investment, and overinvestment, characterized by a positive deviation from anticipated investment, are considered inefficient investments. Biddle et al. (2009) estimate a company-specific investment model predicated on growth prospects, as signified by sales growth, and utilize residue as a proxy for departures from anticipated investment. This study utilizes the investment efficiency measurement as delineated in the research conducted by Biddle et al. (2009)

$$Invest_{i,t} = \beta_0 + \beta_1 SalesGrowth_{i,t-1} + \varepsilon_{i,t}$$

The net increase in tangible and intangible fixed assets is adjusted by the lagged total asset (Gomariz & Ballesta, 2014). Information :  $Investasi_{i,t}$   
The rate of change in the company's sales from  $t-2$  to  $t-1$ .  $SalesGrowth_{i,t-1} =$

The residual value of the regression model reflects the divergence from the expected investment level by the company. The residual value will act as an indicator of investment inefficiency. A positive residual value indicates that the company's investment surpasses the expected level derived from sales growth, suggesting overinvestment by the company. A negative residual value indicates that the company's actual investment is less than the expected investment corresponding to sales growth, leading to underinvestment. The dependent variable in this study will be the negative absolute value of the residuals. The maximum value indicates elevated efficiency (InvEff). The test variable  $y_1$  (EI) represents a residual absolute value that indicates inefficient investment; therefore, a higher residual value is associated with a greater level of inefficiency.

The moderating variable is the Firm's Life Cycle (FLC). Research by Al-Hadi et al. (2016), DeAngelo et al. (2006), Hasan et al. (2015), and Owen & Yawson (2010) supports the assessment of an enterprise's life cycle via retained earnings. These proxies evaluate the extent of a company's self-financing in comparison to its dependence on external capital. The use of retained earnings as a percentage of total assets (RE/TA) indicates the company's life

cycle stage. A high retained earnings to total assets (RE/TA) ratio signifies a mature company, while a low RE/TA ratio indicates a younger company in a growth phase. The control variables consist of Company Size, Leverage, ROA, AGE, and ownership type. Company size and leverage act as control variables, as they may affect the analysis outcomes (Arifin & Kusuma, 2011). The size of a company is measured by the natural logarithm of total assets (Setiawan et al., 2019).

$$\text{Size} = \ln(\text{Total Asset})$$

Leverage is a ratio that assesses the capacity of long-term and short-term debt to fund a company's assets (Fahrani et al., 2018). Leverage is defined as the ratio of total debt to total assets (Alhadab & Nguyen, 2016).

$$\text{Lev} = \frac{\text{Total debt divided}}{\text{Total Asset}}$$

The percentage of companies that are privately held and SOEs (state-owned enterprises) is a good indicator of the kind of company ownership. The ownership type is measured using dummy variables, where state-owned companies are assigned a code of 1 and non-state-owned enterprises (non-SOEs) are assigned a code of 0 (Trinugroho et al., 2020). The age of the company (AGE) is defined as the number of years since its listing on the IDX. Profitability of a company is assessed through Return on Assets (ROA).

$$\text{Profitability (ROA)} = \frac{\text{Net Income}}{\text{Total Asset}}$$

#### *Empirical Model*

The hypothesis is tested using a multiple linear regression model.

$$\begin{aligned} IE_{it} = & \alpha_0 + \beta_1 FBC_{it} + \beta_2 FBD_{it} + \beta_3 FLC_{it} + (\beta_5 FBC_{it} * FLC_{it}) \\ & + (\beta_6 FBD_{it} * FLC_{it}) + \beta_7 Size_{it} + \beta_8 Lev_{it} + \beta_8 ROA_{it} + \beta_8 AGE_{it} \\ & + \beta_9 SOE_{it} \dots + \epsilon_{it} \end{aligned}$$

Discretionary Accruals (DA<sub>i,t</sub>), Female on Board of Commissioners (FBC<sub>i,t</sub>), Female on Board of Directors (FBD<sub>i,t</sub>), Firm Life Cycle (FLC<sub>i,t</sub>), firm size (Size<sub>i,t</sub>), leverage (Lev<sub>i,t</sub>), Return on Assets (ROA<sub>i,t</sub>), age of corporate companies (AGE<sub>i,t</sub>), and state-owned enterprises (SOE<sub>i,t</sub>).

