

The Joint Effect of Corporate social responsibility disclosure and Tax Avoidance on Investment Efficiency

Soliman, Walid Shehata Mohamed Kasim

Associate Professor, Accounting Department
Faculty of Commerce, Cairo University
Email: Walid.kasim@foc.cu.edu.eg

Abdel Razek, Sahar Moustafa Mohamoud

Associate Professor, Accounting Department
Business School, Ain Shams University
E-mail: dr.Sahraabdelrazek@bus.asu.edu.eg

Abstract:

In light of limited finance resources, firms seek to have sufficient funds for catching available investment opportunities. This problem leads to asking a question about the optimal level of current investments, academic studies were interested in determining this level and the ways to increase the usefulness of investments, which is called “Investment Efficiency”. They were interested in identifying the determinants of investment efficiency. This paper concerns two of these determinants; they are corporate social responsibility disclosure and tax avoidance. The objectives of this paper are; measuring the effect of

Corporate social responsibility disclosure on Investment efficiency, measuring the effect of tax avoidance on investment efficiency, measuring the joint effect of Corporate social responsibility disclosure and tax avoidance on Investment efficiency. Using a sample of 28 non-financial listed firms, 140 annual observations, on the Egyptian Stock Exchange (EGX100) from 2017 to 2021. The findings are; (1) firms that disclose social responsibility activities have a good potential to increase their investment efficiency. (2) firms use tax avoidance practices to have a good atmosphere to enhance investment efficiency. (3) the integration between social responsibility disclosure and tax avoidance has a higher effect on enhancing investment efficiency than each variable alone.

Keywords : Corporate social responsibility disclosure, tax avoidance, and investment efficiency.

المستخلص:

في ضوء محدودية مصادر التمويل تبحث المنشآت عن الحصول على تمويل كافي بغرض اقتناص الفرص الاستثمارية المتاحة، وهذا ما قد يقود إلى التساؤل حول طبيعة المستوى الأمثل للاستثمار، حيث اهتمت العديد من الدراسات الأكاديمية بمحددات هذا المستوى من الاستثمار والطرق التي يمكن اتباعها بغرض زيادة نفعية هذه الاستثمارات وهذا ما يأتي في إطار " كفاءة الاستثمار"، حيث اهتمت العديد من هذه الدراسات بمحددات هذه الكفاءة. استكمالاً لهذه السلسلة من الدراسات تهتم هذه الورقة البحثية ببعض من هذه المحددات، وهما الإفصاح عن أنشطة المسؤولية الاجتماعية والتجنب الضريبي، حيث يتمثل الهدف من هذه الورقة البحثية في قياس

أثر كل من هذا الإفصاح والتجنب الضريبي على مستويات كفاءة الاستثمار من جهة والأثر المشترك لكل منهما مجتمعين على مستويات كفاءة الاستثمار. باستخدام عينة من 28 منشأة غير مالية مصرية، مشتملة 140 مفردة سنوية، من سوق الأوراق المالية، وبخاصة (EGX 100) عن الفترة من 2017 إلى 2021. توصلت هذه الورقة البحثية لعدد من النتائج؛ لعل منها (1) المنشآت التي تفصح عن أنشطتها الاجتماعية تتحقق لها المناخ المناسب لتحسين مستويات كفاءة الاستثمار. (2) زيادة ممارسات التجنب الضريبي تساهم بشكل كبير في توفير المناخ المناسب لتحسين مستويات كفاءة الاستثمار. (3) أن التكامل بين زيادة مستويات الإفصاح عن أنشطة المسؤولية الاجتماعية والتجنب الضريبي تحقق تأثير أفضل عن مستويات كفاءة الاستثمار مقارنة بأثر كل متغير منهما على حدا.

الكلمات المفتاحية: الإفصاح عن أنشطة المسؤولية الاجتماعية، التجنب الضريبي، كفاءة الاستثمار.

Introduction:

Investment is the allocation of assets or money for specific activities to get earnings or make a benefit from future appreciation in the value of these assets. Investors always have a question about the suitable level of investment. Academic studies invented a new expression to represent this suitable level of investment, which is called "investment efficiency".

Investment efficiency represents the optimal level of investment. If the firm invests over this suitable level, it will face an **over-investment problem**, since there is a negative Net Present Value (NPV). It results from managerial abuse when investing in overly risky or unprofitable projects. The main

source of this problem is the separation between ownership and control. This separation leads to conflicts of interest between managers who control the firm and the shareholders who own the firm. **On the other hand**, If the firm invests under the suitable level of investments, it will face **an under-investment problem**, where firm's missed investment opportunities can bring positive NPV. Debt overhang and risk avoidance are the main factors that cause an under-investment problem. As a result, the market value of this debt decreases relative to the face value without making gains to the shareholders. Therefore, shareholders decide to refuse investments as the earnings will go to creditors to end the debt (Islami, 2017 and Siregar and Nuryanah , 2019).

