

# Ex-auditor executives and investment efficiency: evidence from Indonesia

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# Ex-auditor executives and investment efficiency: evidence from Indonesia

Investment  
efficiency in  
Indonesia

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## Abstract

**Purpose** – This study aims to examine the relationship between the presence of ex-auditor chief executive officers (CEOs) and ex-auditor chief financial officers (CFOs) with the company's investment efficiency decisions.

**Design/methodology/approach** – The authors use non-financial Indonesian listed firms, and the authors obtain 2,763 firm-year observations of ex-auditor CEOs and 2,708 firm-year observations of ex-auditor CFOs from 2010–2019.

**Findings** – The results show that ex-auditor CEOs tend to make efficient investment decisions, while ex-auditor CFOs do not. However, when a company has a CEO and a CFO who are both former auditors, there is a significantly stronger positive relationship with investment efficiency. These results indicate that working experience as an auditor can optimally facilitate the decision regarding investment level. Moreover, the results suggest that the CEO, as top management, has more influence in providing the company's final investment decisions, whereas the CFO plays a role in providing investment recommendations to the CEO. The results of this study are consistent with the use of alternative measurements and the robustness test of Coarsened Exact Matching (CEM).

**Practical implications** – The results of this study can contribute as material for consideration by company management in selecting company organs with an auditor background to secure efficient investment.

**Originality/value** – This study specifically examines the experience, values, and particular characteristics of top management with an auditor background on the company's strategic decisions. This study is also based on the phenomenon that the number of ex-auditor CEOs and CFOs in Indonesia tends to increase every year.

**Keywords** Ex-auditor CEO, Ex-auditor CFO, Investment efficiency, Corporate sustainability

**Paper type** Research paper

## 1. Introduction

The external auditor profession in a public accounting firm is often considered a “stepping stone” in a career path (Bowlin *et al.*, 2009). In previous studies, the topic of top management with auditor experience was usually associated with a company's audit outcomes because it might affect the auditor's independence. One of the findings shows that ex-auditor executives affiliated with the company's audit firm are related to the audit opinion received (Lennox, 2005). However, not many previous studies have examined the relationship between the characteristics and abilities of ex-auditor top management on managerial decisions, such as company investment decisions.

Practically, an auditor is a profession that is responsible for providing independent assurance on the credibility of financial information (DeFond and Zhang, 2014). For auditors, the responsibility to provide assurance cannot be separated from the precautionary principle because they are responsible for issuing crucial outcomes for stakeholders' decision-making. Therefore, auditors are required to have unbiased professional judgment because this ability is an essential element in the audit process and fraud detection (Carpenter, 2007; Peytcheva and Gillett, 2011). Thus, one of the important aspects of the auditor, such as professional judgment, can be useful in making the right decision by analyzing the situation they face.

In practice, the characteristics of professional skepticism are also an important basis for the auditor profession to detect fraud (Hurt, 2010). Hence, indirectly, auditors tend to have a



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skeptical mindset. Professional skepticism is further related to the attitude of questioning mind and critical thinking when facing a decision (Nelson, 2009). The character of professional judgment and professional skepticism can be carried over and attached to a former auditor while serving as a company executive. In practice, it is possible that these characteristics can drive executives to be more careful and considerate in making investment decisions to achieve optimal levels or efficient investments.

Based on previous research, company executives with work experience as auditors can shape their strategic reporting decisions, such as how much to invest in developing internal controls (Bowlin *et al.*, 2009). Although the investment examples from these findings are different from the context of the overall investment decision for the company, they can indicate the possibility that the auditor's experience could reduce the investment inefficiency due to the capability for making strategic decisions. In addition, a previous study discovered that auditors could become efficient intermediaries of information for clients, which is helpful for clients in making investment decisions (Bae *et al.*, 2017). Therefore, the auditor profession is seen as an essential component in the client's management information environment.

However, another study stated that chief financial officers (CFOs) with an accounting background (controller, internal auditor, and external auditor) tend to be conservative and risk-averse to investing in R&D (research and development) (Hoitash *et al.*, 2016). Thus, this study shows that the characteristics of CFOs with an accounting background will make decisions that tend to be underinvestment. Previous studies have also stated that auditors can behave conservatively or aggressively depending on the client risks they face (Lu and Sapra, 2009). According to these studies, such characteristics could encourage someone to invest inefficiently because they tend to underinvest or overinvest (Hoitash *et al.*, 2016; Malmendier and Tate, 2005). However, it is possible that executives with auditor experience could also combine their two types of risk preferences. They could manage the risk preferences properly to encourage them to make optimal or more efficient corporate investment decisions.

Based on the background of this study, this research is supported by the upper echelon theory, which states that the experiences, values, and characteristics of top management will influence their interpretation of a condition they face so that this can affect the decisions they make (Hambrick, 2007). Therefore, this theory is suitable to support whether someone with a background as an auditor has the experience, values, and particular characteristics that can be carried over when they serve as top management of companies that need to make strategic decisions such as investment decisions.

This research is interesting and different from previous studies because it wants to see whether the characteristics and expertise obtained by the company's top management, experienced as auditors, are related to their investment decisions. Particularly, the chief executive officer (CEO) and CFO are top management responsible for investment decisions. However, because of their different roles, we examine separately the relationship between ex-auditors CEO and CFO on investment efficiency. Investment efficiency is also important to study because it is crucial for the company's sustainability, so it is essential to know what factors can be related to its investment decision-making. We argue that the former auditor's particular characteristics and expertise could be helpful in making strategic decisions, such as company investment decisions.

This study uses a sample of company data listed on the Indonesia Stock Exchange (IDX) from 2010–2019 by excluding financial, insurance, and real estate companies with the SIC code (Standard Industrial Classification) 6. Research data analysis will be carried out using regression, Ordinary Least Squares (OLS) and Coarsened Exact Matching regression as a robustness test. The results suggest that ex-auditor CEOs tend to have efficient investment decisions, while ex-auditor CFOs do not. However, when a company has a CEO and CFO who are both former auditors, there is a significantly stronger positive relationship with investment efficiency.

In addition, these results indicate that the CEO, as top management, has more dominant authority and provides more influence in providing the company's final investment decisions. At the same time, the CFO plays a role in providing investment decision recommendations to the CEO.

The results of this study are expected to add to the literature review for further research on corporate executives, especially the position of CEO and CFO having experience as an auditor and its relation in providing investment decisions. This research will also deepen the study by providing empirical evidence that supports the upper echelon theory.

Practically, this research can contribute as consideration for company management in selecting company organs with auditor background if they want to secure efficient investment management. Based on the data, the trend of the presence of ex-auditor CEOs and CFOs tends to increase. Therefore, the results of this study are expected to be useful for investors or other stakeholders to gain insight into the investment pattern of a company with experienced corporate organs as auditors. This insight can assist stakeholder considerations in making their decisions regarding investment decisions and other decisions related to the company.

The remainder of this paper is organized as follows. Section 2 explains the literature review and hypothesis development. Section 3 provides the research methodology. Section 4 contains the result and discussion, while Section 5 delivers the conclusion.