#### *Analysis*

Table 1 presents the characteristics of the sample, derived from 2,694 firm-year observations. We applied winsorization to the variables at the 1% level in both tails to reduce potential bias in inference due to outliers (Arifin et al., 2020).

Tabel 1

*Descriptive Statistics*

Variable	Obs	Mean	Std. dev.	Min	Max
YABSIE new	2.694	.123	.13	.001	.672
FBC	2.694	.344	.475	0	1
FBD	2.694	.439	.496	0	1
FLCRETA	2.694	.084	.366	-1.996	.733
SIZE	2.694	20.09	3.467	11.044	25.223
LEV	2.694	.443	.219	.02	.948
ROA	.2.694	.023	.086	-.297	.343
SOE	2.694	.038	.191	0	1
AGE	2.694	8.041	1.288	3.584	9.55

Table 2 displays a correlation matrix among all variables. The analysis reveals that FBC is negatively correlated with EI. Likewise, FLCRETA exhibits a negative correlation with EI, suggesting that firms with female representation on the board of commissioners and greater maturity are linked to reduced earnings management. As anticipated, CSIZE shows a positive correlation with FLCRETA. The correlation matrix indicates that our econometric model is not affected by multicollinearity, as all variable values remain below 0.75.

Tabel 2

*Pairwise correlations*

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) IE	1.000								
(2) FBC	-0.032*	1.000							
(3) FBD	-0.001	0.083**	1.000						
		*							
(4) FLCRETA	-	0.054**	0.011	1.000					
	0.160**	*							
	*								
(5) SIZE	-	0.108**	0.068**	0.188**	1.000				
	0.068**	*	*	*					
	*								
(6) LEV	0.026	0.012	-0.031*	-	-0.009	1.000			
				0.241**					
				*					
(7) ROA	-	0.045**	0.017	0.231**	0.101**	-	1.00		
	0.143**			*	*	0.264**	0		
	*					*			
(8) SOE	0.011	-0.017	-	0.048**	0.139**	0.135**	0.01	1.000	
			0.054**	*	*	*	2		
			*						
(9) AGE	-	-0.010	0.020	0.047**	0.045**	0.126**	-	0.045*	1.00
	0.192**					*	0.00	*	0
	*						4		

To empirically test our hypothesis, we initially employed OLS regression. The results of the test are presented below.

Tabel 3

*Dependent EI - OLS regression*

Variabel	Dependent DA							
	Model 1		Model 2		Model 3		Model 4	
	Coef.	Prob.	Coef.	Prob.	Coef.	Prob.	Coef.	Prob.
FBC	(-0.778)	-0.005	(-0.936)	-0.005			(-1.221)	-0.007
FBD	(0.104)	0.001	(0.539)	0.003			(0.550)	0.003
FLCRETA	(-3.902)	-	(-4.410)	-	(-4.471)	-		
		0.051**		0.041**		0.041**		
		*		*		*		
X1Z	(-0.431)	-0.007						
X2Z	(1.685)	0.028*						
SIZE	(0.591)	0.001	(0.688)	0.001	(0.690)	0.001	(-0.033)	-0.000
LEV	(-1.376)	-0.019	(-1.323)	-0.018	(-1.382)	-0.019	(-0.177)	-0.002
ROA	(-3.875)	-	(-3.909)	-	(-3.932)	-	(-4.526)	-
		0.193**		0.195**		0.196**		0.220**
		*		*		*		*
SOE	(0.337)	0.004	(0.200)	0.002	(0.202)	0.002	(-0.130)	-0.001
AGE	(-7.324)	-	(-7.434)	-	(-7.405)	-	(-7.646)	-
		0.018**		0.018**		0.018**		0.019**
		*		*		*		*
_cons	(12.298	0.321**	(12.259	0.319**	(12.193	0.319**	(12.237	0.325**
	)	*	)	*	)	*	)	*
Observation	2694		2694		2694		2694	
s								
R-squared	0.123		0.121		0.121		0.110	
Adj R <sup>2</sup>	0.115		0.114		0.114		0.103	
F-stat	9.782		10.203		10.811		9.254	
Year Fixed								
Efect	Yes		Yes		Yes		Yes	
Industry								
Fixed Efect	Yes		Yes		Yes		Yes	