Either overinvestment or underinvestment problems can be avoided. Consequently, the effective investment is an important way for firms to find out new profitable opportunities that have a critical role in improving the firms' sustainability and enhancing the firms' value in the market besides increasing the ability to add value for the firms' shareholders. (He et al., 2019; Shahzad et al., 2019; Firmansyah and Triastie, 2020 and Hu et al.,2022).

Regarding finding the approach to have an optimal level of investment, there are some determinants to have this level. Some studies were interested in considering Corporate social responsibility disclosure (CSR) and Tax Avoidance (TA) as main determinants that can be used to get the highest level of investment efficiency.

Concerning the role of corporate social responsibility disclosure and tax avoidance in having an optimal level of investment efficiency, the rest of this paper is divided into five sections. Section 1 presents the research problem. Section 2 is interested in literature review and hypotheses development; section 3 discusses the research methodology. Section 4 reports and discusses the empirical results. Section 5 presents some concluding remarks.

1. Research problem:

1.1 Corporate social responsibility disclosure and Investment Efficiency:

According to Agency theory, there is a conflict of interest between management and stakeholders who are interested in the firm. Academic studies used some new concepts to strengthen the relationship between these parties, such as corporate citizenship, sustainability development and Corporate Social Responsibility (CSR) (Wu and Hu, 2019).

Concerning Corporate Social Responsibility (CSR), Marrewilk (2017) confirmed that CSR can solve many conflicting problems globally, e.g. the poverty gap, discrimination, and environmental pollution.

Some academic studies defined corporate social responsibility as” *A concept whereby firms integrate social and environmental concerns in their business operations and in their*

interaction with their stakeholders on a voluntarily basis” (El-Bassiouny & El-Bassiouny, 2019). Consequently, it has become a widely recognized term that expects firms to participate in enhancing their social position in the market besides their operating within the rules and regulations imposed by law. However, there are disclosure variations across countries due to differences in underlying environments, such as form of economy, size and operation of stock markets, and degree of economic growth (El-Bassiouny & El-Bassiouny, 2019). CSR combines some core principles that reflect some of the most significant advantages for stakeholders and society, these principles include the protection of human rights, employee’s rights, transparency of information, environmental protection, consumer protection and community growth (Amodu, 2013).

Based on the importance of this corporate social responsibility, some definitions have been raised, such as **Corporate social responsibility disclosure (CERD)**. It is defined as “*information that a firm makes public, typically within a stand-alone report, that relates to its performance, standards, or activities under the CSR umbrella*”. This corporate social responsibility disclosure may differ from one country to another (Brooks and Oikonomou, 2018).

Corporate social responsibility disclosure has some advantages, such as creating a culture of doing the right thing that can result in mitigating the risks that the company may face

in the market and give the firm a positive reputation. However, it could have some disadvantages, such as increasing restrictions by legislation and standards by governments and accounting bodies, Moreover, this disclosure may be used to report positive information and withhold any negative environmental and social performance information to retain its position in the market (Crifo & Forget, 2015).

Regarding the effect of corporate social responsibility disclosure on investment efficiency, there are two opinions. ***The first opinion*** confirmed a positive effect between them. Since, they thought increasing disclosures level related to corporate social responsibility activities, as part of increasing overall disclosure, leads to reducing information asymmetry between shareholders, as principals and managers, as agents. These reductions are valued in financial markets since it contributes to reducing risk premiums, capital cost which gives management enough chances to have more funds and more space to make suitable decisions that can increase investment efficiency (Anwar and Malik, 2020; Zamir et al., 2022; and Huang et al., 2023). Moreover, disclosing strategies for corporate social responsibility contributes to limiting available free cash flow, which can be used for personal benefit managers through taking on unprofitable projects, which means corporate social responsibility disclosure increases the potential for investment efficiency (Samet and Jarboui, 2017).

In contrast, the second opinion confirmed that corporate social responsibility disclosure does not improve investment efficiency. Since excessiveness in these disclosures do not affect firms' investment decisions, especially if these disclosures were mandatory (Firmansyah and Triastie, 2020; Liu and Tian, 2021). So, the question is about the effect of corporate social responsibility disclosure on investment efficiency? .

1.2 Tax avoidance and Investment Efficiency:

Taxes are one of the major sources of governments' revenue that allow governments to meet expenses and achieve economic growth. Therefore, Tax Avoidance (TA) is a vital aspect of the functioning of any economy. Tax avoidance represents the responsiveness degree of taxpayers to meet their tax obligations. Accordingly, it is a vital aspect for tax authorities as it depends on the willingness of taxpayers to comply with tax laws and pay due taxes. There is always a conflict of interest between government and taxpayers, where government always seeks to maximize their revenues, and the other hand, taxpayers always seek to reduce tax burden as much as possible, at that point the taxpayers' compliance level is decreased. Taxpayers seek to reduce taxes through conducting tax avoidance practices to reduce tax burden. Consequently, high level of tax avoidance which lead to decrease each of the firms' compliance level and the decrease in the government tax revenue. That's why governments and tax authorities all over the world always seek to

find out solution for tax non- compliance (or tax avoidance) issue (Tarmidi, 2019; Okpeyo et al., 2019; Oladele et al., 2020; Widuri et al.,2020; Dewi et al., 2021and Joel et al.,2023).

