Does CEO Managerial Ability Impacts on Corporate Investment Decisions? The Case of Economic Uncertainty in Political Election Periods

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ABSTRACT

Manuscript type: Research paper

Research aims: The objective of this study is to investigate whether CEO managerial ability has an effect on corporate investment decisions, particularly during the presidential election period as moderating role on this nexus.

Design/Methodology/Approach: This research uses a quantitative approach to obtain empirical evidence whether CEO managerial ability affects corporate investment decisions. This research uses a sample of 2,962 firm-year observations of Indonesia-listed firms from the years 2010 to 2020. To obtain our research objectives, we used OLS analysis with STATA 17.0

Research findings: This study found that CEOs' managerial ability has a significant and positive effect on the firm's investment decision. The authors further address potential endogeneity and check the robustness, use methods including coarsened exact matching and instrument variable approach using Heckman (1976) two-stage least square.

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Theoretical contribution/Originality: The research explores the moderating role of CEO ability in the context of election-induced uncertainty and investment decisions. It could contribute to the understanding of how CEO capabilities influence strategic choices under uncertain conditions.

Research implications: This research contributes to the existing literature on the various impacts of CEO managerial ability on firm outcomes. The research also encourages policymakers and regulators to prioritise the development and retention of talented managers to ensure the financial and economic stability of Indonesian firms, particularly during periods of financial distress.

1. Introduction

In recent decades, the impact of CEO managerial abilities and investment decisions has been widely debated in academic literature (Ha & Feng, 2021; Mishra, 2022; Putra et al., 2022; Chen et al., 2015; Chen & Chen, 2020). In uncertain environments, such as during political elections (Harymawan et al., 2020), economic projections can be fickle and unpredictable (Naheed et al., 2021). In addition, environmental uncertainty requires CEOs to rapidly shift their focus from traditional corporate objectives, such as market share and revenue growth, to sole corporate survival. The importance of CEO managerial ability becomes even more critical during uncertain times, as CEOs must make quick decisions due to economic uncertainties, sales fluctuations, and investment decisions. Companies whose CEOs possess higher managerial abilities and an adaptive learning spirit tend to outperform their less qualified colleagues, particularly in uncertain environments. Several studies have documented the impact of CEO managerial ability on various firm outcomes, such as environmental quality (García-Sánchez & Martínez-Ferrero, 2019), corporate performance (Jin et al., 2022), innovation (Chen et al., 2015), and investment decisions (Naheed et al., 2021). Despite this research, it remains unclear whether the managerial abilities of CEOs during periods of political elections and other uncertain environments are also valuable for making effective decisions.

According to agency theory, the CEO and other members of management are considered agents who act on behalf of the shareholders or investors who own the company (Ross, 1973). The International Finance Corporation (2018) provides guidelines that

state the CEO is elected as part of the board of directors during a general meeting of shareholders, after being nominated by the board of commissioners. In order to nominate board members, the board of commissioners must follow regulations, corporate governance guidance, and the corporate culture of the organization. Maintaining good corporate governance practices is crucial in mitigating agency problems, as qualified executives are linked to improved firm performance, investment efficiency, and a culture of financial transparency (Bhutta et al., 2021; Gan, 2019; Chen & Chen, 2020).

The roles of CEOs are crucial for the success of a company, and prior studies have identified specific managerial features that impact a firm's economic outcomes in finance, accounting, and management. These factors also contribute positively to academic and practical fields, including ability, talent, reputation, power, expertise, and management style (Bertrand & Schoar, 2003; Demerjian et al., 2012; Hamidlal & Harymawan, 2021). In particular, Demerjian et al. (2012) developed a method for quantifying the qualification of managerial ability using both firm efficiency and a managerial ability score. They measured total firm efficiency using a modified model of data envelopment analysis (DEA), and calculated the managerial ability score from the residual of firm efficiency by the Demerjian et al. (2012) model estimator. This approach provides a more comprehensive understanding of the relationship between managerial ability and firm performance.

Previous research has shown that a CEO's managerial ability can lead to better forecasting of earnings, enabling them to make strategic decisions in anticipation of future economic changes (Trueman, 1986). Specifically, in uncertain environments, CEOs with strong managerial skills are more likely to make reasonable investment decisions. As corporate investment decisions have a significant impact on the long-term cash flow of the firm, investing in capital expenditures can increase future earnings projections. However, it is important to note that a CEO's managerial ability does not always have a positive impact on the firm. In fact, Doukas and Zhang (2020) found that CEOs with strong managerial abilities may use their competencies to smooth the company's earnings. This opportunistic behavior can lead to lower earnings quality, damaging the management's relationship with shareholders and increasing agency costs. These costs can ultimately reduce the firm's income and lower the wealth of the shareholders.

In the field of business, particularly in management studies, one of the most significant questions is how companies can

navigate uncertain circumstances that can potentially affect their performance (Amore & Corina, 2021). When faced with economic uncertainty, firms struggle to gather relevant information needed to make informed decisions, especially when it comes to strategic ones. Research has shown that during times of political uncertainty, companies tend to reduce their corporate investments significantly (Amore & Corina, 2021). Therefore, it is essential for companies to manage political risks to prevent a lower foreign investment into the firm, as noted in Harvey's (2017) study. Previous research has identified several objective measures of political risk, such as electoral uncertainty, conflict risks, social unrest, corruption, political instability, quality of institutions in the host country, sovereign debt default risk, and market imperfections.

The aim of this paper is to examine the impact of political elections on the relationship between CEO managerial ability and corporate investment decisions. We hypothesize that during election periods, firms face heightened environmental uncertainty, as the outcome of the election determines the new government structure and subsequent policies. Political uncertainty arises due to the potential for significant shifts in governmental policymaking, which can lead to increased unpredictability for firms. To address this concern, we incorporate the political election as a moderating variable in our analysis. Specifically, we investigate how the level of political uncertainty influences the relationship between CEO managerial ability and corporate investment decisions. Our study contributes to the literature on the nexus between political uncertainty and corporate decision-making, and sheds light on the importance of CEO managerial ability in navigating uncertain political environments. To support our analysis, we draw on the work of Baker et al. (2016), who define political uncertainty as the ambiguity surrounding new policies and regulations that will be implemented by a new government structure following an election. By examining this issue in the context of CEO managerial ability and investment decisions, we provide valuable insights into the complex interplay between politics and corporate strategy.

In this study, the authors investigate the influence of CEOs' managerial ability on corporate investment decisions during periods of political elections. The authors use annual accounting data of publicly listed companies in Indonesia from the Indonesia Stock Exchange Commission, corporate investment decision data from OSIRIS, and the CEO's managerial ability scores proxied by Demerjian et al. (2012). The findings suggest heterogeneity in the

managerial abilities of CEOs and corporate investment decisions due to environmental uncertainty during political election periods. Specifically, the study finds that CEO managerial ability is positively and statistically significant with firm investment decisions. This indicates that a CEO's managerial ability is crucial in providing the best investment decisions aligned with the company's long-term strategic objectives. Additionally, with high CEO managerial ability, companies are expected to increase shareholder welfare through investment choices that yield the highest profits. However, during the political election period, the CEO's managerial decisions are negatively and statistically significant with the firm's investment decisions. This finding indicates that uncertain economic conditions tend to disrupt the investment strategy established by the company. Furthermore, when a CEO possesses high managerial ability in an uncertain business environment, it can impact their investment decisions. Harymawan et al. (2020) suggest that in uncertain economic conditions caused by public events, such as presidential elections, the economy experiences an uncertain cycle that impacts the company's investment decisions. Specifically, companies will face challenges in reducing expenditures and maximizing profit sources from previously established financing policies.

We attempt to provide contributions to two distinct fields of literature. We first contribute to the existing literature on the various impacts of CEO managerial ability on firm outcomes. For instance, Bonsall et al. (2017) find lower variability in stock returns and future earnings for all companies run by CEOs with higher managerial ability. Similarly, Cheng and Zhang (2022) found that companies whose CEOs have lower managerial ability generate lower short-term buy-and-hold returns than acquiring companies. Recently, Smales (2021) found that stock returns during the COVID-19 pandemic were positively influenced by firm efficiency. Please next: Our study contributes to the existing literature by presenting empirical evidence on the managerial competence of CEOs in making corporate investment decisions during political election periods. Political elections can have significant effects on financial markets and corporate investment decisions. CEOs play a critical role in making these investment decisions, and their competence can have a significant impact on the firm's financial performance. Therefore, studying the managerial competence of CEOs during political election periods is crucial for understanding how firms respond to the uncertainty and volatility associated with such events. By examining the investment decisions made by firms during political election

periods and analyzing the performance of these investments, your study can provide insights into the effectiveness of CEO decision-making during times of uncertainty. The findings of your study can also help inform policy decisions related to corporate governance and investment management.

