“An investigation of the value relevance of deferred tax: the mediating effect of earnings management”

AUTHORS	Walid Shehata Mohamed Kasim Soliman https://orcid.org/0000-0002-0361-8864 Karim Mansour Ali

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Walid Shehata Mohamed Kasim Soliman (Egypt), **Karim Mansour Ali** (Egypt)

AN INVESTIGATION OF THE VALUE RELEVANCE OF DEFERRED TAX: THE MEDIATING EFFECT OF EARNINGS MANAGEMENT

Abstract

There is an academic discussion about the value relevance of deferred tax, which aims to find out the effect of deferred tax on the investors' decisions. In light of this discussion, the first question is about the impact of deferred tax on management practices to manipulate earnings, which is called earnings management, the second question is about the value relevance of earnings management, the third question is about the value relevance of deferred tax, and the fourth question is about the mediating effect of earnings management. The paper focuses on listed firms in the Egyptian Stock Exchange (EGX), especially firms that were recorded in EGX 100, for six-year period (2013–2018) for 107 firms and 642 completed observations. The findings are as follows: management uses deferred tax to manipulate earnings, since an increase in deferred tax amounts increases earnings management practices; there is no value relevance of earnings management, which means earnings management practices do not affect the investors' decisions; there is value relevance of deferred tax, which confirms that deferred tax is one of the determinants that affect the investors' decisions; there is no value relevance of deferred tax through earnings management as a mediator variable since investors are not interested in earnings management practices to make their investment decisions. This paper investigates the relationship between deferred tax, earnings management, and value relevance in the Egyptian context.

Keywords shares' prices, deferred tax expenses, net deferred tax liabilities, earnings management

JEL Classification C81, G41, M41

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Walid Shehata Mohamed Kasim Soliman, Ph.D., Lecturer, Accounting Department, Faculty of Commerce, Cairo University, Egypt. (Corresponding author)

Karim Mansour Ali, Ph.D., Lecturer, Accounting Department, Faculty of Commerce, Cairo University, Egypt.

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INTRODUCTION

Deferred tax appears as a result of the temporary differences between the accounting standards and the tax regulations applied. This difference is called the fiscal correction, which could be positive when the tax burden calculated according to accounting standards is not equal to the tax burden under law, which is called Deferred Tax Assets (DTAs), or could be negative when the tax burden according to accounting standards is higher, which is called Deferred Tax Liabilities (DTLs) (Jamaluddin, 2008).

Tax system in Egypt is regulated by Egyptian law, which was issued in 2005 to control the corporation tax roles. However, Egyptian listed firms are regulated by Egyptian Accounting Standards (EASs), which were issued for the first time in 1996, updated in 2006, then re-updated in 2016 since the Egyptian tax law does not fully match with EASs, so deferred tax has risen in Egypt (Salah, 2019).

In light of interest in controlling temporary difference of tax burden between accounting treatments and Egyptian tax law, which is referred to deferred tax, Egyptian Accounting Standards setters issued

EAS 24 to address the accounting treatment for income tax to achieve some objectives; one of them is supporting the recognition of the deferred tax (IAS 12, 2006). However, some literature reviews mention the inadequate disclosure in deferred tax according to this standard; some firms' managements use this inadequate disclosure in deferred tax to manipulate earnings (Salah, 2019). They expect to reduce paid tax and effect on investors' decisions by increasing their cash flow and enhancing the reported results related to their firms. Therefore, this paper aims to investigate the effect of deferred tax on earnings management practices.

According to the agency theory, there is a conflict of interest between the related parties (principal), such as shareholders, and management as the party of interest (agent). Related parties are interested in getting a real output about their firm performance; however, management tries to maximize its interest through getting related parties' satisfaction by providing the related parties, especially shareholders, with information through financial statements to enhance management image, which is called "earnings management" (Mulyani, Titisari, & Dewi, 2018). It can be achieved through some tools; one of these tools is "deferred tax."