Tax avoidance issues have been a growing concern for any government because of its negative effects on the whole economy. Therefore, it is important to determine the reasons that may affect tax avoidance such as, the lack of taxpayers' awareness about their due toward the government, lack of respect to law, high tax rates, and government instability and corruption. The most important reason for this tax avoidance is considering it as internal source of fund for increasing cash tax savings. Since firms internal financing is preferable that external financing sources, these tax cash savings allow for making more new investments decisions. (He et al., 2019; Anyaduba and Obboh, 2019; Tarmidi, 2019; Nguyen et al., 2020; Asiri et al.,2020; Timothy et al. ,2020; Dewi et al., 2021; Zin et al.,2021; Hajawiyah et al.,2021 and Alsmady, 2022).

Regarding the effect of tax avoidance on investment efficiency, it is mainly a matter of two main aspects which are focusing on short- run level while the other focus is long -run level. ***On the long- run focus***, some of prior studies' findings reveal that there is a negative association between tax avoidance and investment efficiency which means that the firms' managers try to become more complied with tax rules to avoid any tax penalties or having bad image about the firm and its management

which prepare a suitable atmosphere for management to take right investment decisions. In other words, in the long run, the lower tax avoidance, the higher investment efficiency, and the more sustainability of firms' reputation and value in the market (Ding ,2019; Firmansyah and Triastie,2020; Asiri et al. ,2020 and Alsmady, 2022).

On the contrary side, the short- term focus, there is another line of prior studies reveal that there is a positive association between tax avoidance and investment efficiency. Since managers may intend to reduce tax burdens through following tax planning strategies in order to increase cash tax savings that facilitate the availability of fund to make more investments, the positive impact of these strategies is on the short run. A high level of tax avoidance indicates an excess of cash savings that may lead to having a suitable atmosphere to take the right investment decisions, so increasing investment efficiency (Cai et al.,2016; Shahzad et al.,2019; Elberry and Hussainey ,2020 and Huang, 2020; Asiri et al.,2020; Illahia et al., 2022 Ngelo et al., 2022; Osegbue et al., 2022 and Lu et al.,2023). In light of this presentation, the question is about the effect of tax avoidance on improving investment efficiency? .

2. Literature Review and Hypotheses development:

2.1 Corporate social responsibility disclosure and Investment Efficiency:

Regarding the association between corporate social responsibility disclosure and investment efficiency, the studies are divided into two opinions, the first opinion confirmed a positive association between them. Since, they got enough evidence that increasing Corporate social responsibility disclosure enhances investment efficiency. [Zhong and Gao \(2017\)](#) confirmed this result using a sample of 310 listed Chinese firms from 2010 to 2013, The study provided evidence of a higher level of investment efficiency. This relationship was more pronounced in the over-investment scenario than in the under-investment scenario. In addition, the association was stronger for firms with lower Financial Reporting Quality (FRQ). Moreover, [Rokhayati and Nahartyo \(2019\)](#) investigated the effect of corporate social responsibility disclosure on investment decisions using an experimental study involving 45 graduate students. The study found evidence that corporate social responsibility disclosure affected investment decisions.

[Anwar and Malik \(2020\)](#) agreed with the same direction using data from 112 firms listed on the Pakistani Securities Exchange from 2009 to 2017. This study indicated that firms' high (low)-quality disclosure regarding their engagement in

corporate social responsibility activities increases their chances of being from the investment-efficient (inefficient) group. In addition, [Zamir et al. \(2022\)](#) confirmed this positive effect using data collected from the largest firms in each of the nine Asian emerging markets from 2015 to 2017. They indicated that corporate social responsibility disclosure reduced underinvestment for large firms. Since they confirmed corporate social responsibility disclosures improves firm access to external finance needed to invest in profitable projects. Finally, [Huang et al. \(2023\)](#) confirmed the same association with using a sample of Chinese-listed firms from 2010 to 2019. The findings suggest that corporate social responsibility disclosure improves investment efficiency through reducing information asymmetry and agency cost. Also, mandatory this disclosure has a significant effect on investment efficiency than voluntary.

On the Contrary side, other studies revealed that corporate social responsibility disclosure does not improve investment efficiency. Since [Firmansyah and Triastie \(2020\)](#) confirmed that using a sample of 43 manufacturing firms listed on the Indonesian Securities Exchange from 2014 to 2017. Also, this negative effect was weakened by increasing corporate governance tools. Moreover, [Liu and Tian \(2021\)](#) confirmed a negative association effect of mandatory corporate social responsibility disclosure on investment efficiency using the corporate social responsibility regulation that mandates a group

of Chinese listed non-financial firms to disclose stand-alone corporate social responsibility reports after 2008 as a natural experiment from 2004 to 2013. The study found that firms subject to the mandatory corporate social responsibility regulation have decreased investment efficiency. Finally, [Ramdhony et al. \(2023\)](#) confirmed a negative relationship between Corporate social responsibility disclosure and government ownership, revealing a preference for the state to invest in firms with opaque disclosure. Corporate social responsibility disclosure is found to respond negatively to block ownership.