Secondly, we contribute to the literature that examines the impact of political elections on the firms. While most studies provide an understanding of the impact of presidential elections on firms' innovation performance (Harymawan et al., 2020), CSR disclosure (Chen & Chen, 2020), and stock market reactions (Andreou et al., 2017), they do not offer much evidence regarding whether any qualitative characteristics of corporate CEOs make firms more effective and resilient at making better investment decisions over a period of time of uncertainty. Using election politics (uncertain environment) as an exogenous shock to the economic climate, we reveal how CEOs' different managerial abilities can influence their investment decisions in firms. While previous studies have explored the effects of presidential elections on various aspects of firm performance, such as innovation and stock market reactions, there has been a lack of research on the role of CEO characteristics in shaping investment decisions. By using election politics as an exogenous shock to the economic climate, the authors aim to provide new insights into how CEOs' managerial abilities can affect firms' investment strategies.

Thirdly, from the current findings, our study confirms that managerial talent is a vital factor for firm investment in the Indonesia stock market. Therefore, policymakers and regulators must prioritise the development and retention of talented managers to ensure the financial and economic stability of Indonesian firms, particularly during periods of financial distress. It is essential for board of directors to focus on hiring and retaining competent and capable managers to achieve sustainable growth. Additionally, talented managers are better equipped to identify and exploit profitable investment opportunities, which can benefit firms in the long run. As a result, policymakers should utilise the expertise of talented managers when creating regulations and policies, such as those related to employee compensation. By doing so, we can leverage the skills and knowledge of these individuals to promote economic growth and stability in the Indonesian market.

The remainder of the paper was systematised as follows. Section 2 provides literature review and hypothesis development. Section 3 presents the data and research design as well as methodology. Section

4 provides empirical result and discussion. Section 5 wrap up with conclusion and future research recommendation.

2. Literature Review and Hypothesis Development

2.1 CEO Managerial Ability and Upper Echelons Theories

Managerial ability is defined as the ability of senior managers who create value effectively by utilising certain resources (Chen *et al.*, 2021). According to a previous study, manager features (ability, talent, reputation, or style) influence economic results and are thus essential in economics, finance, accounting, and management research as well as practice (Demerjian *et al.*, 2012). In prior literature, management ability is measured by quantifying firm efficiency using data envelopment analysis (DEA) (Demerjian *et al.*, 2012; Leverty & Grace, 2012). Demerjian *et al.* (2012) have a view that DEA standalone cannot precisely describe the management managerial ability because it measures firm efficiency in total. Total firm efficiency measurement is a combination of both firm-specific and management-specific drivers. Demerjian *et al.* (2012) introduce a new measure of managerial ability based on managers' efficiency in converting corporate resources to revenues in comparison to their industry counterparts. CEO managerial ability score is measured through two steps: (1) modified DEA and (2) Tobit estimation of firm efficiency. The residual value of the Tobit regression is the Managerial Ability Score (MA).

Hambrick and Mason (1984) argues that organisational outcomes-strategic choices and performance levels are partially predicted by managerial background characteristics. They state that top executives' managerial ability and personal background characteristics can be reflected by the firm's decisions and outcomes. The firm performance was significantly affected by chief executives' managerial ability, experiments, values, personalities and other human factors. Even though the theory provides attention to the entire executive board, the upper echelon theory has been widely applied to the study of CEOs (Hambrick & Mason, 1984). Prior studies confirm that CEO competencies, characteristics, and managerial ability affect firm performance and strategic decisions (Amedu & Dulewicz, 2018; Bhutta *et al.*, 2021; Gan, 2019; Sun & Zou, 2021). As the center of the firm strategic movement, the CEO get more attention and raise in various research topics. In addition, there are more companies that show their CEO as the icon of marketing strategy.

Particularly, Hambrick and Mason (1984) formulate upper echelons characteristics, including cognitive base, values, age, functional tracks, other carrier experiences, education, socioeconomic, socioeconomic roots, financial position, and group characteristics. As managers have different levels and views of abilities, it effect on their judgment, confidence, and risk preferences (Gan, 2019). Trueman (1986) argues that investors look at management's released earnings forecast as an indication of the managerial ability's in anticipating economic environment changes. Managerial discretion arises when there is no restriction and a great level of uncertainty between ways and objectives. Furthermore, Hambrick *et al.* (2005) argues that executive job demands stem from three sets of factors: task challenges, performance challenges, and executive aspirations. Both influence the relationship between top executives' characteristics and the firm's outcome.

Andreou *et al.* (2017) confirm that pre-crisis managerial ability has a positive relationship with corporate investment decisions during a crisis period. The finding indicates that top executive managerial ability can engage efficient investment, even during a crisis period. This is likely a good example of managerial ability application in anticipating future economic and firm performance. Because there are, at least, three factors that influence managerial discretion (Hambrick, 2007): (1) environmental conditions, (2) organisational factors, and (3) executive himself or herself. In this case, the author assumes that when the industry is under crisis, the firm is able to survive when there are a proper organisational structure and proper executive's tolerance of ambiguity.

In the election period, there arise a political uncertainty environment. Based on upper echelon theory, this condition will moderate the positive relationship between managerial characteristics with firms' performance and strategic decisions. Currently, the theory stated that while under uncertain circumstances, agents or decision-makers rather choose to wait for the new information that will exist when the uncertainty is resolved (Bernanke, 1983; Wernerfelt & Karnarni, 1987). The theory of agency relationship or commonly known as agency theory is firstly mentioned by Ross in 1973. This theory is generally used as a base in discussing the relationship between shareholders and management. Ross (1973) explained that an agency relationship is a kind of relationship that arises between two or more parties in which one serves as the agent and the other(s) is role as principal. The agent will act as representative in terms of right and responsibility transfer. The key of understanding agency is acting

for another (Bernanke, 1983). In the enterprise context, the agency relationship can be seen in the role of management as a representative of shareholders. The management gets the right and responsibility of controlling and making strategic decisions for the firm to meet shareholders' interest (increase shareholders' wealth).

In a more specific study, Jensen & Meckling (1976) define an agency relationship as a contract under which one or more persons (the principal(s) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority. Under the contractual relationship, management is legally having the decision-making authority to represent the role of the firm's owner. By doing so, management will get the right to get wage or remuneration for their work. The form of the remuneration is varied depending on the agreement between both parties, but usually in form of cash or share. In Indonesia, the board of directors' remuneration is under the responsibility of the board of commissioners. Corporate Governance best practice recommends firms to have remuneration and nomination committees that help the board of commissioners give recommendations of composition, training programs, member candidate, and remuneration structure (International Finance Corporation, 2018).

The corporation is a common business entity that applies agency relationships. Different from a private entity or partnership entity where the owner of the firm is positioned as the management, a firm usually divide the roles between owner and management. The distribution of roles between owner and management sometimes does not that harmonic as both are having interests that are not always in tune. This condition is called agency problem. When the owner requires the management to earn more revenue so that firm's value will be increased, management is the one who facing problems occurred that may affect their career. In addition, sometimes management has interests that may direct them to do for their own will. Nevertheless, as persons that are bound by contract, management has to legally account their work to the shareholders as the owner of the firm. In the condition where agency problem arises, the firm will pay the agency cost, directly or indirectly (Sudana, 2015).

As the agent of shareholders, management especially CEO is responsible to make firm decisions. Each decision must be reasonably, precisely, and cautiously made so that it can bring the firm to meet its objectives. Doing so, management needs higher managerial ability to support them in considering the best option for the life of the firm. Imeni *et al.* (2021) found that higher managerial ability can reduce

agency costs. As the firm is directed with advantageous decisions, it can easier meet shareholder's expectations and mitigate the risk of agency problems.

2.2   *Hypotheses Development*

Gan's (2019) explores the relationship between CEO managerial ability and corporate investment efficiency through the examination of 20,323 observations. The study concludes that high-ability CEOs tend to increase or decrease capital expenditures, acquisition expenditures, and total investments based on whether the firm is likely to under-invest or over-invest. These findings underscore the importance of CEO managerial ability in improving investment decision-making. In a similar vein, Chen et al. (2021) investigate the impact of internal control on the positive relationship between managerial ability and investment efficiency using a large sample of 6,332 observations from US firms. Their research reveals that internal control has a significant promoting effect on the investment efficiency of management. This study sheds light on the significance of internal control in enhancing the positive relationship between managerial ability and investment efficiency, thereby improving overall firm performance.

Anderson et al. (2021) found that financial expert CEOs tend to make higher investments compared to their counterparts. However, they also discovered that political influence can significantly impact the investment decisions of these CEOs. Meanwhile, in a study conducted by Andreou et al. (2017) during the financial crisis, they found that pre-crisis managerial skills have a positive and strong correlation with firm policies and value during the crisis period. They also highlighted a positive relationship between pre-crisis managerial skills and crisis-period financing. The study further revealed that high managerial skills are associated with increased investment activity during crisis periods, which in turn leads to higher business value. The authors analysed a sample of 2583 observations, including all accessible data for each variable, to arrive at these conclusions.

Amore and Corina (2021) conducted a study titled "Political Elections and Corporate Investment" that analysed over 396,261 observations from various country datasets and US-listed companies to investigate the impact of political elections on corporate investment. Their findings supported the hypothesis that political elections negatively affect corporate investment. Interestingly, they discovered that this negative influence is less pronounced in countries

with plurality systems. This study builds upon previous research by Julio and Yook (2012), who found that businesses become more cautious during election periods and delay investment decisions until the outcome is more certain. In India, Sun and Zou (2021) observed an opposite effect on State-Owned Enterprises (SOEs), whereby political elections had a positive influence on their investments. Conversely, Harymawan et al. (2020) suggested that political elections reduce the financial performance of SOEs. Overall, Amore and Corina's research offers valuable insights into the impact of political elections on corporate investment, which may have important implications for policymakers, investors, and business leaders.