Management can use deferred tax to manipulate earnings by changing the components of DTAs or DTLs, which affect the value of Deferred Tax Expenses (DTEs) (Phillips et al., 2003), which is called tax planning (Mulyani et al., 2018). Besides, recorded DTAs are used to reduce the income tax. However, DTEs increase it since management can use DTEs to manipulate earnings (Jamaluddin, 2008; Mulatsih, Dharmayanti, & Ratnassari, 2019). In other words, DTEs give a chance to delay income and speed up expenses to save tax (Mulatsih et al., 2019). Moreover, DTEs provide management with a unique chance to increase income without paying extra taxes in the same period (Mills & Newberry, 2001; Dhaliwal, Gleason, & Mills, 2003; Wijayanti, 2015).

The earnings management practices are reflected in related parties' decisions, which can be expressed by "value relevance of accounting information," besides, the effect of deferred tax on these decisions is called "value relevance of deferred tax." The paper is divided into five sections: section 1 shows the literature review and hypotheses development; section 2 presents the research methodology; section 3 provides the hypotheses testing and results; section 4 is related to discussion; last section presents the conclusion.

1. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Regarding the value relevance of deferred tax, there are two opinions: the first opinion reveals that deferred tax is relevant for related parties since disclosing DTAs, DTLs, and DTEs increases the trust in firm performance, which is reflected in value relevance (Beaver & Dukes, 1972; Ayers, 1998; Lynn, Seethamraju, & Seetharaman, 2008; Samara, 2014). However, the second opinion indicates no value relevance of deferred tax (Chludek, 2011) since some previous studies confirm that earnings management practices diminish value relevance of earnings, this means the related parties cannot undertake earnings management practices. Thus, they will not rely on the accounting information due to a lack of transparency (Habib, 2004; Whelan et al., 2004; Yuan, 2015; Salah, 2017; Mostafa, 2017). Besides, the supporters of this opinion mention that increasing the chances to manipulate earnings does not affect the market value of equities (Fattahi et al., 2014; Cruz & Luiz, 2015).

This discussion indicates a deep debate on the value relevance of deferred tax. Therefore, the main question of this paper is, "What is the effect of deferred tax and earnings management practices on investors' decisions?" Consistent with this question, the paper investigates a mediation effect of earnings management on the relationship between deferred tax and both share prices and market value of equities. The literature review can be divided into three groups.

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1.1. Deferred tax and earnings management practices

Previous studies on the relationship between deferred tax and earnings management practices are divided into two groups: the first group confirms a significant relationship between them. Bauman, Bauman, and Halsey (2000) use a sample of listed firms in the Fortune 500 to test the relationship between earnings management and DTAs valuation allowance. They confirm deficiency in current deferred tax, which leads to increased disclosure. Phillips, Morton, and Sonja (2003) examine the role of DTEs in detecting earnings management practices. They get evidence of the incremental usefulness of DTEs in detecting these practices. They find that DTEs have a significant role in detecting these practices. Noor, Mastuki, and Aziz (2007) investigate whether firms use DTEs to meet earnings targets for a sample of listed firms in Bursa Malaysia from 2001 to 2003. They find that firms use DTEs to manipulate earnings. Kasipillai and Mahenthiran (2013) use a sample of Malaysian Public listed firms (PLCs) to examine the role of deferred tax in manipulating earnings. They find that management uses Net-DTL to manipulate earnings. Rafay and Ajmal (2014) investigate earnings management practices through deferred tax for a sample of listed firms in the Karachi Meezan Index (KMI-30), called DTAs and DTLs, which are likely to penalize firms with a higher deferred tax position. Mulyani et al. (2018) use a sample of listed firms in IDX from 2014 to 2016. They find that DTEs affect the earnings management negatively and significantly.

In contrast, the second group of studies confirms an insignificant relationship between deferred tax and earnings management practices. Mudjiyanti (2018) confirm this result for a sample of listed firms in IDX from 2013 to 2016 for DTAs. Purnamasari (2019) assures that for a sample of manufacturing listed firms in IDX from 2014 to 2017 for the food and beverage sector. He also finds that earnings management practices aim to avoid reported losses. Mulatsih et al. (2019) confirm this result for a sample of manufacturing listed firms in IDX from 2013 to 2017. Safitri, Masitoh, and Rachmawati (2019) confirm this result also for a sample of listed firms in IDX from 2014 to 2017.