Finally, there is a debate between studies about the effect of corporate social responsibility disclosure on investment efficiency. Although the majority of these studies claimed a positive effect, some studies got the opposite results. So, the researchers concluded the following hypothesis as follows:

H1: Corporate social responsibility disclosure has a significant effect on investment efficiency.

2.2 Tax avoidance and investment efficiency:

Regarding the association between tax avoidance and investment efficiency, the studies are divided into two opinions, the first opinion confirmed a negative association between them. Since, they got enough evidence that increasing tax avoidance enhances investment efficiency, such as [Ding \(2019\)](#) who used a

sample of Chinese listed firms for a period from 2010 to 2016. The research findings revealed that tax avoidance and inefficiency investments are positively related which means that the higher level of tax avoidance, lower level of tax compliance led to lower investment efficiency. Consequently, these results indicated that tax compliance is positively correlated with investment efficiency. Moreover, [Firmansyah and Triastie \(2020\)](#) supported this negative effect of tax avoidance on investment efficiency, with applying on firms listed on the Indonesian Securities Exchange from 2014 to 2017. The results confirmed that tax avoidance can reduce tax burden. However, cash tax savings may be invested in an inefficient way as it can be over/under invested. So, tax avoidance reduces investment efficiency level.

Additionally, [Asiri et al. \(2020\)](#) confirmed that the firms' savings from tax avoidance activities are invested in an inefficient way. Therefore, tax avoidance leads to an increase in the level of inefficient investments. These findings achieved from examining the impact of tax avoidance and investment efficiency among U.S. firms for the period from 1993 to 2016. Furthermore, [Alsmady \(2022\)](#) supported the claim that high level of tax avoidance leads to increase the market imperfection problems which means that investment inefficiency increased. Then, it can be indicated that high level of tax compliance can lead to more investment efficiency. These findings achieved from conducting

a study to examine the relationship between tax avoidance on investment opportunities in six Arabian GCC countries, which are Bahrain, Oman, Qatar, Saudi Arabia, Kuwait, and the United Arab Emirates firms over the period from 2011 to 2017.

In Contrast, there are other studies revealed that there was positive impact of tax avoidance on investment efficiency, such as, [Ngelo et al. \(2022\)](#) who used a sample of Indonesian listed firms for a period from 2010 to 2019. The results showed that firms engage in conducting tax avoidance activities to reduce tax burden. So, there will be a high probability of generating more cash tax savings that can be used in making more investments. So, the findings showed that high tax avoidance decreases the tax burdens lead to low level of tax compliance, but there will be sufficient cash to make more efficient investments decisions. These findings confirmed by [Osegbue et al. \(2022\)](#) when they revealed that lower level of Effective Tax Rate (ETR), indicated that tax burden reduced, and tax compliance was low. So, there would be excess cash available from these tax savings which were invested in an efficient way. These findings achieved from conducting a study to determine impact of ETR on investments level among non-financial firms quoted in Nigeria stock exchange for a period from 2010 to 2017. Furthermore, [Lu et al. \(2023\)](#) confirmed that the reduction of tax burden due to following tax avoidance strategies can generate internal funds that facilitate financing new projects that improve the firms'

investments efficiency. These results used a sample of listed firms in Shanghai and Shenzhen stock exchange for a period from 2015 to 2021.

To sum up, it has been indicated from reviewing the prior studies that there is a debate between the prior studies concerning the association between tax avoidance and investment efficiency. Some of the prior studies' findings revealed that there is a positive relation between tax compliance and investment efficiency as the firms' managers try to become more complied with tax rules to avoid any tax penalties on the long run so the less tax avoidance leads to more optimal investments. On the contrary side, managers may intend to reduce tax burdens through following tax planning strategies and engage in tax avoidance activities to increase cash tax savings which is a source of generating internal fund that facilitate the investments decisions. So, the high level of tax avoidance, the higher probability of increasing the level of investment inefficiency. Then, the research hypothesis is as follows:

H₂: Tax avoidance has a significant association with investment efficiency.

There is no previous study that has discussed and investigated the joint effect of Corporate social responsibility disclosure and tax avoidance on investment efficiency. Then, the hypothesis is:

H₃: There is a significant effect of integration between corporate social responsibility disclosure and tax avoidance on investment efficiency.