When a firm makes a capital investment decision, it involves spending money now to receive benefits in the future (Horne, 2002). Forecasting future cash flow is a critical step in capital budgeting. The decision-maker must estimate future earnings to determine whether to accept or reject the investment, as well as the loan payment and dividend for the cost of capital. Typically, the funds available to pay for the investment in fixed assets come from bond issuance or bank loans, which the firm will repay periodically with installments and interest payments. According to Amedu and Dulewicz (2018), management's ability to forecast earnings plays a crucial role in making better investment decisions. Prior research has consistently found support for the upper echelon theory, which suggests that executive characteristics, particularly those of the CEO, can significantly impact firm performance and decision-making quality.

This study builds on the insights of Sun and Zhou (2021) and Harymawan et al. (2020), by deepening the discussion on the inconsistent findings regarding whether CEO managerial ability can influence firm investment decisions. We extend previous findings by re-examining them and drawing a common thread from the positive and negative relationships that have been found in various previous studies. To support this, we expand the discussion by explaining the specific CEO managerial abilities that influence firm investment decisions. Naheed et al. (2021) argue that CEO managerial ability is the foundation for the development of positive talent that can strengthen the policies and strategies adopted by the firm. In addition, high CEO managerial ability also helps the firm to determine the best investment strategy for them. The author proposes testing the relationship between CEO managerial ability and investment by proposing the following hypothesis:

Hypothesis 1*: CEO Managerial Ability have a positive relationship with corporate investment decision*

Modigliani and Miller (1958) posited that in a perfectly efficient capital market, a firm's financial position would have no significant impact on its investment decisions. However, in reality, information asymmetry and other imperfections create barriers to efficient capital markets (Myers & Majluf, 1984; Rocciolo et al., 2024; Abdeljawad et al., 2024). As a result, a company's financial position becomes a critical factor in its investment decisions. Limited internal resources necessitate external financing, and skilled managers play a vital role in securing these resources (Cleary, 1999). However, in reality, capital markets are not perfectly efficient due to factors such as information asymmetry and other imperfections. For example, investors may not have access to all the relevant information about a firm's financial position, which can lead to mispricing of the firm's securities. In such an environment, a company's financial position becomes a critical factor in its investment decisions. Limited internal resources often necessitate external financing, such as issuing new debt or equity securities. The cost and availability of such financing can be affected by a firm's financial position, such as its credit rating or cash reserves. Therefore, a company's investment decisions must take into account its financial position to ensure that it has access to the necessary resources to fund its investments. In addition, skilled managers play a vital role in securing external financing for the firm. Managers must understand the financial markets and have the necessary skills to negotiate with investors to secure the best terms for the firm's securities. Managers must also communicate the firm's financial position effectively to investors to ensure that they have confidence in the firm's ability to generate returns and repay its debts.

From the perspective of presidential elections, some previous studies have suggested that the information asymmetry of imperfect capital markets also results from economic uncertainty, one of which is the election of a president. Economic uncertainty can cause companies to hesitate in making long-term investments because they are unsure about the future of the economy. As a result, companies tend to prefer to save money and avoid taking risks in making investments that may not yield profits in the future. This can reduce overall economic growth. On the other hand, presidential elections can also affect corporate investment decisions. Each presidential candidate has different economic policy views and plans. The victory of a particular presidential candidate can change existing economic policies, which can affect corporate investment strategies. For example, strict fiscal and monetary policies can limit economic growth and make companies more cautious in making investments.

Economic uncertainty can also affect the results of presidential elections. If the economy is experiencing uncertainty or a recession, voters are more likely to choose a candidate who promises economic stability and rapid economic recovery. However, if the economy is growing well, voters may be more inclined to choose a candidate who promises more progressive policies.

Political elections are often considered a moderating role in this study, especially in democratic countries like Indonesia, where political uncertainty is inevitable (Harymawan et al., 2020; Amedu & Dulewicz, 2018). The issue of political uncertainty is significant for two reasons. Firstly, companies tend to reduce their investments during political election years due to the unpredictable regulatory environment (Amore & Corina, 2021; Julio & Yook, 2012). The uncertainty caused by the change in government structures makes decision-making harder. Secondly, we want to investigate whether political elections have a negative moderating effect on the positive relationship between CEO managerial ability and corporate investment decisions. According to the upper echelon theory, CEO characteristics have an impact on a firm's performance, and management decisions are often moderated by specific factors, such as uncertainty. Hence, the hypotheses may be proposed as follows.

Hypothesis 2*: Political election negatively moderates the relationship between CEO Managerial Ability and corporate investment decision*

3. Data, Design and Methodology

3.1 The Data, Population, and Sample

The initial sample of the study includes all non-financial listed firms in Indonesia. Durimg the years 2010 to 2020, financial data was hand-collected from OSIRIS and the Indonesia Stock Exchange (IDX) and also political election data from the website of the Indonesia Political Election Agency (IPEA). The sample was identified as the political election period are 2014 and 2019, for which data are available for political elections. Table 1 presents sample selection and distribution, after excluding financial companies (SIC 6), our sample includes 2,962 observations from the entire sample of Indonesian companies. After that, regression analysis using the ordinary least squares (OLS) method was conducted to obtain empirical evidence to answer the research question. To ensure this research is free from endogeneity issues, we also conducted the robustness analysis by using the Coarsened Exact Matching (CEM) and Heckman Two-

Stage Estimation. Furthermore, we divided the data into two clusters, Election and Pre-Election. The election identifies companies in the observation period of the political election year, while Pre-Election identifies the firm in the observation period prior to the political election year (Harymawan *et al.*, 2020). This allows me to address research questions about the exogenous effects of political elections.

Table 1: Sample Selection Process

Sample Criteria	Amounts
Initial sample covering the period 2011-2020	3.085
Disqualified:	
Missing data CEO Managerial Ability	(75)
Missing data Corporate Investment Decision	(22)
Missing data control variable	(26)
Final sample	2.962 observations

Table 2 depicts the sample distribution based on industry and year. Panel A has the sample distribution based on year, the most significant sample being from the year 2020 with 372 observations, and the smallest sample was collected in 2011, with 236 observations. On the other hand, Panel B presents the sample distribution based on industry. The higher sample was SIC 2 (construction industries) with 900 observations, and SIC 8 (Health, legal, educational services and consulting) as the lower sample with 58 observations.

Table 2: Sample Distribution based on Industry and Year

Panel A: *Sample distribution based on year*		
Year	Freq.	%
2011	236	7.97
2012	250	8.44
2013	270	9.12
2014	288	9.72
2015	295	9.96
2016	299	10.09
2017	287	9.69
2018	294	9.93
2019	371	12.53
2020	372	12.56
Total	2962	100.00

Panel B: *Sample distribution based on industry*

SIC	Industry	Freq.	%
0	Agriculture, forestry and fisheries	130	4.39
1	Mining	378	12.76
2	Construction industries	900	30.38
3	Manufacturing	591	19.95
4	Transportation, communications and utilities	356	12.02
5	Wholesale and retail trade	304	10.26
7	Service industries	245	8.27
8	Health, legal, educational services and consulting	58	1.96
Total		2962	100.00

3.2 Variable Operationalisation

The corporate investment decision (CID) was used as the dependent variable to measure the level of effectiveness of the firms' investing. It measures on how effectively firms generate the maximum investment from their capital expenditures as compared to the beginning of the year book value. CID is a commonly used metric as shown by Julio and Yook (2012), Amore and Corina (2021), as well as Xie *et al.* (2021). Hence, we relied on that metric to measure our main variable. The independent variable in this study is the CEO's managerial ability (CEO_MA). It is defined as the residual score obtained from Demerjian *et al.* (2012) and Tobit values from various components of other MA measurements. To ensure that our CEO MA is free from endogeneity issues and strengthen our main findings, we use the average CEO MA (CEO_MA_Med). We expect a positive and significant effect of CEO_MA_Med on CEO_MA and CEO_MA on CID. Hence, our variables can answer the main research question.

To examine the moderating effect of environmental uncertainty on the relationship between CEO managerial ability and firm investment decisions, we use dichotomous variables to differentiate a sample of firms that are at a political election and before a political election. More specifically, we divide it into twofold: Election as a variable that identifies the political election period, and Pre-Election to describe the sample period before a political election. Therefore, we expect a negative moderating effect of the ELECTIONxCEO_MA and Pre-ElectionxCEO_MA on CID. We exploit from Harymawan et al. (2020) that the managerial abilities of CEOs during uncertain environments can degrade their ability to make the best investment

decisions. In addition, the effect of political elections encourages CEOs to get involved in big parties in order to maintain the existence of their business continuity, and, in the end, they cannot balance between enhancing business internal capabilities or participating in political events as reported in table 2.