## 2. Literature review

### 2.1 Grand theory

This study uses the upper echelon theoretical basis, which states that executives' experiences, values, and personalities can influence their interpretation of the situations they face and, ultimately, affect their decisions (Hambrick, 2007). In addition, the theory also mentions two things that moderate the relationship between managerial characteristics and organizational outcomes, one of which is the challenge. When top managers face high-level challenges and have less time to reflect on their decisions, they are more likely to rely on what they have done based on their background or experience (Hambrick, 2007; Hiebl, 2014). In relation to the CEO and CFO profession in the company, the accumulated work experience can contribute to the personality and development of individual CEO and CFO abilities, especially when the CEO and CFO have work experience as auditors. In addition, they can use the experience gained from the auditor's professional background when facing challenges such as determining the optimal investment level.

Prior studies use this theoretical basis to see how the characteristics of top management to their decisions. The example is a study showing the differences in the level of education of CEOs and CFOs on the level of R&D investment in companies (Harymawan *et al.*, 2020). The prior research argues that the background of expertise and educational level of company executives is related to company decision-making, which is R&D investment. In addition, another study also shows that an accounting career and related experience can affect a person's performance while serving as CFO. This experience can shape the behavior of CFOs when faced with risks, which will have an impact when they have to make strategic decisions in the company (Hoitash *et al.*, 2016).

Thus, when company executives such as CEOs and CFOs have work experience as auditors, who have special skills and experience, they can be carried over and influence their interpretation of dealing with risk. Therefore, this can also be carried over when they make decisions related to their responsibilities, such as risk preferences and company investment decisions.

### 2.2 Previous research

Several previous studies examine the relationship between the background and characteristics of top management on the company's strategic decisions. For example,

a study by [Hoitash et al. \(2016\)](#), examines the investment decisions of R&D companies with corporate CFOs with general accounting backgrounds, such as controllers, internal auditors, CPAs, and external auditors. This study argues that someone with an accounting background tends to be conservative and risk-averse, showing results where CFOs with an accountant background invest less in R&D.

Another study looked at how the military background of a CEO has a positive relationship with investment efficiency. The argument supports this research that the attributes of someone with a military background tend to be selfless, so they are more likely to take projects that can increase the company's value, which encourages the achievement of company investment efficiency ([Ullah et al., 2021a](#)). In addition, the study explains that CEOs with military backgrounds are accustomed to being educated to be loyal, responsible, and with integrity so that such character will encourage them when serving as company management not to act opportunistically by investing in negative value projects. These findings indicate that the value from their previous work experience contributes to their decision-making when serving as company executives.

Prior study also documented how the educational characteristics of CEOs and CFOs relate to R&D investment in companies in Indonesia. The results show that CEOs with higher levels of education tend to invest more in R&D ([Harymawan et al., 2020](#)). The argument from the previous finding is when CEOs or CFOs receive higher education, they are more likely to instill a long-term perspective. Therefore, the results of this study indicate that their educational background contributes to their decision-making, such as the level of R&D investment in the company. In another example, CEO's background can influence the implementation of his strategy in the healthcare or hospital industry. The result suggests that CEOs with a clinical background tend to focus on non-financial information when making strategy implementation decisions. However, when CEOs have administrative background, they tend to use financial information and management information systems in creating cost-reduction strategies ([Naranjo-Gil and Hartmann, 2007](#)).

The results of previous studies that have been described show that the characteristics and values obtained from the top management background can influence the interpretation of a company executive in making strategic decisions, which is in line with the upper echelon theory ([Hambrick, 2007](#)). Based on these findings, we are interested in seeing how the CEO and CFO with auditor background, especially the external auditor's experience, can be related to their decision-making regarding company investment.

According to [Bowlin et al. \(2009\)](#), the auditor profession is considered as a stepping stone in a career journey. Thus, some top managements apparently have a background working as an auditor. In the context of work experience as auditors, their responsibility in assessing fraud risk requires the characteristics of professional skepticism, which is an important basis for them ([Hurt, 2010](#)). So indirectly, auditors tend to have a skeptical mindset or a questioning mind in looking at the situation ([Nelson, 2009](#)). Such characteristics can be carried over when they hold important positions in the company and influence company decision-making, this argument is aligned with upper echelon theory ([Hambrick, 2007](#); [Hambrick and Mason, 1984](#)).

In practice, the auditor profession is also required to work according to the applicable code of ethics so that it can be said that the auditor works in an ethical environment ([Pflugrath et al., 2007](#)). Therefore, the value they get when they work as auditors can be carried away when they have to make a company's strategic decision so as not to act opportunistically by making inefficient investments for personal gain.

### 2.3 Hypothesis development

**2.3.1 Ex-auditor CEO and investment efficiency.** Several studies discovered that the certain characteristics of CEOs could affect their strategic decision, such as the relationship between

CEOs career horizon to their earnings quality (Che-Ahmad *et al.*, 2020), CEOs age and their analysts forecast properties (Haider *et al.*, 2019), and busy CEOs to their financial reporting quality (Harymawan *et al.*, 2022). These studies show that certain characteristics of CEOs contribute to determining certain strategic decision. The CEO is the top management of the company who is involved in making company decisions, such as investment decisions (Ullah *et al.*, 2021a). This is shown through the results of previous studies, which found that CEOs with high managerial abilities could overcome two causes of inefficient investments, such as underinvestment and overinvestment (Gan, 2019). Furthermore the ability of the CEO matters because it could be associated with opportunistic behavior, because lower ability CEOs tend to release less accurate management earnings forecasts (Yan *et al.*, 2021). Based on this research, the managerial ability of a CEO is obtained through the experience and values they have received in the past. Therefore, this study wants to see how the work experience gained by CEOs as auditors can affect their risk preferences in making managerial decisions, such as company investment decisions.

Previous studies have found that company management with an auditor background helps them make strategic reporting decisions, such as determining which accounting policies to adopt or how much money needs to be invested in developing internal controls (Bowlin *et al.*, 2009). In addition, the auditor profession is required to have accounting knowledge, client industry insight, insight into the company's business in general, problem-solving skills, and critical thinking in carrying out their audit duties (Bonner and Lewis, 1990). So, such abilities and experience can help a CEO experienced as an auditor identifies optimally profitable investment opportunities for the company. In addition, the experience of working as an auditor is also bound by a code of ethics, so they work in an ethical environment (Pflugrath *et al.*, 2007). Even in their role as auditors, they are also required to be reliable to maintain public trust (Taylor *et al.*, 2003). So the value they get when they work as auditors can encourage them not to act opportunistically or avoid the motive to do empire-building by investing in projects that are not profitable for stakeholders (Ullah *et al.*, 2021a). Furthermore, these arguments are supported by the upper echelon theory, which states that the experience of an executive can influence their interpretation and decisions when faced with a situation (Hambrick, 2007). Thus, this study proposes the following hypothesis:

H1. Companies with ex-auditor CEOs tend to have more efficient investment decisions.

*2.3.2 Ex-auditor CFO with investment efficiency.* CFO is the top management of the company whose job is to oversee the company's accounting and finance functions, which, at the company hierarchy level, are under the position of CEO (Harymawan *et al.*, 2020; Hóitash *et al.*, 2016). More specifically, the CFO is responsible for overseeing the company's financial reporting, managing internal controls, and ensuring compliance with accounting regulations.