3. Research Method:

This part has included the following sections:

3.1. Research Variables and Measurements:

3.1.1. Dependent Variables (Investment Efficiency (INV.EFF.):

Biddle and Hilary (2006) express investment efficiency as a deviation from the optimal investment. Since residuals are classified into two types, the first type is over-investment when there is a positive residual, while the second type is under-investment which is represented in a negative residual. The main equation to compute investment is:

$$\text{Invest}_{it} = \alpha + \beta_1 \text{CFO}_{it-1} + \beta_2 \text{MTB}_{it} + \varepsilon_{it} \quad (1)$$

Where:

Invest_{it} : Capital expenditures, scaled by net PPE at the beginning of the year

CFO_{it-1} : Cash Flow of Operating, scaled by net PPE at the beginning of the year.

MTB_{it-1} : Market to book ratio, measured as the ratio of the market value of equity plus the book value of total

assets minus the book value of equity, which are divided by the book value of total assets.

The main model is divided into two models; the first one is related to over-investment cases. Since, reducing their values represents increasing investment efficiency. The second model is related to under-investment cases. Since increasing their values represents increasing investment efficiency.

3.1.2 Independent Variables:

3.1.2.1 Corporate social responsibility disclosure (CSR D):

In June 2007, Environmental, Social and Governance (ESG) index was launched in Egypt to obtain data for corporate social responsibility. It measures the quality of information that firms make available concerning their corporate social responsibility. This Index is designed to track the performance of the top 100 listed firms on the Egypt Stock Exchange that demonstrates leadership on environmental, social and Governance issues. All the EGX100 listed firms are evaluated on an annual basis to select the top 30 that can be listed on the ESG index. Index constituents are ESG score weighted, since two screening processes take place to rank the listed firms, one focusing on environment and social indicators and the other one focusing on CG indicators ([Indices and Methodology, 2021](#)). To determine the weight that each firm will be given in the index, a quantitative score and a qualitative score is assigned to evaluate

the actual Corporate Social Responsibility performance of the firm on a scale of 1 to 5 ([Indices and Methodology, 2021](#)). A composite score is calculated for each firm by summing the qualitative score and the quantitative score. In the current research the two screens of the index (Environmental and social screen, corporate governance screen) are used separately ([Indices and Methodology, 2021](#)). To homogenate among variables, researchers use natural logarithm for this index.

3.1.2.2 Tax Avoidance (TA):

According to [Hajawiyah et al. \(2021\)](#) tax avoidance is an indicator of effectiveness of the companies' tax compliance policy. Since, tax avoidance is considered as a form of tax non-compliance. Consequently, higher tax avoidance level indicates lower tax compliance level and vice versa. Therefore, Effective tax rate (ETR) can be used as a proxy to measure tax avoidance which is total tax expenses scaled by net income before taxes ([Tarmidi, 2019](#) and [Hajawiyah et al.2021](#)). According to computation of ETR, it represents opposite value of tax avoidance, since increasing ETR means reducing tax avoidance.

3.1.3 Control Variables:

Control variables are the determinants that affect investment efficiency which are as followings:

- **Firm Size (SIZE):** some previous studies showed evidence that higher firm size enhances investment efficiency. These

studies calculated firm size using natural logarithm of total assets (Lakhal and Dammak,2019; Firmansyah and Triastie, 2020; Lu et al.,2023 and Rappodelli et al. 2023).

- **Audit Quality (AQ):** some previous studies confirmed that increasing Audit Quality (AQ) leads to getting good opportunities to take right investment decisions. There are many proxies to measure this AQ. Researchers represent AQ as dummy variable take one if firm has auditor of Big four and zero if firm does not have auditor of big four (Soliman, 2020).
- **Leverage (LEV):** some previous studies found evidence that higher firm leverage reduces investment efficiency. Researchers calculate leverage by dividing total debts by total equity (Huang, 2020).
- **Firm profitability (ROA):** some previous studies showed evidence that higher firm profitability enhances investment efficiency. Researchers represented firm performance using return on assets (ROA) which is measured by dividing net income by the average of total firms' assets (Asiri et al., 2020; Arianpoor and Mohammadbeikzade , 2023).

3.2. Research Models:

To get the association between research variables, the study will use the following models, which are:

1. To test the first and second hypotheses, the model is:

$$\text{INV.EFF.}_{it} = \alpha + \beta_1 \text{CSR}_{it-1} + \beta_2 \text{TA}_{it-1} + \beta_3 \text{SIZE}_{it-1} + \beta_4 \text{AQ}_{it-1} + \beta_5 \text{LEV}_{it-1} + \beta_6 \text{ROA}_{it-1} + \varepsilon_{it} \quad (2)$$

Where:

INV.EFF._{it} : Investment Efficiency for current year (t).

it

CSR_{it-1} : Corporate social responsibility disclosure for last year (t-1).

TA_{it-1} : Tax avoidance for last year (t-1).

SIZE_{it-1} : Firm Size for last year (t-1).

AQ_{it-1} : Audit Quality for last year (t-1).

LEV_{it-1} : Firm leverage for last year (t-1).

ROA_{it-1} : Return on assets for last year (t-1).