**Description:** IE= Investment Efficiency ; FBC= Presence of Female in the Board of Commissioners; FBD = Presence of Female in the Board of Directors; FLC RETA= Proxy Life Cycle Total Retained Assets Retained Earnings; X1Z= FBC and FLC Moderation; X2Z= FBD and FLC Moderation; CSIZE= Company Size; CLEV= Leverage; CSOE= Ownership Type. T-values are in parentheses, \*\*\* p<.01, \*\* p<.05, \* p<.1

To empirically test our hypothesis, we initially employed OLS regression and GLS random effects. We employ OLS Fixed effects due to the stability of our primary independent variables (FBC and FBD) over time, making GLS random effects a more efficient estimation method compared to pooled OLS estimation. To obtain our baseline result using OLS regression, it is necessary to fulfill the classical assumptions. The initial assumption regarding multicollinearity, as indicated by the correlation matrix, demonstrates that our econometric model is largely free from multicollinearity concerns. The second assumption pertains to normality. The results of the normality test, conducted using the Shapiro-Francia Test, are presented below.

Tabel 4

*Shapiro-Francia Test*

Variable	Obs	W'	V'	z	Prob>z
Model 1	2,694	0.864	224.028	13.198	0.000
Model 2	2,694	0.865	223.192	13.189	0.000
Model 3	2,694	0.864	224.307	13.201	0.000
Model 4	2,694	0.857	236.493	13.330	0.000

The results of the normality test presented in Table 4 indicate that the OLS equation model faces challenges concerning the assumption of normality. The sample size in this study is substantial, totaling 2694, which mitigates concerns related to the assumption of normality, as supported by the Central Limit Theorem (Gujarati, 2003). The third assumption pertains to heteroskedasticity. The Breusch-Pagan test was employed to assess the assumption of heteroskedasticity in the regression equation. The results of the Breusch-Pagan test are presented below.

Tabel 5

*Breusch and Pagan Lagrangian Multiplier Test*

Variabel	Obs	Chi2	Prob> Chi2
Model 1	2,694	844.62	0.000
Model 2	2,694	785.26	0.000
Model 3	2,694	759.75	0.000
Model 4	2,694	660.26	0.000

The Breusch-Pagan test results indicate that the regression equation model in this study faces challenges concerning the assumption of heteroskedasticity. The Chi-square probability values for all models are below 0.05, indicating significance. To address the heteroskedasticity assumption in the OLS regression equation of this study, we employed GLS random effects (Gujarati, 2003).

**Conclusion**

This study examines the effect of female participation on boards of commissioners and directors on investment efficiency. The research findings demonstrate that the inclusion of females on the board of commissioners and directors does not substantially affect the company's investment efficiency. This indicates that a rise in female representation on these boards does not result in improved efficiency. The company's investment might be ascribed to the Board of Commissioners, who do not participate actively in the company's activities. The Board of Commissioners is tasked with supervising the board of directors, whereas the board of directors is involved in the company's direct management operations. An increased representation of women on the board of directors is associated with a reduced impact on the company's execution and governance, hence improving the effectiveness of the company's investments, despite the board's complete and formal accountability for management.