In practice, the CFO is not the sole decision-maker regarding accounting, investing, and corporate financing. However, recently CFO has also played a role in shaping and executing the company's strategy and has an important position in the company's top management (Datta and Iskandar-Datta, 2014). Therefore, it is important to look at the relationship between work experience and the value obtained by the CFO concerning the company's investment decisions.

As previously explained, the main role of the CFO is to oversee the accounting and finance functions, so it is not surprising that previous studies have looked at the accounting background of the CFO. This can be obtained through work experience as a public accountant or auditor. Based on previous studies, the auditor profession has the opportunity to have a lot of insight and information related to the business environment because auditors often meet with clients (company managers) regularly (Bae *et al.*, 2017). Thus, the auditor can be said to have access to information that is not publicly available. This advantage helps the auditor contribute to the efficiency of his client's investment as an information provider. Therefore, the advantages of information insight gained by someone experienced as an auditor can certainly help when they need to make the right investment decisions for the company.

Moreover, according to Lu and Sapra (2009), an auditor may act conservatively or aggressively based on the client's risk to them. Thus, two possible risk preferences of experienced executives as auditors depend on the context of their circumstances. Risk preference behavior based on this situation can be carried over when they serve as company executives, and if they can manage preferences well, it can help them to determine the optimal level of investment. Thus, the second hypothesis of this study is as follows:

H2. Companies with ex-auditor CFOs tend to have more efficient investment decisions.

### 3. Research methodology

#### 3.1 Sample selection and data source

The population used in this study is of companies from all industries other than finance, insurance, and real estate, which are listed on the Indonesia Stock Exchange ([www.idx.co.id](http://www.idx.co.id)) during the 2010–2019 period. We exclude companies with SIC (Standard Industrial Classification) code number 6 from the sample because they have different characteristics from other industries. Moreover, we exclude the financial industry from the sample so that the research can be more comparable (Sánchez and Yurdagul, 2013).

The observation results from the sample selection process were 2,763 for the ex-auditor CEO and 2,708 for the ex-auditor CFO. The presentation of the research sample selection criteria is given in Table 1.

#### 3.2 Variables measurement

**3.2.1 Dependent variable of investment efficiency (INVEFF).** By definition, investment efficiency is explained when there is no investment distortion such as underinvestment or overinvestment since no deviation from the expected investment level can encourage investment efficiency (Huang, 2020).

According to Biddle *et al.* (2009) and Huang (2020), in measuring the level of investment efficiency, the company needs to know the abnormal investment value, which is the deviation of the company's investment level from the expected investment level. This abnormal investment is measured by calculating the residual value from the regression model, which is estimated using the industry-year, with the following model:

$$INVEFF_{i,t} = \beta_0 + \beta_1 MTB_{i,t-1} + \beta_2 SG_{i,t-1} + \beta_3 FCF_{i,t} + \beta_4 LEV_{i,t-1} + \beta_5 LOGSALE_{i,t-1} + \text{IndustryDummy} + \text{Year Dummy} + \epsilon_{i,t} \quad (1)$$

Description:

INVEFF = total capital expenditure and R&D expenses divided by initial assets

**Table 1.**  
Sample selection  
criteria

Description	Number observation of ex-auditor CEOs	Number observation of ex-auditor CFOs
Listed company in IDX (2010–2019)	9,664	9,664
Companies that are included in the SIC category number 6	(1,411)	(1,411)
Missing data	(5,490)	(5,525)
<i>Total sample</i>	2,763	2,708

MTB = market-to-book ratio, which is measured by subtracting the total value of assets by the book value of the common share and adding the market value of the common share, then dividing by the total assets.

SG = sales growth, which is calculated by subtracting the number of sales from the previous year's sales, and divided by the previous year's sales

FCF = free cash flow, which is calculated by dividing the total operating cash flow by total assets

LEV = leverage calculated by dividing total debt by total assets

LOGSALE = natural logarithm of the firm's total sales

The residual value generated from the regression equation will show the difference between the investment made and the investment value that the company should make. Furthermore, we absolute the residual value by following a prior study (Chen *et al.*, 2011). Actually, the larger the residual's absolute value, the less efficiently the firms engage their investment project (Liu and Tian, 2021). However, in this study, we multiply it by a negative one so that the overall value will be negative. This treatment is needed to make it easier to interpret and indicate that a positive and higher value represents higher investment efficiency.

**3.2.2 Independent variable.** 3.2.2.1 Ex-auditor CEO (CEOEXAUD). The ex-auditor CEO is an executive at the top level of the company's hierarchy and has experience as an auditor in a public accounting firm. CEO positions have influence and are responsible for ensuring that their subordinates act according to directions (Hiebl, 2014). In addition, the CEO has an important role in making company decisions and overseeing the company's overall activities (Harymawan *et al.*, 2020). For example, the CEO is responsible for making major decisions regarding the company's investments and finances.

This study used the ex-auditor CEO variable as an independent variable. It was measured by giving a code of 1 if a CEO had work experience as an auditor at a public accounting firm and 0 for otherwise. We obtain this variable manually by gathering the information from the CEO profile in the annual report.

3.2.2.2 Ex-auditor CFO (CFOEXAUD). An ex-auditor CFO is a company executive responsible for overseeing financial reporting, managing internal control, and ensuring the company's financial statements are in accordance with applicable accounting regulations (Hoitash *et al.*, 2016), and who previously had work experience as an auditor in a public accounting firm. Within the company, the CFO plays a role in the company's capital budgeting, corporate financing, operational budgeting, and managing the company's cash management.

In this study, the ex-auditor CFO is an independent variable, defined as the position of the company's Chief Financial Officer who has had work experience as an auditor at a public accounting firm. Thus, ex-auditor CFO (CFOEXAUD) is a dummy variable, which is given a value of 1 if the company's CFO position has worked as an auditor at a public accounting firm and 0 otherwise. We obtain this information manually by collecting the data from the annual report in the section of the CFO profile.

3.2.3 Control variables. Following prior studies, we control several predictors of a firm's investment efficiency. We use control variables to control the side of corporate governance and corporate characteristics. Governance control variables include CEO and CFO gender (Ullah *et al.*, 2021b). In addition, there is also a CEO and CFO tenure (Hoitash *et al.*, 2016), a board size variable which shows the number of boards in the company (Liu and Tian, 2021), and a Big 4 auditor firm that audits the company (Boubaker *et al.*, 2018).



Furthermore, several variables to control research outcomes in terms of company characteristics use property, plant, and equipment (PPE) (Bae *et al.*, 2017), firm age (Rajkovic, 2020), profitability (ROA) (Ullah *et al.*, 2020), firm size (Rajkovic, 2020), and leverage (Mirza *et al.*, 2020). Additionally, we include year and industry fixed effects to address the differences in the characteristics of observations. We follow a prior study using these fixed effects to absorb variation by industry and year (Bae *et al.*, 2017). Moreover, the year fixed effect is used to control the differences in economic condition during our study's period, while the industry fixed effect is used to control the characteristics differences of each industry in this study (Ratri *et al.*, 2021). The detailed variable operationalizations are given in Table 2.