Table 3: Operational Definition of Variable

Variable	Definition	Data Source
	Independent	
	CEO managerial ability	
CEOMA	Residuals value of Tobit regression in Demerjian *et al.* (2012) model	*OSIRIS*
	Dependent	
	Investment Decisions	
INVESTMENT	The firm's capital expenditure is scaled by the beginning-of-year-book total asset (Amore & Corina, 2021; Julio & Yook, 2012)	*OSIRIS*
	Moderating	
	Political Election	
PRE-ELECTION	Measured using dummy variables. Stated as 1 when an election is held in year t and 0 otherwise (Harymawan *et al.*, 2020)	*General Election Commission (KPU) Website*
ELECTION	Measured using dummy variables. Stated as 1 when an election is held in year t or t-1 and 0 otherwise (Amore & Corina, 2021; Harymawan *et al.*, 2020; Julio & Yook, 2012)	*General Election Commission (KPU) Website*
	Control	
CEOGENDER	Dummy variable, which equals one for female CEO, and 0 conversely	*Annual Report*
CEOAGE	Dummy variable, which equals one for CEO age less than 50, and 0 vice versa	*Annual Report*
BIG4	Dummy variable, which equals one for firm audited by BIG4, and 0 vice versa	*Annual Report*
TANG	Non-current assets scaled by total assets	*OSIRIS*
FAGE	The number of firm operating years	*OSIRIS*
BSIZE	Measured by the number of board of directors and commissioners	*OSIRIS*
FSIZE	The natural logarithm of total assets	*OSIRIS*

Variable	Definition	Data Source
LOSS	Dummy variables, which equals one when the firm suffers loss in year t and 0 conversely	OSIRIS
ROA	The firm's net income divided by total asset	OSIRIS
MTOB	The market capitalisation divided by total book value	OSIRIS
LEV	The total debt divided by total assets	OSIRIS
GRSALES	Sales t-year add t-1-year scaled by sales t-1 years	OSIRIS

3.3 Empirical Model Specifications

We answered the research questions with fixed effect regression with standard error using firms and year as follows:

$$CID_{i,t} = \alpha + \beta_1 CEO\_MA_{i,t} + \beta_2 FIRMSIZE_{i,t} + \beta_3 BOARDSIZE_{i,t} + \beta_4 LOSS_{i,t} + \beta_5 ROA_{i,t} + \beta_6 MTB_{i,t} + \beta_7 LEVERAGE_{i,t} + \beta_8 CEOGENDER_{i,t} + \beta_9 CEOTENURE_{i,t} + \beta_{10} CEOAGE_{i,t} + \beta_{11} MARKETCAP_{i,t} + \beta_{12} SALESGROWTH_{i,t} + Firm\ Fixed\ Effect + Year\ Fixed\ Effect + \varepsilon \dots\dots\dots (1)$$

$$CID_{i,t} = \alpha + \beta_1 CEO\_MA_{i,t} + \beta_2 PRE\text{-}ELECTION_{i,t} + \beta_3 FIRMSIZE_{i,t} + \beta_4 BOARDSIZE_{i,t} + \beta_5 LOSS_{i,t} + \beta_6 ROA_{i,t} + \beta_7 MTB_{i,t} + \beta_8 LEVERAGE_{i,t} + \beta_9 CEOGENDER_{i,t} + \beta_{10} CEOTENURE_{i,t} + \beta_{11} CEOAGE_{i,t} + \beta_{12} MARKETCAP_{i,t} + \beta_{13} SALESGROWTH_{i,t} + Firm\ Fixed\ Effect + Year\ Fixed\ Effect + \varepsilon \dots\dots\dots (2)$$

$$CID_{i,t} = \alpha + \beta_1 CEO\_MA_{i,t} + \beta_2 PRE\text{-}ELECTION_{i,t} + \beta_3 CEO\_MAxPRE\text{-}ELECTION_{i,t} + \beta_4 FIRMSIZE_{i,t} + \beta_5 BOARDSIZE_{i,t} + \beta_6 LOSS_{i,t} + \beta_7 ROA_{i,t} + \beta_8 MTB_{i,t} + \beta_9 LEVERAGE_{i,t} + \beta_{10} CEOGENDER_{i,t} + \beta_{11} CEOTENURE_{i,t} + \beta_{12} CEOAGE_{i,t} + \beta_{13} MARKETCAP_{i,t} + \beta_{14} SALESGROWTH_{i,t} + Firm\ Fixed\ Effect + Year\ Fixed\ Effect + \varepsilon \dots\dots\dots (3)$$

$$CID_{i,t} = \alpha + \beta_1 CEO\_MA_{i,t} + \beta_2 ELECTION_{i,t} + \beta_3 FIRMSIZE_{i,t} + \beta_4 BOARDSIZE_{i,t} + \beta_5 LOSS_{i,t} + \beta_6 ROA_{i,t} + \beta_7 MTB_{i,t} + \beta_8 LEVERAGE_{i,t} + \beta_9 CEOGENDER_{i,t} + \beta_{10} CEOTENURE_{i,t} + \beta_{11} CEOAGE_{i,t} + \beta_{12} MARKETCAP_{i,t} + \beta_{13} SALESGROWTH_{i,t} + Firm\ Fixed\ Effect + Year\ Fixed\ Effect + \varepsilon \dots\dots\dots (4)$$

$$CID_{i,t} = \alpha + \beta_1 CEO\_MA_{i,t} + \beta_2 ELECTION_{i,t} + \beta_3 CEO\_MAxELECTION_{i,t} + \beta_4 FIRMSIZE_{i,t} + \beta_5 BOARDSIZE_{i,t} + \beta_6 LOSS_{i,t} + \beta_7 ROA_{i,t} + \beta_8 MTB_{i,t} + \beta_9 LEVERAGE_{i,t} + \beta_{10} CEOGENDER_{i,t} + \beta_{11} CEOTENURE_{i,t} + \beta_{12} CEOAGE_{i,t} + \beta_{13} MARKETCAP_{i,t} + \beta_{14} SALESGROWTH_{i,t} + Firm\ Fixed\ Effect + Year\ Fixed\ Effect + \varepsilon \dots\dots\dots (5)$$

Where, CID is the firm's investment decision, CEO_MA is the managerial ability of the CEO from the score of Demerjian et al. (2012), PRE-ELECTION is a dichotomous variable 1 for t-1 before political elections, 0 otherwise; ELECTION is a dichotomous variable 1 for t years of political elections, 0 otherwise; FIRMSIZE is firm size as measured by the natural logarithm of total firm assets; BOARDSIZE is total directors and commissioners of the firm's

board; LOSS is the dichotomous variable 1 for profit before tax t-1 negative, 0 otherwise; ROA is the total return on the scale of the firm's total assets; MTB is the total market capitalization divided by the total book value; LEVERAGE is the total debt divided by total assets; CEOGENDER is a dichotomous variable 1 for a firm that has 1 female board, 0 otherwise; CEOTENURE is a dichotomous variable 1 for a CEO tenure of more than 10 years, 0 otherwise; CEOAGE is a dichotomous variable 1 for CEO age over 50 years, 0 otherwise; MARKETCAP is the natural logarithm of total market capitalization; SALESGROWTH is the percentage of sales growth in years t and t-1, and Firm Fixed Effect, and Year Fixed Effect.

4. Results and Discussion

To obtain empirical evidence for the research question, analyses were conducted, including descriptive statistics, univariate analysis, regression analysis, robustness tests, and additional tests. The findings show that CEO managerial ability (CEOMA) has a significant and positive effect on the firm's investment decision (CID). The robustness tests confirm that this relationship is free from endogeneity issues.

4.1 Statistic Descriptive and Univariate Analysis

Table 4 provides a statistical summary of all variables, including the mean, median, minimum, maximum, as well as the top and bottom quantile. The average investment for the sample period is 0.081, while the statistics for Pre-Election and Election are 0.222 and 0.413, respectively. This indicates that investment decisions are higher during political elections compared to the period before the elections. The CEOMA variable has an average value of -0.012, with a maximum value of 0.567 and a minimum value of -0.610. The CEO Tenure variable has an average value of 2.993, with a minimum value of 2.949 and a maximum value of 3.069. The top quartile for CEO Tenure is 2.998, while the bottom quartile is 2.986. Overall, the statistics of our main variables are higher than their average values. Table 5 presents the Pearson correlation matrix, indicating that CEO_MA is positively related to CID (Corporate Investment Decision). We have also ensured that the heterogeneity issues in our models have been addressed, and the value of the variation inflation factor (VIF) is less than 10. In conclusion, Tables 4 and 5 provide an insightful summary of our variables and their correlations, indicating that political elections and CEO managerial ability have a significant impact on corporate investment decisions.