The life cycle of a firm can independently affect the efficacy of its investments, suggesting that investment efficiency fluctuates during various stages of the life cycle. The life cycle of a corporation is marked by fluctuating growth patterns and investment efficiency,

typically elevated in initial phases and diminished in later stages of maturity and stagnation. The interplay between a company's life cycle and the representation of women on the board of commissioners and directors favorably and considerably affects investment efficiency. This suggests that the company's life cycle amplifies the effect of female representation on investment efficiency. The position of women on the board of commissioners, encompassing supervisory functions, differs during various stages of the company's life cycle. Likewise, the representation of women on the board of directors, tasked with managerial responsibilities, is affected by the various stages of the company's life cycle. Investment efficiency is greater in younger or growth-phase organizations and diminished in older, mature companies.

### **Future Research**

This research contains significant shortcomings that future studies are expected to rectify, especially concerning the evaluation of female representation on the board of commissioners and the board of directors, as well as the analysis of the firm's life cycle utilizing alternative approaches. This study seeks to provide an overview, direction, and opportunities for future research on investment efficiency. The limitations recognized in this study offer avenues for further research by integrating supplementary measuring proxies for investment efficiency. Researchers may include research samples from stock exchanges outside Indonesia to evaluate the influence of female presence on corporate boards. It can also provide supplementary measurement alternatives for the company's lifetime.

The findings of this study may enhance the presence of women on corporate boards and in governmental positions in Indonesia. The findings support not only fulfilling female representation quotas but also improving opportunities and confidence in women to assume director, commissioner, and other strategic roles. This seeks to guarantee equitable chances for both genders. It is essential to evaluate the recommendations for regulators for the formulation of regulations that promote opportunities for women in executive management positions inside corporations. This research identifies current vulnerabilities that corporate executives may leverage for personal benefit..

## References

- Abbott, L. J., Parker, S., & Presley, T. J. (2012). Female Board Presence and the Likelihood of Financial Restatement. *Accounting Horizons*, 26(4), 607–629. <https://doi.org/10.2308/acch-50249>
- Adams, R. B., & Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics*, 94(2), 291–309. <https://doi.org/10.1016/j.jfineco.2008.10.007>
- Ahmed, B., Akbar, M., Sabahat, T., Ali, S., Hussain, A., Akbar, A., & Hongming, X. (2021). *Does Firm Life Cycle Impact Corporate Investment Efficiency ?* 1–13.
- Al-Hadi, A., Hasan, M. M., & Habib, A. (2016). Risk Committee, Firm Life Cycle, and Market Risk Disclosures. *Corporate Governance: An International Review*, 24(2), 145–170. <https://doi.org/10.1111/corg.12115>
- Alhadab, M., & Nguyen, T. (2016). Corporate diversification and accrual and real earnings management : a non-linear relationship. *Review of Accounting and Finance*.
- Anthony, J. H., & Ramesh, K. (1992). Association between accounting performance measures and stock prices. A test of the life cycle hypothesis. *Journal of Accounting and Economics*, 15(2–3), 203–227. [https://doi.org/10.1016/0165-4101\(92\)90018-W](https://doi.org/10.1016/0165-4101(92)90018-W)
- Arayssi, M., Dah, M., & Jizi, M. (2016). Women on boards, sustainability reporting and firm performance. *Sustainability Accounting, Management and Policy Journal*, 7(3), 376–401. <https://doi.org/10.1108/SAMPJ-07-2015-0055>
- Arifin, T., Hasan, I., & Kabir, R. (2020). Transactional and relational approaches to political connections and the cost of debt. *Journal of Corporate Finance*, 65, 101768. <https://doi.org/10.1016/j.jcorpfin.2020.101768>
- Arifin, T., & Kusuma, I. W. (2011). Comparing Earnings Management in Germany and the USA. *International Journal of Management and Business Research*, 1(2), 59–68.
- Bannò, M., Filippi, E., & Trento, S. (2021). Women in top echelon positions and their effects on sustainability: a review, synthesis and future research agenda. In *Journal of Management and Governance* (Vol. 27, Issue 1). Springer US. <https://doi.org/10.1007/s10997-021-09604-7>
- Bhutta, U. S., AlHares, A., Shahab, Y., & Tariq, A. (2022). The jinx of real earnings management: evidence from inefficient investments and debt maturity structure in Pakistan. *Journal of Accounting in Emerging Economies*, 12(2), 405–432. <https://doi.org/10.1108/JAEE-03-2021-0079>
- Biddle, G. C., Hilary, G., & Verdi, R. S. (2009). How does financial reporting quality relate to investment efficiency ? \$. *Journal of Accounting and Economics*, 48(2–3), 112–131. <https://doi.org/10.1016/j.jacceco.2009.09.001>
- Birindelli, G., Chiappini, H., & Savioli, M. (2020). When do women on board of directors reduce bank risk? *Corporate Governance (Bingley)*, 20(7), 1307–1327. <https://doi.org/10.1108/CG-03-2020-0089>
- Bixia, X. (2007). Life cycle effect on the value relevance of common risk factors. *Review of Accounting and Finance*, 6(2), 162–175. <https://doi.org/10.1108/14757700710750838>
- Bjuggren, P. O., Nordström, L., & Palmberg, J. (2018). Are female leaders more efficient in family firms than in non-family firms? *Corporate Governance (Bingley)*, 18(2), 185–205. <https://doi.org/10.1108/CG-01-2017-0017>
- Byron, K., & Post, C. (2016). Women on Boards of Directors and Corporate Social Performance: A Meta-Analysis. *Corporate Governance: An International Review*, 24(4), 428–442. <https://doi.org/10.1111/corg.12165>