3.3 Empirical model

This study will examine the relationship between ex-auditor CEOs and CFOs with efficient investment decisions. We use clustered approach OLS regression model with the following equation:

Variable	Measurement	Source
<i>Dependent variable</i>		
Investment efficiency	ABSMININEFF The residual value of Huang's (2020) regression model, which has been absolute value and multiplied by -1. This variable shows the value of investment efficiency	OSIRIS and financial report
<i>Independent variable</i>		
Ex-auditor CEO	CEOEXAUD The dummy variable is given a value of 1 if the CEO has work experience as an auditor at a Public Accounting Firm, and 0 if otherwise	Annual report
Ex-auditor CFO	CFOEXAUD The dummy variable is given a value of 1 if the CFO has work experience as an auditor at a Public Accounting Firm, and 0 if otherwise	Annual report
<i>Control variable</i>		
CEO gender	CEOGENDER The dummy variable is numbered 1 if the CEO is male, and 0 if female	Annual report
CFO gender	CFOGENDER The dummy variable is numbered 1 if the CFO is male, and 0 if female	Annual report
CEO tenure	CEOTENURE The number of years a person has served as CEO of a company	Annual report
CFO tenure	CFOTENURE The number of years a person has served as CFO of a company	Annual report
Number of company boards	BSIZE The number of the company's board of commissioners and board of directors	Annual report
Auditor BIG4	BIG4 The indicator variable which is assigned a value of 1 for companies audited by Big4 audit firms, and 0 for otherwise	Annual report
PPE	PPE The value of the natural logarithm of the company's PPE amount	OSIRIS
Firm age	AGE The natural logarithm of the number of years the company was founded	OSIRIS
Profitability	ROA Total net income divided by the total assets of the company	OSIRIS
Firm size	FIRMSIZE The natural logarithm of total assets	OSIRIS
Leverage	LEVERAGE Total debt, divided by total assets	OSIRIS

Table 2. Variable operational definition

$$\begin{aligned} \text{ABSMININVEFF}_{i,t} = & \beta_0 + \beta_1 \text{CEOEXAUD}_{i,t} + \beta_2 \text{CEOGENDER}_{i,t} + \beta_3 \text{CEOTENURE}_{i,t} \\ & + \beta_4 \text{BSIZE}_{i,t} + \beta_5 \text{BIG4}_{i,t} + \beta_6 \text{PPE}_{i,t} + \beta_7 \text{AGE}_{i,t} + \beta_8 \text{ROA} \\ & + \beta_9 \text{FSIZE}_{i,t} + \beta_{10} \text{LEV}_{i,t} + \text{Industry Fixed Effect} \\ & + \text{Year Fixed Effect} + \varepsilon_{i,t}, \end{aligned} \quad (2)$$

$$\begin{aligned} \text{ABSMININVEFF}_{i,t} = & \beta_0 + \beta_1 \text{CFOEXAUD}_{i,t} + \beta_2 \text{CFOGENDER}_{i,t} + \beta_3 \text{CFOTENURE}_{i,t} \\ & + \beta_4 \text{BSIZE}_{i,t} + \beta_5 \text{BIG4}_{i,t} + \beta_6 \text{PPE}_{i,t} + \beta_7 \text{AGE}_{i,t} + \beta_8 \text{ROA} \\ & + \beta_9 \text{FSIZE}_{i,t} + \beta_{10} \text{LEV}_{i,t} + \text{Industry Fixed Effect} \\ & + \text{Year Fixed Effect} + \varepsilon_{i,t}, \end{aligned} \quad (3)$$

$$\begin{aligned} \text{ABSMININVEFF}_{i,t} = & \beta_0 + \beta_1 \text{CEOEXAUD}'\text{CFOEXAUD}_{i,t} + \beta_2 \text{CEOEXAUD}_{i,t} \\ & + \beta_3 \text{CFOEXAUD}_{i,t} + \beta_4 \text{CEOGENDER}_{i,t} + \beta_5 \text{CFOGENDER}_{i,t} \\ & + \beta_6 \text{CEOTENURE}_{i,t} + \beta_7 \text{CFOTENURE}_{i,t} + \beta_8 \text{BSIZE}_{i,t} + \beta_9 \text{BIG4}_{i,t} \\ & + \beta_{10} \text{PPE}_{i,t} + \beta_{11} \text{AGE}_{i,t} + \beta_{12} \text{ROA} + \beta_{13} \text{FSIZE}_{i,t} + \beta_{14} \text{LEV}_{i,t} \\ & + \text{Industry Fixed Effect} + \text{Year Fixed Effect} + \varepsilon_{i,t}, \end{aligned} \quad (4)$$

#### 4. Results and discussion

##### 4.1 Descriptive statistics and univariate analysis

The lack of research on ex-auditor CEOs and CFOs in Indonesia encourages us to present the number of ex-auditor CEOs and CFOs in 2010–2019 from companies listed on the Indonesia Stock Exchange. The following Figure 1 represents a graph of CEOs and CFOs with experience as auditors for public accounting firms in Indonesian companies from all industries, which tends to increase every year.



**Figure 1.** The data of ex-auditor CEOs and CFOs collected through information on the annual reports of companies listed on the IDX for 2010–2019

Furthermore, Table 3 provides descriptive statistics with two panels that already exclude the companies with Standard Industrial Classification (SIC) code number 6. Panel A presents the sample distribution among dummy variables in this study. The total number of ex-auditor CEO (CEOEXAUD) in this study is 2,763, with 158 indicated as ex-auditor CEO and 2,605 as non-ex-auditor CEO. While the total numbers of ex-auditor CFO is 671, non-ex-auditor CFO is 2,037, with a total of 2,708.

Panel B displays the sample distribution of some non-dummy variables in this study. For example, the variable of investment efficiency (ABSMININVEFF) in this study has mean value -0.002. Please note that the value of this variable is obtained by the residual value of Huang's (2020) regression model. Afterward, we absolute the residual value and multiply it by -1 to easier interpret the result.

4.2 Pearson correlation

Table 4 displays the result of the Pearson correlation test and indicates the variable of ex-auditor CEO (CEOEXAUD) has a significant positive correlation with the variable investment efficiency (ABSMININVEFF) at the 5% level (coefficient = 0.041). This positive correlation implies that ex-auditor CEOs are more likely to have efficient investment decisions. However, the variable of ex-auditor CFO (CFOEXAUD) shows an insignificant positive correlation with investment efficiency (ABSMININVEFF). Other correlations between variables which show significant results generally do not have multicollinearity problems for further analysis.