Table 4: Statistic Descriptive

	Mean	Median	Minimum	Maximum	25%	75%
INVESTMENT	0.081	0.040	0.000	0.726	0.011	0.106
CEOMA	-0.012	0.029	-0.610	0.567	-0.175	0.151
PRE-ELECTION	0.222	0.000	0.000	1.000	0.000	0.000
ELECTION	0.413	0.000	0.000	1.000	0.000	1.000
CEOGENDER	0.065	0.000	0.000	1.000	0.000	0.000
CEOTENURE	2.993	2.986	2.949	3.069	2.986	2.998
CEOAGE	-1.189	-0.157	-89.744	40.987	-1.253	0.514
TANG	-0.818	-0.104	-81.121	35.331	-0.895	0.371
FAGE	3.307	3.440	0.327	4.856	2.863	4.017
BIG4	0.011	0.000	0.000	1.000	0.000	0.000
BSIZE	2.140	2.079	0.693	4.605	1.946	2.398
FSIZE	21.615	21.558	15.441	26.587	20.489	22.708
LOSS	0.263	0.000	0.000	1.000	0.000	1.000
ROA	2.916	2.615	-36.175	38.163	-0.351	6.752
MTOB	2.394	1.182	-1.199	30.168	0.610	2.563
LEV	1.466	0.897	-4.759	17.211	0.427	1.694
GRSALES	0.148	0.085	-0.560	2.152	-0.030	0.266

Table 5: Pearson Correlation

	INVESTMENT	CEOMA	PRE-ELECTION	ELECTION	CEOGENDER	CEOTENURE	CEOAGE	TANG	FAGE
INVESTMENT	1.000								
CEOMA	0.037**	1.000							
	(0.045)								
PRE-ELECTION	-0.030*	0.009	1.000						
	(0.098)	(0.631)							
ELECTION	0.027	0.038**	0.638***	1.000					
	(0.142)	(0.037)	(0.000)						
CEOGENDER	-0.036*	0.017	0.005	0.019	1.000				
	(0.059)	(0.367)	(0.809)	(0.316)					
CEOTENURE	-0.036*	0.049***	-0.006	-0.004	-0.006	1.000			
	(0.052)	(0.008)	(0.764)	(0.820)	(0.762)				
CEOAGE	-0.018	-0.056***	-0.010	-0.005	0.012	0.004	1.000		
	(0.340)	(0.003)	(0.581)	(0.778)	(0.526)	(0.817)			
TANG	-0.029	-0.057***	-0.006	-0.008	0.010	0.009	0.982***	1.000	
	(0.122)	(0.002)	(0.743)	(0.677)	(0.608)	(0.649)	(0.000)		
FAGE	0.024	0.013	0.029	0.043**	-0.026	-0.004	0.015	0.017	1.000
	(0.202)	(0.504)	(0.123)	(0.024)	(0.180)	(0.843)	(0.448)	(0.387)	
BIG4	0.136***	-0.000	-0.032*	-0.015	-0.027	0.003	0.005	0.002	0.003
	(0.000)	(0.998)	(0.078)	(0.425)	(0.160)	(0.888)	(0.791)	(0.915)	(0.868)
BSIZE	0.084***	0.073***	-0.013	0.007	0.017	0.023	0.025	-0.001	0.165***
	(0.000)	(0.000)	(0.477)	(0.683)	(0.380)	(0.219)	(0.177)	(0.936)	(0.000)
FSIZE	0.089***	-0.011	0.019	0.034*	0.008	-0.000	0.033*	0.019	0.120***
	(0.000)	(0.542)	(0.307)	(0.065)	(0.659)	(0.998)	(0.077)	(0.300)	(0.000)
LOSS	-0.082***	-0.246***	-0.017	-0.038**	0.001	-0.062***	0.021	0.030	-0.034*
	(0.000)	(0.000)	(0.362)	(0.040)	(0.963)	(0.001)	(0.267)	(0.110)	(0.070)
ROA	0.097***	0.338***	-0.000	0.022	0.004	0.041**	-0.045**	-0.054***	0.051***
	(0.000)	(0.000)	(0.999)	(0.241)	(0.849)	(0.027)	(0.017)	(0.004)	(0.008)

	INVESTMENT	CEOMA	PRE-ELECTION	ELECTION	CEOGENDER	CEOTENURE	CEOAGE	TANG	FAGE
MTOB	0.042**	0.094***	-0.010	0.008	-0.004	0.022	-0.035*	-0.046**	0.006
	(0.021)	(0.000)	(0.586)	(0.683)	(0.836)	(0.226)	(0.059)	(0.014)	(0.735)
LEV	0.036*	0.004	-0.007	0.017	0.015	-0.034*	0.012	0.012	-0.001
	(0.053)	(0.824)	(0.721)	(0.356)	(0.418)	(0.068)	(0.507)	(0.522)	(0.953)
GRSALES	0.006	-0.001	0.013	0.012	-0.000	-0.024	0.044**	0.046**	-0.072***
	(0.732)	(0.962)	(0.492)	(0.527)	(0.991)	(0.207)	(0.020)	(0.015)	(0.000)

	BIG4	BSIZE	FSIZE	LOSS	ROA	MTOB	LEV	GRSALES
BIG4	1.000							
BSIZE	0.020	1.000						
	(0.288)							
FSIZE	0.014	0.623***	1.000					
	(0.448)	(0.000)						
LOSS	-0.025	-0.186***	-0.147***	1.000				
	(0.169)	(0.000)	(0.000)					
ROA	0.034*	0.238***	0.185***	-0.635***	1.000			
	(0.063)	(0.000)	(0.000)	(0.000)				
MTOB	0.032*	0.019	0.001	-0.026	0.271***	1.000		
	(0.085)	(0.300)	(0.954)	(0.160)	(0.000)			
LEV	-0.016	-0.002	0.061***	0.165***	-0.142***	0.244***	1.000	
	(0.374)	(0.898)	(0.001)	(0.000)	(0.000)	(0.000)		
GRSALES	-0.009	0.013	0.009	0.003	-0.020	-0.025	-0.001	1.000
	(0.635)	(0.480)	(0.640)	(0.888)	(0.282)	(0.182)	(0.967)	

4.2 Key Finding and Analyses

Table 6 reports the main findings of our analysis. The results indicate that the CEO's managerial ability (CEOMA) has a significant and positive effect on the firm's investment decision (CID) (Coeff = 0.020, t = 2.11). However, this positive relationship disappears during the period before the political election (Coeff = -0.001, t = -0.03), suggesting that exogenous factors may play a role during this time. Interestingly, during the political election period, the managerial ability of the CEO (CEOMA) has a negative and significant relationship with the firm's investment decisions (Coeff = -0.047, t = -2.65), indicating that global economic factors may impair investment in firms during this time. In addition to our main findings, we find that there is a strong positive relationship between the gender diversity of the board and corporate investment decisions, indicating that firms with a more diverse board tend to make more investments.

We also find that CEO tenure has a positive and significant relationship with corporate investment decisions, suggesting that CEOs with longer tenures may be better equipped to make informed investment decisions. Furthermore, our analysis indicates that CEO age is positively correlated with corporate investment decisions, suggesting that older CEOs may have more experience and knowledge to inform their investment decisions. While age is an important factor to consider when evaluating a CEO's investment decisions, it is important to note that other factors such as industry experience, track record, and leadership skills should also be taken into account. Overall, our findings suggest that the CEO's managerial ability is a crucial factor in determining a firm's investment decisions and that exogenous factors, such as political elections and global economic conditions, can significantly affect investment decisions.

Table 6: Main Results

	(1) INVESTMENT	(2) INVESTMENT	(3) INVESTMENT	(4) INVESTMENT	(5) INVESTMENT
CEOMA	0.020**	0.020**	0.021*	0.020**	0.040***
	(2.11)	(2.11)	(1.86)	(2.11)	(3.63)
PRE-ELECTION		-0.053***	-0.053***		
		(-4.82)	(-4.81)		
MA_PRE-ELECTION			-0.001		
			(-0.03)		
ELECTION				-0.053***	-0.053***
				(-4.82)	(-4.84)

	(1) INVESTMENT	(2) INVESTMENT	(3) INVESTMENT	(4) INVESTMENT	(5) INVESTMENT
MA_ELECTION					-0.047***
					(-2.65)
CEOGENDER	-0.015**	-0.015**	-0.015**	-0.015**	-0.015**
	(-2.22)	(-2.22)	(-2.21)	(-2.22)	(-2.19)
CEOTENURE	7.946***	7.946***	7.946***	7.946***	7.969***
	(2.82)	(2.82)	(2.81)	(2.82)	(2.82)
CEOAGE	0.002**	0.002**	0.002**	0.002**	0.002**
	(2.32)	(2.32)	(2.31)	(2.32)	(2.35)
TANG	-0.003**	-0.003**	-0.003**	-0.003**	-0.003**
	(-2.24)	(-2.24)	(-2.24)	(-2.24)	(-2.27)
FAGE	0.003	0.003	0.003	0.003	0.003
	(1.27)	(1.27)	(1.26)	(1.27)	(1.24)
BIG4	0.148***	0.148***	0.148***	0.148***	0.148***
	(3.48)	(3.48)	(3.48)	(3.48)	(3.43)
BSIZE	-0.009	-0.009	-0.009	-0.009	-0.009
	(-1.13)	(-1.13)	(-1.13)	(-1.13)	(-1.12)
FSIZE	0.007***	0.007***	0.007***	0.007***	0.007***
	(4.21)	(4.21)	(4.21)	(4.21)	(4.18)
LOSS	-0.007	-0.007	-0.007	-0.007	-0.007
	(-1.10)	(-1.10)	(-1.10)	(-1.10)	(-1.09)
ROA	0.000	0.000	0.000	0.000	0.000
	(0.83)	(0.83)	(0.82)	(0.83)	(0.82)
MTOB	0.000	0.000	0.000	0.000	0.000
	(0.12)	(0.12)	(0.12)	(0.12)	(0.09)
LEV	0.002*	0.002*	0.002*	0.002*	0.002**
	(1.96)	(1.96)	(1.96)	(1.96)	(2.00)
GRSALES	0.000	0.000	0.000	0.000	-0.000
	(0.02)	(0.02)	(0.02)	(0.02)	(-0.01)
CONSTANT	-24.365***	-24.365***	-24.364***	-24.365***	-24.433***
	(-2.82)	(-2.82)	(-2.82)	(-2.82)	(-2.82)
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes
r2	0.102	0.102	0.102	0.102	0.104
r2_a	0.091	0.091	0.091	0.091	0.093
N	2486	2486	2486	2486	2486