- Bzeouich, B., & Dammak, N. (2019). *Earnings management and corporate investment efficiency: does the board of directors matter?* <https://doi.org/10.1108/JFRA-06-2018-0044>
- Carter, D. A., Simkins, B. J., & Simpson, W. G. (2003). Corporate governance, board diversity, and firm value. *Financial Review*, 38(1), 33–53. <https://doi.org/10.1111/1540-6288.00034>
- Chen, F., Hope, O. K., Li, Q., & Wang, X. (2011). Financial reporting quality and investment efficiency of private firms in emerging markets. *Accounting Review*, 86(4), 1255–1288. <https://doi.org/10.2308/accr-10040>
- DeAngelo, H., DeAngelo, L., & Stulz, R. M. (2006). Dividend policy and the earned/contributed capital mix: a test of the life-cycle theory. *Journal of Financial Economics*, 81(2), 227–254. <https://doi.org/10.1016/j.jfineco.2005.07.005>
- Dickinson, V. (2011). Cash flow patterns as a proxy for firm life cycle. *Accounting Review*, 86(6), 1969–1994. <https://doi.org/10.2308/accr-10130>
- Faccio, M., Marchica, M. T., & Mura, R. (2016). CEO gender, corporate risk-taking, and the efficiency of capital allocation. *Journal of Corporate Finance*, 39, 193–209. <https://doi.org/10.1016/j.jcorpfin.2016.02.008>
- Fahrani, M., Nurlaela, S., & Chomsatu, Y. (2018). Pengaruh Kepemilikan Terkonsentrasi, Ukuran Perusahaan, Leverage, Capital Intensity Dan Inventory Intensity Terhadap Agresivitas Pajak. *Jurnal Ekonomi Paradigma*, 19(2), 52–60.
- Fan, M., & Phromphitakkul, W. (2021). Impact of Female Executive on Investment Efficiency of Listed Companies in Shanghai Stock Market: A Case of Over-Investment. *Modern Economy*, 12(06), 1119–1136. <https://doi.org/10.4236/me.2021.126059>
- Franczak, J., & Margolis, J. (2022). Women and great places to work: Gender diversity in leadership and how to get there. *Organizational Dynamics*, 100913. <https://doi.org/10.1016/j.orgdyn.2022.100913>
- Gan, H. (2019). Does CEO managerial ability matter? Evidence from corporate investment efficiency. *Review of Quantitative Finance and Accounting*, 52(4), 1085–1118. <https://doi.org/10.1007/s11156-018-0737-2>
- Gomariz, M. F. C., & Ballesta, J. P. S. (2014). Financial reporting quality, debt maturity and investment efficiency. *Journal of Banking and Finance*, 40(1), 494–506. <https://doi.org/10.1016/j.jbankfin.2013.07.013>
- Gounopoulos, D., & Pham, H. (2018). Financial Expert CEOs and Earnings Management Around Initial Public Offerings. *International Journal of Accounting*, 53(2), 102–117. <https://doi.org/10.1016/j.intacc.2018.04.002>
- Grabowski, H. G., & Mueller, D. C. (1975). Life-Cycle Effects on Corporate Returns on Retentions. *The Review of Economics and Statistics*, 57(4), 400. <https://doi.org/10.2307/1935899>
- Granlund, M., & Taipaleenmäki, J. (2005). Management control and controllership in new economy firms - A life cycle perspective. *Management Accounting Research*, 16(1), 21–57. <https://doi.org/10.1016/j.mar.2004.09.003>
- Guenzel, M., & Malmendier, U. (2020). Behavioral Corporate Finance: The Life Cycle Of a CEO Career. *National Bureau Of Economic Research*, 2507(1), 1–9. <https://doi.org/10.1016/j.solener.2019.02.027%0Ahttps://www.golder.com/insights/block-caving-a-viable-alternative/%0A???>
- Gujarati, D. N. (2003). *Basic Econometric* (L. Sutton (ed.); FOURTH EDI). Gary Burke.
- Hambrick, D. C. (2007). Upper echelons theory: An update. *Academy of Management Review*,