4.3 Regression analysis

4.3.1 Ex-auditor CEO and investment efficiency. We present the results of OLS regression to test the first hypothesis in Table 5. The first column shows the test result without controlling the industry and year fixed effect, and we document significant results with the score of adjusted  $R^2 = 0.086$ . Furthermore, we include industry and year fixed effect in our test, and

Descriptive statistics

Variable	0		1		N	%
	N	%	N	%		
<i>Panel A: Dummy variable</i>						
CEOEXAUD	2,605	94.28%	158	5.72%	2,763	100%
CFOEXAUD	2,037	75.22%	671	24.78%	2,708	100%
CEOGEN	166	6.01%	2,597	93.99%	2,763	100%
CFOGEN	517	19.09%	2,191	80.91%	2,708	100%
BIG4	1,654	59.86%	1,109	40.14%	2,763	100%
		Mean	Median	Minimum	Maximum	
<i>Panel B: Non-dummy variable</i>						
ABSMININVEFF		-0.002	-0.000	-0.032	-0.000	
CEOTENURE		6.503	3.000	0.000	39.000	
CFOTENURE		4.430	3.000	0.000	24.000	
BSIZE		8.780	8.000	4.000	19.000	
PPE		26.939	27.119	20.228	31.455	
AGE		3.157	3.296	0.693	4.700	
ROA		3.113	2.790	-37.480	37.300	
FSIZE		28.298	28.294	23.749	32.197	
LEV		0.541	0.497	0.031	3.029	

Table 3. Descriptive statistics

Variable number [1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
[1] AEMINVEFF	1.000						
[2] CEOEXAUD	0.041 <sup>***</sup> (0.023)	1.000					
[3] CFOEXAUD	0.023 (0.198)	0.124 <sup>***</sup> (0.000)	1.000				
[4] CEOGEN	0.027 (0.126)	-0.044 <sup>***</sup> (0.008)	-0.040 <sup>**</sup> (0.016)	1.000			
[5] CFOGEN	-0.054 <sup>***</sup> (0.002)	0.049 <sup>***</sup> (0.003)	-0.020 (0.218)	0.064 <sup>***</sup> (0.000)	1.000		
[6] CEO tenure	-0.021 (0.251)	-0.044 <sup>***</sup> (0.009)	-0.031 <sup>*</sup> (0.068)	-0.018 (0.306)	0.486 <sup>***</sup> (0.000)	1.000	
[7] CFO tenure	-0.049 <sup>***</sup> (0.007)	-0.044 <sup>***</sup> (0.010)	-0.071 <sup>***</sup> (0.000)	0.038 <sup>*</sup> (0.027)	-0.088 <sup>***</sup> (0.000)	-0.041 <sup>**</sup> (0.023)	1.000
[8] ESIZE	-0.071 <sup>***</sup> (0.000)	0.028 (0.102)	0.126 <sup>***</sup> (0.000)	0.048 <sup>***</sup> (0.005)	-0.088 <sup>***</sup> (0.000)	-0.041 <sup>**</sup> (0.023)	1.000
Variable number [9]	[10]	[11]	[12]	[13]	[14]		
[9] BIG4	1.000						
[10] PPE	0.373 <sup>***</sup> (0.000)	1.000					
[11] AGE	0.114 <sup>***</sup> (0.000)	0.152 <sup>***</sup> (0.000)	1.000				
[12] ROA	0.226 <sup>***</sup> (0.000)	0.078 <sup>***</sup> (0.000)	0.080 <sup>***</sup> (0.000)	1.000			
[13] FSIZE	0.406 <sup>***</sup> (0.000)	0.846 <sup>***</sup> (0.000)	0.112 <sup>***</sup> (0.000)	0.157 <sup>***</sup> (0.000)	1.000		
[14] LEV	-0.070 <sup>***</sup> (0.000)	-0.027 <sup>*</sup> (0.067)	0.061 <sup>***</sup> (0.000)	-0.390 <sup>***</sup> (0.000)	-0.069 <sup>***</sup> (0.000)	1.000	

**Table 4.**  
Pearson correlation

	Predicted sign	(1) ABSMININEFF	(2) ABSMININEFF
CEOEXAUD	+	0.001 <sup>***</sup> (3.25)	0.001 <sup>**</sup> (2.44)
CEOGEN	-	0.001 (1.53)	0.001 <sup>**</sup> (2.16)
CEOTENURE	+	0.000 (0.12)	0.000 <sup>**</sup> (2.57)
BSIZE	+	-0.000 (-0.15)	0.000 (1.32)
BIG4	+	-0.000 <sup>**</sup> (-2.29)	-0.001 <sup>***</sup> (-3.97)
PPE	-	-0.000 <sup>***</sup> (-5.67)	0.000 (0.07)
AGE	-	-0.001 <sup>***</sup> (-5.95)	-0.000 <sup>***</sup> (-3.15)
ROA	+	-0.000 <sup>***</sup> (-6.64)	-0.000 <sup>***</sup> (-5.88)
FSIZE	+	0.000 <sup>***</sup> (4.72)	-0.000 (-0.73)
LEV	+	-0.001 <sup>***</sup> (-3.41)	-0.001 <sup>**</sup> (-2.58)
_cons		-0.001 (-0.62)	0.001 (1.03)
Industry fixed effect		Not included	Included
Year fixed effect		Not included	Included
Adjusted R <sup>2</sup>		0.086	0.294
N		2,763	2,763

**Table 5.**  
Regression result for  
ex-auditor CEO and  
investment efficiency

Note(s): *t* statistics in parentheses  
\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

the result is shown in the second column. We document a positive significant relationship between ex-auditor CEO and investment efficiency at the 5% significance level (coeff = 0.001,  $t = 2.44$ ). Moreover, the score of adjusted  $R^2$  in the second column is 0.294, and this shows that the control of industry and year fixed effect add the adjusted  $R^2$  by 20.8% if we compare the first and second columns. However, both results show a significant positive relationship between ex-auditor CEO and investment efficiency. This result indicated that ex-auditor CEOs are more likely to have efficient investments because the characteristics and experience they obtained could help them efficiently allocate the amount of investment.

This result is in accordance with the findings of previous studies, which state that CEOs with high managerial abilities tend to have efficient investments, where these abilities can be obtained through experience and values from their past work experience (Gan, 2019). In addition, some work value experience gained through the auditor profession, such as professional skepticism and professional judgment (Carpenter, 2007; Hurtt, 2010), can help ex-auditor CEOs to think critically in identifying optimally profitable investment opportunities for the company.

The auditor profession also has a lot of insight and information related to the business environment because auditors often meet with clients (company managers) (Bae et al., 2017), so these results also support why ex-auditor CEOs can make more efficient decisions related to business investment. In addition, auditors are also bound by a code of ethics to work in an ethical environment (Pflugrath et al., 2007) and are required to be reliable to maintain public trust (Taylor et al., 2003). Therefore, their value when working as auditors can encourage them not to act opportunistically or avoid the motive to do empire-building, which is one of the causes of inefficient investment.