2. To test the third hypothesis, the model is:

$$\text{INV.EFF.}_{it} = \alpha + \beta_1 \text{CSR}_{it-1} + \beta_2 \text{TA}_{it-1} + \beta_3 (\text{CSR}_{it-1} * \text{TA}_{it-1}) + \beta_4 \text{SIZE}_{it-1} + \beta_5 \text{AQ}_{it-1} + \beta_6 \text{LEV}_{it-1} + \beta_7 \text{ROA}_{it-1} + \varepsilon_{it} \quad (3)$$

3.3 Data Description:

The researchers used published annual reports in the Mubasher Database, except CSR is provided from S&D Dow Jones indices for the same period. The sample covers the period from 2017 to 2021, since starting social responsibility disclosure started from 2016. Moreover, researchers excluded all banks and

financial institutions because this sector is affected by additional rules prepared by the Central bank of Egypt which could have a significant effect on research results.

3.4 Descriptive Statistics:

Table (1) introduces descriptive statistics for all study variables as follows:

Table 1: Descriptive Statistics of the variables

Model (1): Under investment							
Var.	N	Mean	STDEV	Min.	Max.	Skew.	Kurt.
UNDER	45	-0.233	0.152	-0.458	-0.005	0.261	0.297
CSR	45	2.099	0.052	2.018	2.180	0.566	0.003
ETR	45	0.214	0.174	0.000	0.446	0.638	0.792
SIZE	45	6.455	1.019	5.005	7.940	0.902	0.174
AQ	45	0.422	0.499	0.000	1.000	0.339	0.000
LEV	45	0.477	0.191	0.048	0.835	0.323	0.530
ROA	45	0.072	0.077	-0.079	0.254	0.190	0.693
Model (2): Over investment							
OVER	95	0.154	0.109	0.002	0.398	0.059	0.088
CSR	95	2.083	0.038	2.030	2.187	0.000	0.263
ETR	95	0.163	0.182	0.000	0.637	0.045	0.000
SIZE	95	6.279	0.696	5.283	7.804	0.083	0.024
AQ	95	0.463	0.501	0.000	1.000	0.532	0.000
LEV	95	0.430	0.207	0.121	0.826	0.827	0.000
ROA	95	0.078	0.112	-0.089	0.319	0.006	0.491

Source: Data Processed 2024.

Table 1 indicates that the deviations for all variables are normal. It is concluded from Skewness and Kurtosis tests which are within accepted ranges. Since the acceptance range for Skewness test is between -3 and +3, and acceptance range for Kurtosis test is between -10 and +10 for all variables. Moreover, table 1 indicates that 67.86% (95 observations of 140 observations) of study observations were suffering from over-investment problems, which means most of sample firms did not have a good management to get the best use of investment in efficiently method.

3.5 Data Analysis:

Using "STATA 14" software to test model and proxies' validity. Researchers presented the following tests:

3.5.1 Diagnostic Statistics:

Diagnostic tests are conducted on all data to assure that the results will not be biased and study did omit significant variables; these tests are shown in the following table (2):

Table 2: Diagnostic tests

Diagnostics Tests	Under invest. Model		Over invest. Model		Accepted level	Results
	Coef.	Prob.	Coef.	Prob.		
Breusch-Pagan (Cook-Weisberg Test)	0.180	0.673	1.210	0.271	Prob > 0.05	The homoscedasticity is presented in the regression models.
Ramsey Reset Test	1.940	0.141	0.640	0.594	Prob > 0.05	There are no omitted variables.
Variance Inflation Factor (VIF)	2.31		1.56		1 < VIF < 5	The variables are moderately correlated
Breusch-Godfrey serial Correlation	1.868	0.083	1.740	0.076	Prob > 0.05	There is no serial correlation between dependent and independent variables

Source: Data Processed 2024

Table 2 indicates that there is heteroskedasticity, no omitted variable among the variables, variables moderately correlated and there is no serial correlation between dependent and independent variables, which means that the results will not be biased and correct. Research models are valid also.

3.5.2 Correlation:

The following tables (3) represent the correlation between research variables:

Table 3: Variables correlation
Under Investment Model

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) UNDER	1.000						
(2) CSRD	0.821*** (0.000)	1.000					
(3) ETR	-0.786*** (0.000)	-0.572*** (0.000)	1.000				
(4) SIZE	-0.811*** (0.000)	-0.763*** (0.000)	0.602*** (0.004)	1.000			
(5) AQ	0.728*** (0.000)	0.741*** (0.000)	-0,538*** (0.001)	-0.547*** (0.000)	1.000		
(6) LEV	0.026 (0.866)	-0.127 (0.407)	-0.059 (0.698)	0.264* (0.079)	0.059 (0.701)	1.000	
(7) ROA	-0.184 (0.227)	-0.014 (0.930)	0.260* (0.085)	0.032 (0.832)	-0.024 (0.874)	-0.151 (0.323)	1.000