- 32(2), 334–343. <https://doi.org/10.5465/AMR.2007.24345254>
- Hambrick, D. C., & Mason, P. a. (1984). Upper Echelons : of Reflection The Its Organization as reflection of its Top managers. *Management*, 9(2), 193–206. <http://www.jstor.org/stable/258434>
- Hasan, M. M., Hossain, M., Cheung, A. W. K., & Habib, A. (2015). Corporate life cycle and cost of equity capital. *Journal of Contemporary Accounting and Economics*, 11(1), 46–60. <https://doi.org/10.1016/j.jcae.2014.12.002>
- Hodgson, T. M., Breban, S., Ford, C. L., Streatfield, M. P., & Urwin, R. . (2000). The Concept Of Investment Efficiency and Its Application to Investment Management Structures. *British Actuarial Journal*, III(6), 451–545.
- Hu, J., Jiang, H., & Holmes, M. (2019). Government subsidies and corporate investment efficiency: Evidence from China. *Emerging Markets Review*, 41(May), 100658. <https://doi.org/10.1016/j.ememar.2019.100658>
- Huse, M., & Solberg, A. G. (2006). Gender-related boardroom dynamics: How Scandinavian women make and can make contributions on corporate boards. *Women in Management Review*, 21(2), 113–130. <https://doi.org/10.1108/09649420610650693>
- Hussain, A., Akbar, M., Khan, M. K., & Akbar, A. (2020). When Does Earnings Management Matter ? Evidence across the Corporate Life Cycle for Non-Financial Chinese Listed Companies. *Journal of Risk and Financial Management*.
- IBCWE, I. B. C. for W. E. (2022). Sensus Perempuan dalam Tim Kepemimpinan Eksekutif di Perusahaan IDX200. *Indonesia Stock Exchange*.
- Ikatan Bankir Indonesia, I. (2017). *Wealth Management: Produk Dan Analisis*. PT Gramedia Pustaka Utama.
- Jaffar, R., Mardinah, D., & Ahmad, A. (2014). Corporate Governance and Voluntary Disclosure Practices : Evidence from a Two Tier Board Systems in Indonesia. *Jurnal Pengurusan, (Faculty of Economics and Management, Universiti Kebangsaan Malaysia)*, 39(2013), 83–92.
- Jin, Z., Song, S., & Yang, X. (2014). The role of female directors in corporate investment in China. *China Journal of Accounting Studies*, 2(4), 323–344. <https://doi.org/10.1080/21697213.2014.984265>
- Jungmann, C. (2006). The Effectiveness of Corporate Governance in One-Tier and Two-Tier Board Systems – Evidence from the UK and Germany –. *European Company and Financial Law Review*, 3(4), 426–474. <https://doi.org/10.1515/ecfr.2006.019>
- Kazanjian, R. K. (1988). Relation of Dominant Problems to Stages of Growth in Technology-Based New Ventures. *Academy of Management Journal*, 31(2), 257–279. <https://doi.org/10.5465/256548>
- Khuong, N. V., Anh, L. H. T., & Van, N. T. H. (2022). Firm life cycle and earnings management: The moderating role of state ownership. *Cogent Economics and Finance*, 10(1). <https://doi.org/10.1080/23322039.2022.2085260>
- Krishnan, G. V., Myllymäki, E. R., & Nagar, N. (2021). Does financial reporting quality vary across firm life cycle? *Journal of Business Finance and Accounting*, 48(5–6), 954–987. <https://doi.org/10.1111/jbfa.12508>
- Lara, J. M. G., Penalva, J., & Scapin, M. (2022). Financial reporting quality effects of imposing (gender) quotas on boards of directors. *Journal of Accounting and Public Policy*, 41(2). <https://doi.org/10.1016/j.jaccpubpol.2021.106921>
- Liu, Y., Wei, Z., & Xie, F. (2014). Do women directors improve firm performance in China? *Journal of Corporate Finance*, 28, 169–184.