**4.3.2 Ex-auditor CFO and investment efficiency.** The result of the second hypothesis is shown in Table 6. We separate the result based on the inclusion of the control industry and year fixed effect. However, the first and second columns do not capture a significant result between ex-auditor CFO and investment efficiency. This result documents that the CFO has a different role from the CEO in terms of investment decisions. Furthermore, this result is in accordance with the fact that the CFO is not the sole decision-maker regarding accounting, investing, and corporate financing, therefore in the corporate hierarchy, the CFO position is below the CEO

	Predicted sign	(1) ABSMININVEFF	(2) ABSMININVEFF
CFOEXAUD	+	0.000 (1.43)	0.000 (0.38)
CFOGEN	-	-0.000 (-2.53)	-0.000 (-0.78)
CFOTENURE	+	-0.000 (-0.97)	0.000 (0.65)
BFSIZE	+	0.000 (0.08)	0.000 (1.00)
BIG4	+	-0.000** (-2.31)	-0.001*** (-4.08)
PPE	-	-0.000*** (-5.45)	0.000 (0.63)
AGE	-	-0.001*** (-5.75)	-0.000*** (-2.73)
ROA	+	-0.000*** (-6.81)	-0.000*** (-5.86)
Fysize	+	0.000*** (4.77)	-0.000 (-0.67)
LEV	+	-0.001*** (-3.09)	-0.001** (-2.34)
_cons		-0.001 (-0.47)	0.002 (1.13)
Industry fixed effect		Not included	Included
Year fixed effect		Not included	Included
Adjusted R <sup>2</sup>		0.090	0.288
N		2,708	2,708

Note(s): *t* statistics in parentheses  
\* *p* < 0.1, \*\* *p* < 0.05, \*\*\* *p* < 0.01

**Table 6.** Regression result for ex auditor CFO and investment efficiency

(Harymawan *et al.*, 2020; Hoitash *et al.*, 2016). Moreover, the CEO is the top management of the company and who makes the company decisions, like investment decisions. At the same time, the CFO suggests and monitors the company's accounting and finance functions.

Hence, we are interested to see the relationship with investment efficiency when a company has a CEO and CFO who are both former auditors. This result is provided in Table 7 and indicates that when the company has a CEO and CFO having the same experience as an auditor, they are more likely to have efficient investment. The results document a significantly stronger positive relationship than the result of the first hypothesis that significant at 1% (coeff = 0.002, *t* = 3.11). These results suggest that a CEO and a CFO who both have work experience as auditors will have the same perception and influence the decisions made because of their similar experience or professional background. As a result, the CEO as top management has more dominant authority and provides more influence in providing the company's final investment decisions, while the CFO plays a role in providing investment decision recommendations to the CEO. The results of this study are in accordance with previous research, which stated that the CFO is the CEO's business partner (Hsieh *et al.*, 2018).

#### 4.4 Robustness test

4.4.1 Alternative measurement. We want to see the consistency of this study by examining the result using alternative measurements of investment efficiency. We use the residual value from investment efficiency model regression from prior study (McNichols and Stubben, 2008). This measurement estimates the investment model for each industry and year, with the following regression model:

$$\text{INVEFF2}_{i,t} = a + \beta_0 Q_{i,t-1} + \beta_1 Q_{i,t-1} \times \text{Quartile2}_{i,t-1} + \beta_2 Q_{i,t-1} \times \text{Quartile3}_{i,t-1} + \beta_3 Q_{i,t-1} \times \text{Quartile4}_{i,t-1} + \beta_4 \text{CF}_{i,t} + \beta_5 \text{GROWTH}_{i,t-1} + \beta_6 \text{INV}_{i,t-1} + e_{i,t} \quad (5)$$

Description:

INVEFF2 = indicates the investment level, while Quartile 2, Quartile 3, and Quartile 4 are indicator variables that equal to 1, if *Q* is in the second, third, and fourth quartile of industry-year distribution.

ARA  
30,4

572

	(1)
	ABSMININVEFF
CEOEXAUD*CFOEXAUD	0.002 <sup>***</sup> (3.11)
CEOEXAUD	-0.000 (-0.21)
CFOEXAUD	-0.000 (-0.64)
CEOGEN	0.001 <sup>**</sup> (2.30)
CFOGEN	-0.000 (-0.83)
CEOTENURE	0.000 <sup>***</sup> (2.68)
CFOTENURE	-0.000 (-0.49)
BSIZE	0.000 (1.16)
BIG4	-0.001 <sup>***</sup> (-4.09)
PPE	-0.000 (-0.06)
AGE	-0.000 <sup>***</sup> (-2.98)
ROA	-0.000 <sup>***</sup> (-5.74)
FSIZE	-0.000 (-0.47)
LEV	-0.001 <sup>**</sup> (-2.50)
_cons	0.001 (0.77)
Industry fixed effect	Included
Year fixed effect	Included
Adjusted R <sup>2</sup>	0.291
N	2,638

**Note(s):** *t* statistics in parentheses  
\**p* < 0.1, \*\**p* < 0.05, \*\*\**p* < 0.01

**Table 7.**  
Regression result for  
CEO and CFO who are  
both former auditors  
with investment  
efficiency

CF = cash flows

Growth = natural logarithm of total asset in previous year

INV = investment level in previous year

$\varepsilon$  = error term

Furthermore, we also treat this alternative measurement like the prior measurement by using the absolute value of residual value from the investment regression model and multiplying by -1 to make it easier for us to interpret the results.

According to Table 8, we still document a consistent result in which ex-auditor CEO has a positive and significant result to investment efficiency at the 10% level (coeff = 0.000 and *t* = 1.71). However, the ex-auditor CFO remains insignificant to investment efficiency using this alternative measurement. This implies a difference in roles between CEO and CFO related to investment decisions.

**4.4.2 Coarsened Exact Matching (CEM).** Following prior studies, we want to address the endogeneity issue and examine this study's consistency. We argue that the presence of ex-auditor executives in this study may generate a potential endogeneity problem; therefore, we employ Coarsened Exact Matching (CEM) to handle this problem. Since the significant result only occurs with ex-auditor CEO, therefore we only perform the CEM test on this variable.

Based on Table 9, panel A, variable CEOEXAUD indicates a total of 103 out of 158 ex-auditor CEO observations matched with 472 out of 2065 non-ex-auditor CEOs. Furthermore, after we applying the matching requirement in Table 9 panel B, we capture the consistent result of ex-auditor CEO as positively related to investment efficiency at the 1% significance level (coeff = 0.000, *t* = 2.87). Therefore, the results of this study are consistent and robust from self-selection bias problem of observable variables.

	(1) ABSMININVEFF2	(2) ABSMININVEFF2
CEOEXAUD	0.000 <sup>*</sup> (1.71)	
CFOEXAUD		-0.000 (-0.39)
CEOGEN	0.000 (1.55)	
CFOGEN		0.000 (1.64)
CEOTENURE	-0.000 (-0.36)	
CFOTENURE		-0.000 (-0.78)
BSIZE	-0.000 (-0.62)	-0.000 (-0.58)
BIG4	0.000 (0.12)	0.000 (0.55)
PPE	0.000 (0.20)	-0.000 (-0.06)
AGE	-0.000 (-1.42)	-0.000 (-1.54)
ROA	-0.000 <sup>**</sup> (-2.58)	-0.000 <sup>**</sup> (-2.55)
FSIZE	0.000 (0.33)	0.000 (0.63)
LEV	-0.000 (-0.19)	0.000 (0.96)
_cons	-0.000 (-0.72)	-0.000 (-0.70)
Industry fixed effect	Included	Included
Year fixed effect	Included	Included
Adjusted R <sup>2</sup>	0.216	0.221
N	2,749	2,692

Note(s): *t* statistics in parentheses  
<sup>\*</sup>*p* < 0.1, <sup>\*\*</sup>*p* < 0.05, <sup>\*\*\*</sup>*p* < 0.01