t statistics in parentheses

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

5.   Robustness and Endogeneity Analyses

5.1   *Coarsened Exact Matching (CEM)*

Table 7 presents the results of the Coarsened Exact Matching (CEM) test, where we divided the main sample based on the three main strata. The results are consistent with our main findings from column 1, showing a positive and significant effect of CEO managerial ability (CEOMA) on corporate investment decisions (CID). The influence of exogenous effects that occurred before the political election period is also confirmed in columns 2 and 3, where we find no significant effect of CEO managerial ability on corporate investment decisions. Similarly, during the political election period, we find a negative and significant relationship between CEO managerial ability and corporate investment decisions, providing the same confirmation as our main findings in columns 4 and 5.

   Moreover, the CEM test confirms that our results are robust to selection bias and other potential confounding factors. By using the CEM method, we were able to ensure that the treatment and control groups were comparable in terms of observed covariates, thereby reducing the likelihood of any omitted variable bias. This reinforces our confidence in the validity of our main findings and the accuracy of our statistical models. In summary, the CEM test provides further evidence that the CEO's managerial ability has a significant impact on the firm's investment decisions, and that this relationship is influenced by exogenous factors such as political elections. Our findings are robust to potential selection bias and other confounding factors, further supporting the reliability of our results.

Table 7: Coarsened Exact Matching

Panel A: Coarsened Exact Matching Summary		
	CEOMA = 1	**CEOMA = 0**
All	1487	999
Matched	987	604
Unmatched	500	395

Panel B: Coarsened Exact Matching Regression					
	(1) INVESTMENT	(2) INVESTMENT	(3) INVESTMENT	(4) INVESTMENT	(5) INVESTMENT
CEOMA	0.041***	0.041***	0.044***	0.041***	0.064***
	(3.00)	(3.00)	(2.89)	(3.00)	(4.21)
PRE-ELECTION		-0.060***	-0.061***		
		(-4.71)	(-4.64)		

	(1) INVESTMENT	(2) INVESTMENT	(3) INVESTMENT	(4) INVESTMENT	(5) INVESTMENT
Panel B: Coarsened Exact Matching Regression					
MA_PRE-ELECTION			-0.014		
			(-0.63)		
ELECTION				-0.060***	-0.066***
				(-4.71)	(-4.99)
MA_ELECTION					-0.057***
					(-2.66)
CEOGENDER	-0.025***	-0.025***	-0.025***	-0.025***	-0.024***
	(-3.41)	(-3.41)	(-3.42)	(-3.41)	(-3.32)
CEOTENURE	7.168**	7.168**	7.170**	7.168**	7.188**
	(2.44)	(2.44)	(2.44)	(2.44)	(2.45)
CEOAGE	0.002**	0.002**	0.002**	0.002**	0.002**
	(2.02)	(2.02)	(1.99)	(2.02)	(2.10)
TANG	-0.003**	-0.003**	-0.003*	-0.003**	-0.003**
	(-1.98)	(-1.98)	(-1.95)	(-1.98)	(-2.05)
FAGE	-0.000	-0.000	-0.000	-0.000	-0.000
	(-0.00)	(-0.00)	(-0.01)	(-0.00)	(-0.03)
BIG4	0.147***	0.147***	0.147***	0.147***	0.146***
	(3.46)	(3.46)	(3.46)	(3.46)	(3.38)
BSIZE	-0.012	-0.012	-0.012	-0.012	-0.012
	(-1.17)	(-1.17)	(-1.19)	(-1.17)	(-1.19)
FSIZE	0.009***	0.009***	0.009***	0.009***	0.009***
	(4.17)	(4.17)	(4.18)	(4.17)	(4.15)
LOSS	0.002	0.002	0.002	0.002	0.002
	(0.25)	(0.25)	(0.23)	(0.25)	(0.25)
ROA	0.001*	0.001*	0.001*	0.001*	0.001**
	(1.96)	(1.96)	(1.96)	(1.96)	(2.01)
MTOB	-0.000	-0.000	-0.000	-0.000	-0.000
	(-0.27)	(-0.27)	(-0.27)	(-0.27)	(-0.30)
LEV	0.002*	0.002*	0.002*	0.002*	0.002*
	(1.80)	(1.80)	(1.81)	(1.80)	(1.89)
GRSALES	0.002	0.002	0.002	0.002	0.002
	(0.27)	(0.27)	(0.26)	(0.27)	(0.26)
CONSTANT	-22.001**	-22.001**	-22.005**	-22.001**	-22.059**
	(-2.45)	(-2.45)	(-2.45)	(-2.45)	(-2.46)
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes
r2	0.146	0.146	0.146	0.146	0.149
r2_a	0.130	0.130	0.129	0.130	0.133
N	1591	1591	1591	1591	1591

t statistics in parentheses

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

5.2 Heckman (1979) two-stage least square

Self-selection bias occurs when individuals have the choice to participate in a research project or not, and the characteristics of those who choose to participate differ from those who choose not to participate. This can create significant problems in economic and social statistics when sampling methods deviate from simple random sampling, as noted by Heckman (1979). Furthermore, there is a risk of unobserved factors that may confound the results, such as military connection traits, as pointed out by Harymawan (2018).

To address this issue, we use Heckman's two-stage model, as recommended by Kim and Zhang (2016), which enables us to account for potential selection biases and minimize the impact of unobserved factors. By doing so, we can obtain more accurate and reliable research outcomes. In addition, we employ additional tools, including the Heckman (1979) two-stage least squares method, to test the robustness of our main results and address potential endogeneity.

The results of our robustness tests confirm our initial findings, thereby validating the main conclusions of our analysis. Overall, our analysis provides evidence that companies face great pressure and challenges during political election periods to balance their resources so that their investment decisions can reverse the influence of exogenous effects. This pre-election and election evidence sheds light on the difficulties companies face during politically uncertain times.

Table 8: Heckman (1979) Least Square

	Panel A: *First Stage*
	(1) INVESTMENT
MA_Mean	8.234* (1.77)
CEOGENDER	0.563*** (3.40)
CEOTENURE	0.021 (0.01)
CEOAGE	0.002 (0.09)
TANG	-0.008 (-0.33)
FAGE	-0.025 (-0.61)
BIG4	3.848*** (19.58)

	Panel A: *First Stage*
	(1) INVESTMENT
BSIZE	0.329**
	(2.55)
FSIZE	0.019
	(0.64)
LOSS	-0.296***
	(-2.88)
ROA	0.025***
	(4.06)
MTOB	-0.009
	(-0.97)
LEV	0.014
	(1.07)
GRSALES	-0.048
	(-0.43)
CONSTANT	1.171
	(0.11)
Industry Fixed Effect	Yes
Year Fixed Effect	Yes
r2_p	0.122
N	2486

	Panel B: *Second Stage*				
	(1) INVESTMENT	(2) INVESTMENT	(3) INVESTMENT	(4) INVESTMENT	(5) INVESTMENT
CEOMA	0.021**	0.021**	0.022*	0.021**	0.039***
	(2.13)	(2.13)	(1.96)	(2.13)	(3.54)
PRE-ELECTION		-0.049***	-0.049***		
		(-4.49)	(-4.49)		
MA_PRE-ELECTION			-0.004		
			(-0.24)		
ELECTION				-0.049***	-0.049***
				(-4.49)	(-4.52)
MA_ELECTION					-0.044**
					(-2.51)
CEOGENDER	-0.036***	-0.036***	-0.036***	-0.036***	-0.036***
	(-4.28)	(-4.28)	(-4.29)	(-4.28)	(-4.19)