- <https://doi.org/10.1016/j.jcorpfin.2013.11.016>
- Lückerath-Rovers, M. (2013). Women on boards and firm performance. *Journal of Management and Governance*, 17(2), 491–509. <https://doi.org/10.1007/s10997-011-9186-1>
- Malmendier, U., & Tate, G. (2005). CEO Overconfidence and Corporate Investment. *The Journal Of Finance*, VOL 60(Issue 6). [https://doi.org/10.1007/978-3-319-67669-2\\_4](https://doi.org/10.1007/978-3-319-67669-2_4)
- Martin, L. M., Smith, I. W., Scott, J. M., & Roper, S. (2008). Boards of directors and Gender Diversity in UK Companies. *TeesRep: Teesside University's Research Repository*, 23, 194–208.
- Mateos, R., & Ricardo, D. C. (2012). *Behavioral Corporate Finance: The Life Cycle of a CEO Career*. August 2015. <https://doi.org/10.1007/s10551-011-1112-6>
- Miller, D., & Friesen, P. H. (1980). A longitudinal study of the corporate life cycle. *Management Science*, 23(4), 1161–1183.
- Mirza, S. S., Majeed, M. A., & Ahsan, T. (2019). Board gender diversity , competitive pressure and investment efficiency in Chinese private firms. *Eurasian Business Review*, 0123456789. <https://doi.org/10.1007/s40821-019-00138-5>
- Moshtagh, F., Reza, M., & Vadiiei, M. H. (2014). An Investigation of the Effect of Firm's Life Cycle Stages on Earning Quality: Evidence from Iran. *Asian Journal of Research in Banking and Finance*, 4(8), 109–122. <http://www.ijcrb.com/archives.htm>
- Mueller, D. C. (1972). A Life Cycle Theory of the Firm. *The Journal of Industrial Economics*, 20(3), 199. <https://doi.org/10.2307/2098055>
- Nor, N. H. M., Nawawi, A., & Salin, A. S. A. P. (2017). The influence of board independence, board size and managerial ownership on firm investment efficiency. *Pertanika Journal of Social Sciences and Humanities*, 25(3), 1039–1058.
- Nugraha, A. P. (2022). Director's Expertise, Executive's Expertise, and Firm Leverage In Manufacturing Industry: Evidence From Twi-Tier Board System In Indonesia. *Journal of Applied Management (JAM)*, 20(3), 738–751.
- Owen, S., & Yawson, A. (2010). Corporate life cycle and M&A activity. *Journal of Banking and Finance*, 34(2), 427–440. <https://doi.org/10.1016/j.jbankfin.2009.08.003>
- Paoloni, P., & Demartini, P. (2016). Women in management: perspectives on a decade of research (2005–2015). *Palgrave Communications*, 2, 1–7. <https://doi.org/10.1057/palcomms.2016.94>
- Quinn, R. E., & Cameron, K. (1983). *Organizational Life Cycles and Shifting Criteria of Effectiveness : Some Preliminary Evidence*. August 2014.
- Reutzell, C. R., & Belsito, C. A. (2015). Female directors and IPO underpricing in the US. *International Journal of Gender and Entrepreneurship*, 7(1), 27–44. <https://doi.org/10.1108/IJGE-09-2013-0059>
- Richardson, S. (2006). Over-investment of free cash flow. *Review of Accounting Studies*, 11(2–3), 159–189. <https://doi.org/10.1007/s11142-006-9012-1>
- Saleh, N. M., & Sun, X. W. (2022). *The influence of female directors proportion on investment efficiency : the mediating role of caution*. 37(3), 289–304. <https://doi.org/10.1108/GM-09-2020-0295>
- Saputra, A. A. D., & Wardhani, R. (2017). *Jurnal Akuntansi & Auditing Indonesia Pengaruh efektivitas dewan komisaris , komite audit dan kepemilikan institusional terhadap efisiensi investasi*. 21(1).
- Setiawan, D., Aryani, Y. A., Yuniarti, S., & Brahmana, R. K. (2019). *Does Ownership Structure Affect Dividend Decisions? Evidence from Indonesia's Banking Industry*. 24(3).