**Table 8.**  
Regression result of  
alternative  
measurement

	CEOEXAUD = 1	CEOEXAUD = 0
<i>Panel A: Matching summary (2010-2019)</i>		
All	158	2,605
Matched	103	472
Unmatched	55	2,133

	(1) ABSMININVEFF
<i>Panel B: Regression result of CEM method</i>	
CEOEXAUD	0.000 <sup>***</sup> (2.87)
CEOGEN	-0.000 (-0.48)
CEOTENURE	-0.000 (-0.28)
BSIZE	-0.000 (-1.56)
BIG4	-0.000 (-0.46)
PPE	0.000 (1.35)
AGE	0.000 (0.42)
ROA	-0.000 (-1.23)
FSIZE	-0.000 (-0.52)
LEV	-0.000 <sup>*</sup> (-1.81)
_cons	-0.001 (-0.85)
Industry fixed effect	Included
Year fixed effect	Included
r <sup>2</sup>	0.410
Adjusted R <sup>2</sup>	0.382
N	575

Note(s): *t* statistics in parentheses  
<sup>\*</sup>*p* < 0.1, <sup>\*\*</sup>*p* < 0.05, <sup>\*\*\*</sup>*p* < 0.01

**Table 9.**  
Regression of CEM  
method



4.5 Additional analyses

4.5.1 Ex-auditor CEO relationship with gender and investment efficiency. We are interested in extending the study of investment efficiency by interacting the executive ex-auditors with gender. According to a prior study, CEO gender plays a role in investment efficiency by enhancing the governance and disciplining the management; therefore, a female CEO is more likely to have higher investment efficiency (Ullah *et al.*, 2021b). The argument shows that female leadership could attenuate information asymmetry and agency conflict between principals and agents, and the presence of female CEOs could facilitate better identification and execution of superior investment projects leading to the optimal investment decision.

Hence, we interact the variable of ex-auditor CEO with CEO gender (dummy variable coded as 1 if the CEO is male, and 0 if female). We document the interaction result is significant and negative with investment efficiency in Table 10 (coeff = -0.002, *t* = -2.98). This result is interesting because it suggests that the male gender weakens the positive relationship between ex-auditor CEO and investment efficiency. This result is in accordance with prior results that female CEOs are better than male CEOs in enhancing investment efficiency (Ullah *et al.*, 2021b). For ex-auditor CFO and gender, we document no significant result.

4.5.2 Over-investment and under-investment sub-samples. Additionally, we test the relationship between ex-auditor CEOs and CFOs to investment efficiency in a separate sample of over-investment and under-investment firms. The result from Table 11 shows that ex-auditors CEOs are more associated with increased investment efficiency among firms prone to under-investment. The results indicate that experience as an auditor could help them when holding a position as CEO to better decide the optimal level of investment to avoid under-investment.

4.5.3 Other additional analyses. For further analysis, we perform additional tests to examine the ex-auditor executives with investment efficiency among the samples based on firm age. We are interested to examine this relationship because the company's operational

	(1) ABSMININVEFF	(2) ABSMININVEFF
CEOEXAUD*GEN	-0.002*** (-2.98)	
CFOEXAUD*GEN		-0.000 (-0.12)
CEOEXAUD	0.002*** (3.98)	
CFOEXAUD		0.000 (0.39)
CEOGEN	0.001** (2.42)	
CFOGEN		-0.000 (-0.60)
CEOTENURE	0.000** (2.55)	
CFOTENURE		0.000 (0.66)
BSIZE	0.000 (1.33)	0.000 (1.00)
BIG4	-0.001*** (-4.03)	-0.001*** (-4.08)
PPE	0.000 (0.21)	0.000 (0.63)
AGE	-0.000*** (-3.17)	-0.000*** (-2.73)
ROA	-0.000*** (-5.88)	-0.000*** (-5.86)
FSIZE	-0.000 (-0.85)	-0.000 (-0.67)
LEV	-0.001*** (-2.60)	-0.001** (-2.33)
_cons	0.001 (0.97)	0.002 (1.13)
Industry fixed effect	Included	Included
Year fixed effect	Included	Included
Adjusted R <sup>2</sup>	0.295	0.288
N	2,763	2,708

**Table 10.**  
The interaction of  
ex-auditor CEOs and  
CFOs with gender to  
investment efficiency

Note(s): *t* statistics in parentheses  
\* *p* < 0.1, \*\* *p* < 0.05, \*\*\* *p* < 0.01

	Over-investment sample		Under-investment sample	
	(1)	(2)	(3)	(4)
	ABSMININVEFF	ABSMININVEFF	ABSMININVEFF	ABSMININVEFF
CEOEXAUD	0.000 (0.43)		0.001*** (4.01)	
CFOEXAUD		-0.000 (-1.02)		0.000* (1.94)
CEOGEN	0.002** (2.29)		0.000 (0.76)	
CFOGEN		-0.000* (-1.82)		0.000 (0.56)
CEOTENURE	0.000 (0.57)		0.000*** (3.36)	
CFOTENURE		-0.000* (-1.86)		0.000*** (4.13)
BSIZE	-0.000 (-1.17)	-0.000 (-1.12)	0.000** (2.44)	0.000* (1.83)
BIG4	-0.000** (-2.47)	-0.000** (-2.23)	-0.001*** (-3.25)	-0.001*** (-3.30)
PPE	0.000 (0.49)	0.000 (1.36)	-0.000 (-0.92)	-0.000 (-0.79)
AGE	-0.001*** (-3.05)	-0.000** (-2.06)	-0.000* (-1.82)	-0.000* (-1.86)
ROA	-0.000*** (-3.78)	-0.000*** (-3.76)	-0.000*** (-4.86)	-0.000*** (-4.88)
FSIZE	-0.000 (-0.46)	-0.000 (-0.85)	0.000 (0.51)	0.000 (0.63)
LEV	0.000 (0.40)	-0.000 (-0.04)	-0.002*** (-3.75)	-0.002*** (-3.52)
_cons	0.001 (0.23)	0.003 (1.11)	0.001 (0.31)	0.000 (0.02)
Industry fixed effect	Included	Included	Included	Included
Year fixed effect	Included	Included	Included	Included
Adjusted R <sup>2</sup>	0.264	0.251	0.329	0.332
N	1,159	1,136	1,604	1,572

Note(s): *t* statistics in parentheses  
\**p* < 0.1, \*\**p* < 0.05, \*\*\**p* < 0.01

Table 11. Regression of over-investment and under-investment subsamples

characteristics, such as the company's life cycle (firm age) can shape a company's investment decisions (Liu *et al.*, 2021; Rajkovic, 2020). Hence, we separate the sample based on firm age, which is young and old firm age. We identify the category based on the median value of natural logarithm of firm age, and the result is shown in the un-tabulated result in Appendix 1. The result shows that a significant positive relationship between ex-auditor CEOs and investment efficiency is more prominent in young firm age. This is in accordance with the argument that the longer the firm is more likely to be in a declining stage of the business life cycle, which could reduce the investment activity (Chen *et al.*, 2011; Xie, 2015).