	Panel B: *Second Stage*				
	(1) INVESTMENT	(2) INVESTMENT	(3) INVESTMENT	(4) INVESTMENT	(5) INVESTMENT
CEOTENURE	4.057 (1.32)	4.057 (1.32)	4.046 (1.32)	4.057 (1.32)	4.185 (1.37)
CEOAGE	0.002** (2.45)	0.002** (2.45)	0.002** (2.45)	0.002** (2.45)	0.002** (2.48)
TANG	-0.003** (-2.25)	-0.003** (-2.25)	-0.003** (-2.24)	-0.003** (-2.25)	-0.003** (-2.28)
FAGE	0.004* (1.71)	0.004* (1.71)	0.004* (1.71)	0.004* (1.71)	0.004* (1.67)
BIG4	0.118*** (2.81)	0.118*** (2.81)	0.118*** (2.81)	0.118*** (2.81)	0.118*** (2.79)
BSIZE	-0.024*** (-2.61)	-0.024*** (-2.61)	-0.024*** (-2.61)	-0.024*** (-2.61)	-0.023** (-2.55)
FSIZE	0.006*** (3.32)	0.006*** (3.32)	0.006*** (3.32)	0.006*** (3.32)	0.006*** (3.31)
LOSS	0.010 (1.31)	0.010 (1.31)	0.010 (1.31)	0.010 (1.31)	0.010 (1.25)
ROA	-0.001*** (-2.61)	-0.001*** (-2.61)	-0.001*** (-2.62)	-0.001*** (-2.61)	-0.001** (-2.52)
MTOB	0.001 (1.53)	0.001 (1.53)	0.001 (1.53)	0.001 (1.53)	0.001 (1.47)
LEV	0.001 (0.50)	0.001 (0.50)	0.001 (0.50)	0.001 (0.50)	0.001 (0.56)
GRSALES	0.003 (0.43)	0.003 (0.43)	0.003 (0.43)	0.003 (0.43)	0.003 (0.39)
MILLS	-0.177*** (-4.09)	-0.177*** (-4.09)	-0.177*** (-4.11)	-0.177*** (-4.09)	-0.172*** (-3.99)
CONSTANT	-12.340 (-1.31)	-12.340 (-1.31)	-12.305 (-1.31)	-12.340 (-1.31)	-12.733 (-1.35)
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes
r2	0.107	0.107	0.107	0.107	0.109
r2_a	0.096	0.096	0.096	0.096	0.098
N	2486	2486	2486	2486	2486

t statistics in parentheses

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

5.3   Further analyses: sub sample by growth and technology industries

5.3.1   High and Low Technology

Our analysis indicates that the role of technology within a company is crucial. To investigate this further, we divided our sample into high- or low-technology subsamples based on two-digit industrial sector codes (Calvino et al., 2018). Panel A of Table 9 examines the relationship between CEO managerial ability and corporate investment decisions in the high-tech subsample. The results reveal a weak positive association, which is not statistically significant. This finding may not be surprising, given the complex nature of high-tech industries and the risks they face (Gharbi et al., 2014).

However, Panel B of Table 7 shows a significant relationship between CEO managerial ability and corporate investment decisions in low-tech companies. This result suggests that CEO managerial ability in low-tech companies does not require specialised knowledge, such as new technologies or machines, but can instead be maximised to increase corporate investment decisions. This finding highlights the importance of CEO managerial ability in low-tech companies and its potential to improve investment decisions and increase corporate investment. It is worth noting that high-tech companies tend to face higher risks than others, which may explain the lack of statistical significance in Panel A. Nevertheless, our results suggest that the role of CEO managerial ability in low-tech companies should not be overlooked, as it can have a significant impact on corporate investment decisions.

Table 9: Sub sample: High and Low Technology

	(1) Investment	(2) Investment	(3) Investment	(4) Investment	(5) Investment
Panel A: High Technology					
CEOMA	0.015	0.015	0.022	0.015	0.029
	(0.56)	(0.56)	(0.81)	(0.56)	(1.04)
PRE-ELECTION		0.002	0.003		
		(0.14)	(0.19)		
MA_PRE-ELECTION			-0.034		
			(-0.64)		
ELECTION				0.002	0.003
				(0.14)	(0.18)
MA_ELECTION					-0.034
					(-0.88)
CEOGENDER	-0.028***	-0.028***	-0.028***	-0.028***	-0.027***
	(-2.91)	(-2.91)	(-2.89)	(-2.91)	(-2.80)

	Panel A: *High Technology*				
	(1)	(2)	(3)	(4)	(5)
	Investment	Investment	Investment	Investment	Investment
CEOTENURE	6.790**	6.790**	6.790**	6.790**	6.800**
	(2.49)	(2.49)	(2.47)	(2.49)	(2.48)
CEOAGE	0.004	0.004	0.004	0.004	0.004
	(1.44)	(1.44)	(1.40)	(1.44)	(1.41)
TANG	-0.005	-0.005	-0.005	-0.005	-0.005
	(-1.34)	(-1.34)	(-1.31)	(-1.34)	(-1.31)
FAGE	-0.012**	-0.012**	-0.012**	-0.012**	-0.012**
	(-2.04)	(-2.04)	(-2.05)	(-2.04)	(-2.05)
BIG4	0.181***	0.181***	0.184***	0.181***	0.185***
	(2.77)	(2.77)	(2.90)	(2.77)	(2.86)
BSIZE	0.041**	0.041**	0.041**	0.041**	0.042**
	(2.20)	(2.20)	(2.20)	(2.20)	(2.22)
FSIZE	-0.000	-0.000	-0.000	-0.000	-0.000
	(-0.07)	(-0.07)	(-0.07)	(-0.07)	(-0.11)
LOSS	-0.025*	-0.025*	-0.026*	-0.025*	-0.026*
	(-1.92)	(-1.92)	(-1.92)	(-1.92)	(-1.93)
ROA	0.000	0.000	0.000	0.000	0.000
	(0.47)	(0.47)	(0.53)	(0.47)	(0.52)
MTOB	0.001	0.001	0.001	0.001	0.001
	(0.58)	(0.58)	(0.56)	(0.58)	(0.54)
LEV	-0.002	-0.002	-0.002	-0.002	-0.002
	(-1.13)	(-1.13)	(-1.07)	(-1.13)	(-1.09)
GRSALES	0.005	0.005	0.005	0.005	0.005
	(0.33)	(0.33)	(0.33)	(0.33)	(0.36)
CONSTANT	-20.760**	-20.760**	-20.760**	-20.760**	-20.787**
	(-2.48)	(-2.48)	(-2.47)	(-2.48)	(-2.48)
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes
r2	0.193	0.193	0.195	0.193	0.195
r2_a	0.144	0.144	0.143	0.144	0.144
N	419	419	419	419	419

	Panel B: *Low Technology*				
	(1)	(2)	(3)	(4)	(5)
	Investment	Investment	Investment	Investment	Investment
CEOMA	0.019*	0.019*	0.018	0.019*	0.041***
	(1.83)	(1.83)	(1.46)	(1.83)	(3.40)
PRE-ELECTION		-0.062***	-0.061***		
		(-4.87)	(-4.85)		
MA_PRE-ELECTION			0.006		
			(0.29)		
ELECTION				-0.062***	-0.062***
				(-4.87)	(-4.90)

	(1) Investment	(2) Investment	(3) Investment	(4) Investment	(5) Investment
Panel B: *Low Technology*					
MA_ELECTION					-0.052***
					(-2.63)
CEOGENDER	-0.014*	-0.014*	-0.014*	-0.014*	-0.014*
	(-1.71)	(-1.71)	(-1.71)	(-1.71)	(-1.73)
CEOTENURE	0.067	0.067	0.064	0.067	0.053
	(0.09)	(0.09)	(0.08)	(0.09)	(0.07)
CEOAGE	0.002**	0.002**	0.002**	0.002**	0.002**
	(2.28)	(2.28)	(2.29)	(2.28)	(2.34)
TANG	-0.003**	-0.003**	-0.003**	-0.003**	-0.004**
	(-2.25)	(-2.25)	(-2.26)	(-2.25)	(-2.30)
FAGE	0.006**	0.006**	0.006**	0.006**	0.006**
	(2.31)	(2.31)	(2.31)	(2.31)	(2.29)
BIG4	0.142***	0.142***	0.142***	0.142***	0.140***
	(2.90)	(2.90)	(2.90)	(2.90)	(2.82)
BSIZE	-0.016*	-0.016*	-0.016*	-0.016*	-0.016*
	(-1.86)	(-1.86)	(-1.85)	(-1.86)	(-1.87)
FSIZE	0.008***	0.008***	0.008***	0.008***	0.008***
	(4.55)	(4.55)	(4.55)	(4.55)	(4.54)
LOSS	-0.004	-0.004	-0.004	-0.004	-0.004
	(-0.58)	(-0.58)	(-0.57)	(-0.58)	(-0.57)
ROA	0.000	0.000	0.000	0.000	0.000
	(0.80)	(0.80)	(0.81)	(0.80)	(0.77)
MTOB	-0.000	-0.000	-0.000	-0.000	-0.000
	(-0.14)	(-0.14)	(-0.15)	(-0.14)	(-0.16)
LEV	0.002**	0.002**	0.002**	0.002**	0.002**
	(2.15)	(2.15)	(2.15)	(2.15)	(2.18)
GRSALES	-0.001	-0.001	-0.001	-0.001	-0.002
	(-0.20)	(-0.20)	(-0.20)	(-0.20)	(-0.25)
CONSTANT	-0.257	-0.257	-0.248	-0.257	-0.215
	(-0.11)	(-0.11)	(-0.11)	(-0.11)	(-0.09)
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes
r2	0.100	0.100	0.100	0.100	0.103
r2_a	0.089	0.089	0.088	0.089	0.091
N	2067	2067	2067	2067	2067

t statistics in parentheses

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

5.4 High and Low Growth

To delve deeper into our analysis, we have conducted additional tests by dividing the sample into high- or low-growth industries by grouping various sectors. The findings reveal that companies in high-growth industries demonstrate significantly positive results for CEO managerial ability and corporate investment decisions. In contrast, stable industries (with no frequent changes) allow CEO managerial ability to maximize their potential as they tend to have more experience, particularly in their industries. However, CEO managerial ability sees high-growth industries as lacking in challenges and, therefore, may not exhibit their true potential, resulting in insignificant results. On the other hand, significant positive results occur in the low-growth companies' testing samples. This can be attributed to the fact that CEO managerial ability is more adaptable to changes, such as technology within the company when there are high levels of changes, which are deemed as challenging. However, if the changes are too fast, it can be overwhelming for CEO managerial ability, resulting in negative outcomes. The test results are presented in Table 10.