- Shin, Y. Z., Chang, J. Y., Jeon, K., & Kim, H. (2020). Female directors on the board and investment efficiency: evidence from Korea. In *Asian Business and Management* (Vol. 19, Issue 4). Palgrave Macmillan UK. <https://doi.org/10.1057/s41291-019-00066-2>
- Sitkin, S. B., & Pablo, A. L. (1992). Reconceptualizing The Determinants Of Risk Behavior. *The Academy of Management Review*, 17(1), 9–38.
- Terjesen, S., Sealy, R., & Singh, V. (2009). Women directors on corporate boards: A review and research agenda. *Corporate Governance: An International Review*, 17(3), 320–337. <https://doi.org/10.1111/j.1467-8683.2009.00742.x>
- Thoranna Jonsdottir, et al. (2009). Gender in Management : An International Journal Article information : *Gender in Management: An International Journal*.
- Trinugroho, I., Pamungkas, P., & Dobby, M. (2020). *Deposit structure , market discipline , and ownership type : Evidence from Indonesia*. 44(May 2019). <https://doi.org/10.1016/j.ecosys.2020.100758>
- Ullah, I., Majeed, M. A., Fang, H.-X., & Khan, M. A. (2020). *Female CEOs and investment efficiency : evidence from an emerging economy*. 32(4), 443–474. <https://doi.org/10.1108/PAR-08-2019-0099>
- Ullah, I., Zeb, A., Khan, M. A., & Xiao, W. (2020). *Board diversity and investment efficiency : evidence from China*. 20(6), 1105–1134. <https://doi.org/10.1108/CG-01-2020-0001>