Furthermore, we extend the analysis by testing the ex-auditor executives and investment efficiency among the samples based on firm size, that categorized by the median value of firm size. The size of the firm is related to the firm's operational cycle, which is related to the decisions of a company. We document the un-tabulated result in Appendix 2, indicating that positive relationship between ex-auditor executives and investment efficiency is significant in both small and large firm size. The results could happen because larger firms may have more resources for investment, while smaller firms may have efficient investment because they are likely in the expansion stage (Chen *et al.*, 2011). These additional analyses show that firm characteristics also could be determinants of investment decisions (Rajkovic, 2020).

## 5. Conclusion

This study aims to examine the relationship between CEOs and CFOs who have experience as auditors with the company's investment efficiency decisions. The results found a significant positive relationship between CEOs experienced as auditors, while CFOs do not have a significant relationship with investment efficiency decisions. However, when a company has a CEO and CFO who both have work experience as an auditor, it has a positive relationship with a higher significance level than only the CEO who has experience as an auditor.

These results indicate that the CEO, as top management, has more dominant authority and provides more influence in providing the company's final investment decisions, while the CFO only plays a role in providing investment decision recommendations to the CEO. This finding is in line with the findings of a previous study, which stated that the CFO is more likely to be responsible for the accounting and investment functions of the company. Nevertheless, it is the CEO who makes investment decisions. However, the stronger relationship between ex-auditor CEO and CFO indicates that the CFO still has a role in investment decisions as a business partner to the CEO.

The results align with previous research, which stated that managerial skills such as work experience gained through the auditor profession could help overcome the causes of inefficient investments. Furthermore, the experience and expertise gained working as an auditor can help them make strategic decisions. In addition, the results of this study also remained consistent after testing with alternative measurements and the robustness of the Coarsened Exact Matching (CEM) regression test.

The results of this study provide several contributions. First, limited studies have examined the relationship between the criteria and characteristics of experienced company executives as auditors with the company's strategic decisions. Hence, the results of this study can enhance the literature related to executive background auditors with strategic decisions, such as investment decisions. Second, the results of this study also provide evidence to support the upper echelon theory. Third, the practical implications of this research can provide consideration and insight for investors and stakeholders in recruiting the company's top management to have experience as an auditor in relation to investment efficiency because the company's efficient investment decisions are crucial for the company's sustainability and investors' interests.

The limitation of this study is that there may be incomplete information related to the auditor experience of the CEO and CFO in the company's annual report. However, we have tried to overcome this by digging for information through the Internet to find information related to the experience of auditors in company executives, such as LinkedIn and Bloomberg. In addition, suggestions for future research are to do more research on the relationship of experienced executives as auditors with other company strategic decisions, apart from investment decisions. In fact, the characteristics and attributes of an experienced auditor are interesting to study when they serve as company executives because they have experience, values, and particular characteristics compared to other professions. Furthermore, future research might consider studying top management with an auditor background, specifically a signing auditor experience. We argue this experience could drive them to have more specific skills in auditing, especially skills and insight into certain business models and industries. But at the moment, we are not able to address this topic due to the limited data information on the specific background auditor position of CEO and CFO of Indonesian listed companies.

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Appendix 1

Investment  
efficiency in  
Indonesia

	Young firm age		Old firm age	
	(1) ABSMININEFF	(2) ABSMININEFF	(3) ABSMININEFF	(4) ABSMININEFF
CEOEXAUD	0.001*** (4.08)		0.001 (1.40)	
CFOEXAUD		0.000 (1.09)		0.000 (1.02)
CEOGEN	0.000 (0.42)		0.002** (2.48)	
CFOGEN		-0.000 (-1.44)		-0.000 (-0.18)
CEOTENURE	-0.000 (-0.20)		0.000** (2.43)	
CFOTENURE		-0.000 (-1.11)		0.000 (0.58)
BSIZE	-0.000 (-0.07)	-0.000 (-0.56)	0.000* (1.89)	0.000** (2.06)
BIG4	-0.000 (-0.96)	-0.000 (-0.33)	-0.001*** (-4.04)	-0.001*** (-4.29)
PPE	-0.000 (-0.37)	0.000 (0.01)	0.000 (0.08)	0.000 (0.66)
AGE	0.000 (0.73)	0.000 (1.40)	-0.003*** (-4.10)	-0.003*** (-3.98)
ROA	-0.000 (-1.27)	-0.000 (-1.36)	-0.000*** (-5.99)	-0.000*** (-5.92)
FSIZE	0.000 (0.28)	0.000 (0.36)	-0.000 (-0.97)	-0.000 (-1.18)
LEV	-0.000 (-1.50)	-0.000 (-1.42)	-0.002*** (-3.16)	-0.001*** (-2.58)
_cons	-0.001 (-0.78)	-0.001 (-0.95)	0.012*** (3.45)	0.013*** (3.68)
Industry fixed effect	Included	Included	Included	Included
Year fixed effect	Included	Included	Included	Included
r2_a	0.348	0.343	0.313	0.304
N	1,188	1,160	1,575	1,548

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**Table A1.**  
Ex-auditor executives  
and investment  
efficiency in sub-  
samples based on  
firm age

Note(s): t statistics in parentheses  
\*p < 0.1, \*\*p < 0.05, \*\*\*p < 0.01

Appendix 2

	Small firm size		Large firm size	
	(1) ABSMININEFF	(2) ABSMININEFF	(3) ABSMININEFF	(4) ABSMININEFF
CEOEXAUD	0.001*** (2.59)		0.001** (2.04)	
CFOEXAUD		-0.000 (-0.53)		0.000 (0.54)
CEOGEN	-0.000 (-0.29)		0.002** (2.50)	
CFOGEN		-0.000* (-1.76)		-0.000 (-0.20)
CEOTENURE	0.000 (0.76)		0.000*** (3.63)	
CFOTENURE		-0.000 (-0.09)		0.000 (1.18)
BSIZE	0.000 (0.56)	0.000 (0.09)	0.000 (1.47)	0.000 (1.46)
BIG4	-0.001** (-2.53)	-0.001** (-2.34)	-0.000** (-2.48)	-0.001*** (-3.37)
PPE	-0.000 (-0.94)	-0.000 (-0.55)	0.000 (0.08)	0.000 (0.95)
AGE	0.000 (0.07)	0.000 (0.16)	-0.001*** (-3.97)	-0.001*** (-3.48)
ROA	-0.000** (-2.35)	-0.000*** (-2.60)	-0.000*** (-5.77)	-0.000*** (-5.57)
FSIZE	0.000 (0.30)	0.000 (0.54)	-0.000* (-1.87)	-0.000** (-2.33)
LEV	-0.000 (-1.05)	-0.000 (-0.89)	-0.002*** (-2.98)	-0.002*** (-2.85)
_cons	-0.000 (-0.06)	-0.002 (-0.53)	0.008*** (2.66)	0.010*** (3.37)
Industry fixed effect	Included	Included	Included	Included
Year fixed effect	Included	Included	Included	Included
r2_a	0.247	0.243	0.360	0.341
N	1,232	1,200	1,531	1,508

Note(s): t statistics in parentheses  
\*p < 0.1, \*\*p < 0.05, \*\*\*p < 0.01

**Table A2.**  
Ex-auditor executives  
and investment  
efficiency in sub-  
samples based on  
firm size

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