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

Source: Data Processed 2024

**Table 4: Variables correlation
Over Investment Model**

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) OVER	1.000						
(2) CSRD	-0.406*** (0.002)	1.000					
(3) ETR	0.679*** (0.000)	-0.168 (0.104)	1.000				
(4) SIZE	0.485*** (0.000)	-0.039 (0.701)	0.528*** (0.000)	1.000			
(5) AQ	-0.450*** (0.000)	0.485*** (0.000)	-0.207** (0.044)	-0.026 (0.801)	1.000		
(6) LEV	-0.253** (0.173)	0.358*** (0.002)	-0.122 (0.239)	-0.008 (0.940)	0.354*** (0.004)	1.000	
(7) ROA	0.571*** (0.000)	-0.270*** (0.008)	0.458*** (0.000)	0.268** (0.009) *	-0.188* (0.069)	- 0.471*** (0.000)	1.000

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

Source: Data Processed 2024

Table 3 and 4 provide correlation matrixes for all variables comprising Pearson correlation coefficient among all variables with a concentration on the main variables of interest. Since the correlation is between 0.821, and -0.811 which indicates that all variables are not suffering from multicollinearity problems, which will be confirmed in the following section.

3.6 Regression results and analysis:

To test hypotheses, there are 4 models; model (1) is a baseline model for under-investment to test the association between both CSR.D, ETR, and INV.EFF for under investment cases. Model (2) is interested in investigating the effect of integration between CSR.D and ETR on INV.EFF for under-investment cases. Model (3) is a baseline model for over-investment to test the association between both CSR.D, ETR, and INV.EFF for over-investment cases. Model (4) is interested in investigating the effect of integration between CSR.D and ETR on INV.EFF for over-investment cases. The regression results are shown as follow:

**Table 5: OLS Regression results about
the effect of CSR.D and ETR on
INV.EFF**

	Under invest.		Over invest.	
	Model (1)	Model (2)	Model (3)	Model (4)
Intercept	-2.109***	-2.492***	0.729*	0.962*
CSR.D it-1	0.973***	1.151***	-0.399*	-0.505**
ETR it-1	-0.216***	-0.944*	0.219***	1.647*
CSR.D it-1 * ETR it-1		0.944*		-0.898*
SIZE it-1	-0.028**	-0.058*	0.035***	0.044***
AQ it-1	0.097***	0.056***	-0.045***	-0.033***
LEV it-1	0.058	0.048	-0.005	-0.017
ROA it-1	-1.113	-0.085	0.279***	0.287***
N	45	45	95	95
R ²	0.878	0.882	0.700	0.703
Adjusted R ²	0.861	0.859	0.680	0.679
F. value	46.37	39.49	34.22	29.39
RMSE	0.057	0.056	0.062	0.062

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

Source: Data Processed 2024

The results of table 5 are presented as follows:

- 1) There is a positive association between Corporate social responsibility disclosure and investment efficiency. Since coefficients for all presented models confirmed this result. In Under-investment cases, models 1 and 2 refer to increasing in Corporate social responsibility disclosure participates to increase under-investment which leads to increase investment efficiency at significant level 5% for model 1 and 10% for model 2. In Over-investment cases, models 3 and 4 refer to increasing in Corporate social responsibility disclosure participates to decrease over-investment which leads to increase investment efficiency also at significant level 5% for models 3 and 4. **This leads to accepting the first hypothesis (H₁).** This result supports [Zhong and Gao \(2017\)](#) , [Rokhayati and Nahartyo \(2019\)](#), [Anwar and Malik \(2020\)](#), [Zamir et al. \(2022\)](#),and [Huang et al. \(2023\)](#). However, this result is not consistent with [Firmansyah and Triastie \(2020\)](#), [Liu and Tian \(2021\)](#) and [Ramdhony et al. \(2023\)](#).
- 2) There is a positive association between tax avoidance and investment efficiency. Since coefficients for all presented models confirmed this result. In Under-investment cases, models 1 and 2 refer to increasing ETR, which means decreasing tax avoidance, decreases under-investment which leads to decrease investment efficiency at significant level 10% for models 1 and 2. In Over-investment cases, models 3

and 4 refer to increasing ETR, which means decreasing tax avoidance, increase over-investment which leads to increase INV.EFF also at significant level 1% for models 3 and 10% for model 4. **This leads to accepting the second hypothesis (H₂).** This result supports [Ngelo et al. \(2022\)](#), [Osegbue et al. \(2022\)](#) and [Lu et al. \(2023\)](#) However, this result is not consistent with [Ding \(2019\)](#), [Firmansyah and Triastie \(2020\)](#), [Asiri et al. \(2020\)](#) and [Alsmady \(2022\)](#).