Regarding the last studies, there is a debate on the relationship between deferred tax and earnings management practices. Hence, the paper investigates this relationship. The hypothesis is as follows:

H1: Deferred tax has a significant relationship with earnings management.

1.2. The value relevance of earnings management

Previous studies related to value relevance of earnings management practices are divided into two groups: the first group of studies confirms a significant relationship between them. Shan (2015) uses a sample of listed firms in the Shanghai SSE 180 to investigate whether earnings management reduces share prices; they confirm that share prices are decreased for the firms which have more earnings management practices. Callao, Cimini, and Jarne (2016) use a sample of European listed firms to assess and compare value relevance of accounting numbers in firms that experienced earnings management behaviors. They confirm the value relevance of earnings is low for firms that their management make more practices to manipulate earnings.

Altintas, Sari, and Otluoglu (2017) use a sample of manufacturing listed firms of the Istanbul Stock Exchange; they analyze earnings management practices. They confirm a positive value relevance of stock returns. Oraby (2017) uses a sample of listed firms in Saudi Stock Exchange from 2012 to 2016 to investigate the effect of earnings management practices strategies on the value relevance of accounting information; they indicate that these strategies are not relevant since they do not affect the share prices. Augustine (2018) analyzes the value relevance of earnings management practices for a sample of Nigerian listed firms. He confirms that discretionary accruals have a significant effect on the investors' decisions.

In contrast, the second group of studies confirms an insignificant relationship between

earnings management and share prices, which indicates no value relevance of earnings management practices. Dewi and Wirama (2019) investigate the influence of debt covenant slack on the value relevance of accounting information for a sample of non-financial listed firms in IDX from 2013 to 2017. They confirm no value relevance of both debt covenant slack and earnings management practices.

Regarding the last studies, there is a debate on the value relevance of earnings management practices. Hence, the paper investigates this through the following hypothesis:

H2: Earnings management practices are related to firm value relevance.

1.3. The value relevance of deferred tax through earnings management practices

Chang et al. (2009) test value relevance of reported deferred tax from 2001 to 2004. They prove a positive relationship between recognized DTAs and firm value. Dhaliwal et al. (2013) test whether DTAs provide incremental information to persist losses. They find that tax categories contain incremental information. Hanlon, Navissi, and Soepriyanto (2014) focus on the incremental value relevance of deferred tax. They suggest that deferred tax has higher value relevance. Bauman and Show (2016) use a sample of US firms to investigate the value relevance of DTAs and DTLs. They find that noncurrent deferred tax is relevant information for owners. Badenhorst and Ferreira (2016) use a sample of Australian and UK firms to examine the value relevance of DTAs, which often represent unused tax losses. They get evidence that financial crisis affected the value of DTAs. Guia and Dantas (2019) use a sample of listed Brazilian firms from 2000 to 2017. They show a negative relationship between DTAs and the market value of equities. Besides, investors are interested in relevance DTAs as a sign of equity quality, if earnings are un-determined.

To the best of researchers' knowledge, no study has investigated the effect of earnings management practices as a mediator on the relationship between both deferred tax and share prices and market value of equities, as value relevance proxies. Hence, the paper is designed to examine the indirect effect of deferred tax on share prices and market value of equities through these practices. Therefore, the following hypothesis is:

H3: The value relevance of deferred tax is mediated by earnings management practices.

2. RESEARCH METHODOLOGY

2.1. The model

To investigate the hypotheses, which are related to the mediating role of earnings management between deferred tax and value relevance, the relationship among the main study variables is represented in Figure 1.