Table 10: Sub sample: High and Low Growth Industries

	(1) Investment	(2) Investment	(3) Investment	(4) Investment	(5) Investment
Panel A: High Growth					
CEOMA	0.015	0.015	0.022	0.015	0.029
	(0.56)	(0.56)	(0.81)	(0.56)	(1.04)
PRE-ELECTION		0.002	0.003		
		(0.14)	(0.19)		
MA_PRE-ELECTION			-0.034		
			(-0.64)		
ELECTION				0.002	0.003
				(0.14)	(0.18)
MA_ELECTION					-0.034
					(-0.88)
CEOGENDER	-0.028***	-0.028***	-0.028***	-0.028***	-0.027***
	(-2.91)	(-2.91)	(-2.89)	(-2.91)	(-2.80)
CEOTENURE	6.790**	6.790**	6.790**	6.790**	6.800**
	(2.49)	(2.49)	(2.47)	(2.49)	(2.48)
CEOAGE	0.004	0.004	0.004	0.004	0.004
	(1.44)	(1.44)	(1.40)	(1.44)	(1.41)
TANG	-0.005	-0.005	-0.005	-0.005	-0.005
	(-1.34)	(-1.34)	(-1.31)	(-1.34)	(-1.31)

	Panel A: *High Growth*				
	(1) Investment	(2) Investment	(3) Investment	(4) Investment	(5) Investment
FAGE	-0.012** (-2.04)	-0.012** (-2.04)	-0.012** (-2.05)	-0.012** (-2.04)	-0.012** (-2.05)
BIG4	0.181*** (2.77)	0.181*** (2.77)	0.184*** (2.90)	0.181*** (2.77)	0.185*** (2.86)
BSIZE	0.041** (2.20)	0.041** (2.20)	0.041** (2.20)	0.041** (2.20)	0.042** (2.22)
FSIZE	-0.000 (-0.07)	-0.000 (-0.07)	-0.000 (-0.07)	-0.000 (-0.07)	-0.000 (-0.11)
LOSS	-0.025* (-1.92)	-0.025* (-1.92)	-0.026* (-1.92)	-0.025* (-1.92)	-0.026* (-1.93)
ROA	0.000 (0.47)	0.000 (0.47)	0.000 (0.53)	0.000 (0.47)	0.000 (0.52)
MTOB	0.001 (0.58)	0.001 (0.58)	0.001 (0.56)	0.001 (0.58)	0.001 (0.54)
LEV	-0.002 (-1.13)	-0.002 (-1.13)	-0.002 (-1.07)	-0.002 (-1.13)	-0.002 (-1.09)
GRSALES	0.005 (0.33)	0.005 (0.33)	0.005 (0.33)	0.005 (0.33)	0.005 (0.36)
CONSTANT	-20.760** (-2.48)	-20.760** (-2.48)	-20.760** (-2.47)	-20.760** (-2.48)	-20.787** (-2.48)
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes
r2	0.193	0.193	0.195	0.193	0.195
r2_a	0.144	0.144	0.143	0.144	0.144
N	419	419	419	419	419

	Panel B: *Low Growth*				
	(1) Investment	(2) Investment	(3) Investment	(4) Investment	(5) Investment
CEOMA	0.019* (1.83)	0.019* (1.83)	0.018 (1.46)	0.019* (1.83)	0.041*** (3.40)
PRE-ELECTION		-0.062*** (-4.87)	-0.061*** (-4.85)		
MA_PRE-ELECTION			0.006 (0.29)		
ELECTION				-0.062*** (-4.87)	-0.062*** (-4.90)
MA_ELECTION					-0.052*** (-2.63)

	(1) Investment	(2) Investment	(3) Investment	(4) Investment	(5) Investment
		Panel B: *Low Growth*			
CEOGENDER	-0.014*	-0.014*	-0.014*	-0.014*	-0.014*
	(-1.71)	(-1.71)	(-1.71)	(-1.71)	(-1.73)
CEOTENURE	0.067	0.067	0.064	0.067	0.053
	(0.09)	(0.09)	(0.08)	(0.09)	(0.07)
CEOAGE	0.002**	0.002**	0.002**	0.002**	0.002**
	(2.28)	(2.28)	(2.29)	(2.28)	(2.34)
TANG	-0.003**	-0.003**	-0.003**	-0.003**	-0.004**
	(-2.25)	(-2.25)	(-2.26)	(-2.25)	(-2.30)
FAGE	0.006**	0.006**	0.006**	0.006**	0.006**
	(2.31)	(2.31)	(2.31)	(2.31)	(2.29)
BIG4	0.142***	0.142***	0.142***	0.142***	0.140***
	(2.90)	(2.90)	(2.90)	(2.90)	(2.82)
BSIZE	-0.016*	-0.016*	-0.016*	-0.016*	-0.016*
	(-1.86)	(-1.86)	(-1.85)	(-1.86)	(-1.87)
FSIZE	0.008***	0.008***	0.008***	0.008***	0.008***
	(4.55)	(4.55)	(4.55)	(4.55)	(4.54)
LOSS	-0.004	-0.004	-0.004	-0.004	-0.004
	(-0.58)	(-0.58)	(-0.57)	(-0.58)	(-0.57)
ROA	0.000	0.000	0.000	0.000	0.000
	(0.80)	(0.80)	(0.81)	(0.80)	(0.77)
MTOB	-0.000	-0.000	-0.000	-0.000	-0.000
	(-0.14)	(-0.14)	(-0.15)	(-0.14)	(-0.16)
LEV	0.002**	0.002**	0.002**	0.002**	0.002**
	(2.15)	(2.15)	(2.15)	(2.15)	(2.18)
GRSALES	-0.001	-0.001	-0.001	-0.001	-0.002
	(-0.20)	(-0.20)	(-0.20)	(-0.20)	(-0.25)
CONSTANT	-0.257	-0.257	-0.248	-0.257	-0.215
	(-0.11)	(-0.11)	(-0.11)	(-0.11)	(-0.09)
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes
r2	0.100	0.100	0.100	0.100	0.103
r2_a	0.089	0.089	0.088	0.089	0.091
N	2067	2067	2067	2067	2067

t statistics in parentheses

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

6.   Conclusion

The severity in economic conditions from the exogenous effects of political elections is proven to influence firm investment decisions, making them inefficient. In stable economic conditions, unaffected by political election conditions, CEOs have more concentrated managerial abilities to maximize better investment decisions. However, leading up to and during the political election period, CEOs begin to break their focus on gaining reputation by participating in the legislative and executive election parties. In the end, investment decisions in companies become worse, because they face a duality effect, whether to increase better investment decisions or waste the opportunity to improve the firm's reputation by participating in political elections. The findings contribute to the ongoing discussion about the impact of political election periods on the managerial abilities of CEOs and corporate investment decisions. In addition, further studies can examine the contribution of government incentives ahead of political elections to the relationship between these three points.

The objective of this study is to understand whether CEO managerial ability has a positive relationship with corporate investment decisions, whether a better managerial ability score increases investment decisions in fixed assets. This research also aims to study if political elections provide a negative effect on the relationship between CEO managerial ability and corporate investment decisions. By using a sample of 2962 firm-year observations from the Indonesia Stock Exchange's listed companies from 2011 until 2020, the author executes a test that supports existing literature about the positive relationship between CEO managerial ability and corporate investment decisions. The research's result permits the author to conclude that companies with better CEO managerial ability are affiliated with higher investment in capital expenditure. The result also empirically supports negative affiliation between political elections with investing decisions. Finally, the political election provides negative effects on the relationship between CEO managerial ability and corporate investment decisions.

The study has some limitations in some occasions. First, corporate investment decisions in this research only focus on the capital expenditure paid for the PPE assets and not for total investment or expanded to the efficiency of the investment decisions itself. Second, this research only contains two years of political election as the moderating influence to the relationship between managerial ability and investment decisions. Additional years of election may

minimise the probability of bias. Third, this research only observes listed companies in Indonesia Stock Exchange that have complete relevant information. The other companies that did not list their stock in IDX are left out. There is still a probability for different research findings when different sample is used. As stated in upper echelon theory, there are other conditions that may influence the relationship between CEO managerial ability with corporate decisions other than political uncertainty. Firm culture and other periodical dimensions effects can be explored for further analysis. From the mentioned research limitations, there are some suggestions for future research. Future research can use total investment, research, and development, or acquisition expenditure as the variable of corporate investment decisions. Additional variables such as under-investment and over-investment may improve the research contributions. Observation with wider periodical dimensions and additional election years may improve the research's accuracy.

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