- 3) Regarding Models 2 and 4, it can be confirmed that there is a positive effect of the integration between corporate social responsibility disclosure and tax avoidance on investment efficiency. Since path coefficients for all presented models confirmed this result. In Under-investment cases, model 2 refers to increasing integration between Corporate social responsibility disclosure and tax avoidance increases under-investment which leads to increase investment efficiency at significant level 10%. In Over-investment cases, model 4 refers to increasing integration between Corporate social responsibility disclosure and tax avoidance increases over-investment which leads to decreasing investment efficiency also at significant level 10%. **This leads to accepting the third hypothesis (H₃).**

In addition to these results, all models in table 5 confirm that *firm size* has a significant role in controlling investment

efficiency. Since management of firm that has higher size has good chance to take better investment decisions, so it has a higher investment efficiency, than smaller size. Moreover, all models in table 5 confirm **audit quality** contributes to enhance investment efficiency. Since management of firms that have higher quality due to dealing with one of big four auditors have a better chance to take relevant investment decisions, so has higher investment efficiency, than do not deal with these big four. Moreover, all models in table 5 provide evidence that **firm leverage** does not affect investment efficiency. Finally, table 5 does not confirm the effect of **firm performance** on investment efficiency, since models 1 and 2 show positive and significant effect, while models 3 and 4 show negative and significant effect of firm performance on investment efficiency. Since firm that has a high profitability suffers from over-investment problems.

4. Discussion:

The main objective of this paper is to investigate the effect of both Corporate social responsibility disclosure (CSR.D) and Tax avoidance (TA) on Investment Efficiency (INV.EFF) to contribute in determining the investment efficiency factors. This objective is divided into three sub-objectives; First: investigating the effect of Corporate social responsibility disclosure on INV.EFF, Second: investigating the effect of tax avoidance on investment efficiency. Third: investigating the joint effect of

Corporate social responsibility disclosure and tax avoidance on investment efficiency.

Regarding the first sub-objective, table 5 shows that there is a positive and significant effect of Corporate social responsibility disclosure on investment efficiency. Since increasing disclosures level is related to CSR activities, as a part of increasing overall disclosure, that leads to reducing information asymmetry between shareholders and managers which contributes reducing risk premiums and capital of cost. These reductions give management enough chances to have more funds and more spaces to take suitable decisions that can increase investment efficiency.

Regarding the second sub-objective, table 5 shows that there is a positive and significant effect of tax avoidance on investment efficiency. Management intends to increase tax avoidance practices to reduce tax burdens through the following tax planning strategies. These practices increase cash tax savings that facilitate availability of funds to make more investments. Finally, increasing these funds from cash saving provides the management with a suitable atmosphere to take right and relevant investment decisions, which is reflected on enhancing investment efficiency.

Regarding the third sub-objective, table 5 shows that there is a positive and significant effect of integration between Corporate

social responsibility disclosure and tax avoidance on investment efficiency. There are two ways to explain this result; the **first explanation** confirms that tax avoidance plays a significant role in the association between Corporate social responsibility disclosure and investment efficiency. Since firms use tax avoidance practices to strengthen the role of Corporate social responsibility disclosure to enhance investment efficiency. The second explanation confirms that Corporate social responsibility disclosure plays a significant role in the association between tax avoidance and investment efficiency. Since firms use increasing Corporate social responsibility disclosure to strengthen the effect on tax avoidance to get cash saving to get a suitable chance to enhance investment efficiency.

Finally, this paper gets the result that the firms concentrate on increasing Corporate social responsibility disclosure and tax avoidance practices to get better chances to enhance their firms' investment decisions, which is reflected on enhancing investment efficiency. Moreover, that paper gets evidence that the integration between increasing Corporate social responsibility disclosure and reducing tax avoidance has a higher effect on investment efficiency than each determinant alone. In other words, management uses both corporate social responsibility disclosure and increasing tax avoidance practices to increase cash saving which provides a better atmosphere to take better

investment decisions and increases investment efficiency than each determinant alone.

5. Conclusion:

Many literature reviews are interested in finding a way to enhance Investment Efficiency (INV.EFF), this happened by investigating its determinants. Since, this paper is interested in investigating it by concentrating on the effect of both Corporate social responsibility disclosure (CSRD) and Tax avoidance (TA), with applying on Egyptian-listed non-financial firms.

For available data of 28 listed firms in EGX 100 from 2017 to 2021 which includes 140 completed annual observations. The findings indicate that (1) firms that disclose Corporate Social Responsibility activities creates a suitable atmosphere to reduce information asymmetry which leads to decrease cost of capital that make saving within these firms allows to have spaces to take suitable decisions that can increase investment efficiency. (2) management increases tax avoidance practices to get cash saving from reducing, this saving allows to have good chances to take relevant decisions which increase investment efficiency. (3) management uses both Corporate social responsibility disclosure Corporate social responsibility disclosure and increasing tax avoidance practices to increase cash saving which provides a better atmosphere to take better investment decisions and increases investment efficiency than each determinant alone.

The paper introduces three contributions, as follows; (1) Interesting in Corporate social responsibility disclosure enhances investment efficiency. (2) Concerning tax avoidance practices contributes to enhance investment efficiency. (3) The integration between Corporate social responsibility disclosure and tax avoidance gives more chances to enhance investment efficiency than each determinant can do.

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