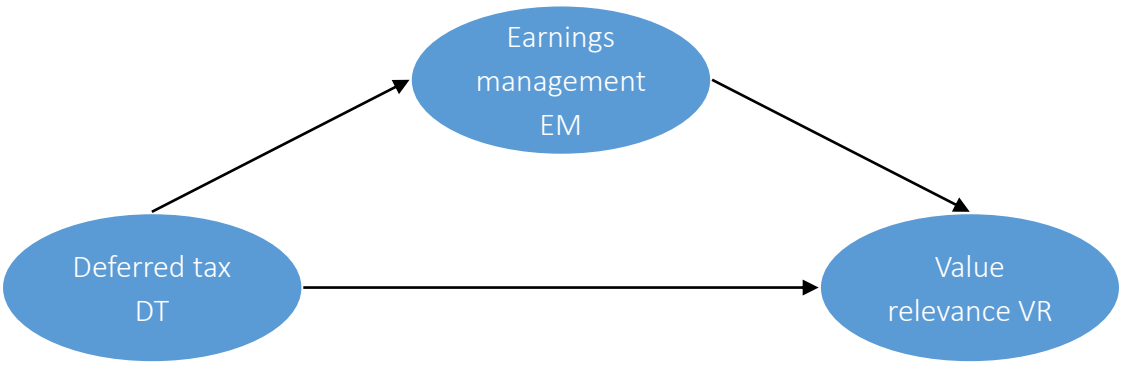

Figure 1. Research model

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Table 1. Variable measurement

Variables	Proxies		
	Name	Abbreviation	Measure
Dependent variable (value relevance)	Price per share	PRICE	Price per common share on March, 31st of the next year (three months after the reporting date)
	Market value	MC	Natural logarithm (LN) of market value of common share on March 31st of the next year
Mediator variable (earnings management)	Jones model	EM Jones	EM is discretionary accruals (DA) which is computed by equation: DA *t*/A *t*–1(EM) = TA *t*/ A *t*–1 – NDA *t*/A *t*–1
	Miller model	EM Miller	EM is computed by equation: EM *t* = (ΔWC/CFO) *t* – (ΔWC/CFO) *t*–1
Independent variable (deferred tax)	Net deferred tax liabilities	NET-DTL	The end-of-period deferred tax liabilities minus the end-of-period deferred tax assets
	Deferred tax expense	DTE	The recorded deferred tax expense in income statement of the current year

2.2. Data description

The researchers use published annual reports in Thomson Reuters Eiko Database. Although EAS 24 was issued in 2006 and concerned with listed firms in EGX 100, the sample period begins from 2013 to 2018. Data from 2007 to 2009 are excluded since 2008 world financial crisis affected the financial statements of Egyptian firms. Moreover, data from 2011 to 2012 are excluded due to 2011 Egyptian revaluation, which caused instability in Egyptian stock market performance in 2011 and 2012.

2.3. Descriptive statistics

Table 2 introduces descriptive statistics for all study variables.

Table 2. Descriptive statistics of the variables

Source: Data processed for 2019.

Var.	N	Mean	Median	Min.	Max.	STDEV
PRICE	642	10.301	6.270	0.010	90.350	13.305
MC	642	5.718	5.627	0.000	8.459	1.260
EM Jones	642	0.001	0.000	–0.605	0.457	0.092
EM Miller	642	–0.099	0.029	–8.167	3.892	2.453
Net-DTL	642	0.008	0.003	–0.098	0.098	0.028
DTE	642	0.008	0.000	–0.199	0.572	0.068

From Table 2, since Mean and Maximum of PRICE are 10.301 and 90.350, respectively, it helps to indicate lower share prices in Egypt. Besides, a minimum of DTE is –0.199, which means some firms may retrieve these expenses.

2.4. Data analysis

The data were processed using Structural Equation Modeling (SEM) method based on Partial Least Squares (PLS) since these data were processed by SmartPLS software.

2.4.1. Model goodness-of-fit

To assure that last model has results that can be trusted and generalized, the researchers test the goodness-of-fit and get results that are presented in Table 3.

Table 3. Testing of model goodness-of-fit

Test of model fit	Accepted level	Default model	Decision
SRMR	SRMR < 0.08	0.024	The result of the model is easy to interpret
NFI	NFI2 ≥ 0.95	0.982	The model improves the fit

Table 3 indicates that the research model is fit and easy to interpret.

Table 4. Outer weights

Source: Data processed for 2019.

Variables	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	*T*-statistics (O/STDEV)	*p*.-value
DTE → DT	0.931***	0.932	0.057	16.415	0.000
Net-DTL → DT	–0.210*	–0.211	0.107	1.963	0.050
EM Jones → EM	0.950***	0.946	0.038	25.201	0.000
EM Miller → EM	0.273**	0.276	0.096	2.833	0.005
MC → VR	1.154***	1.143	0.107	10.802	0.000
PRICE → VR	–0.404**	–0.387	0.129	3.142	0.002

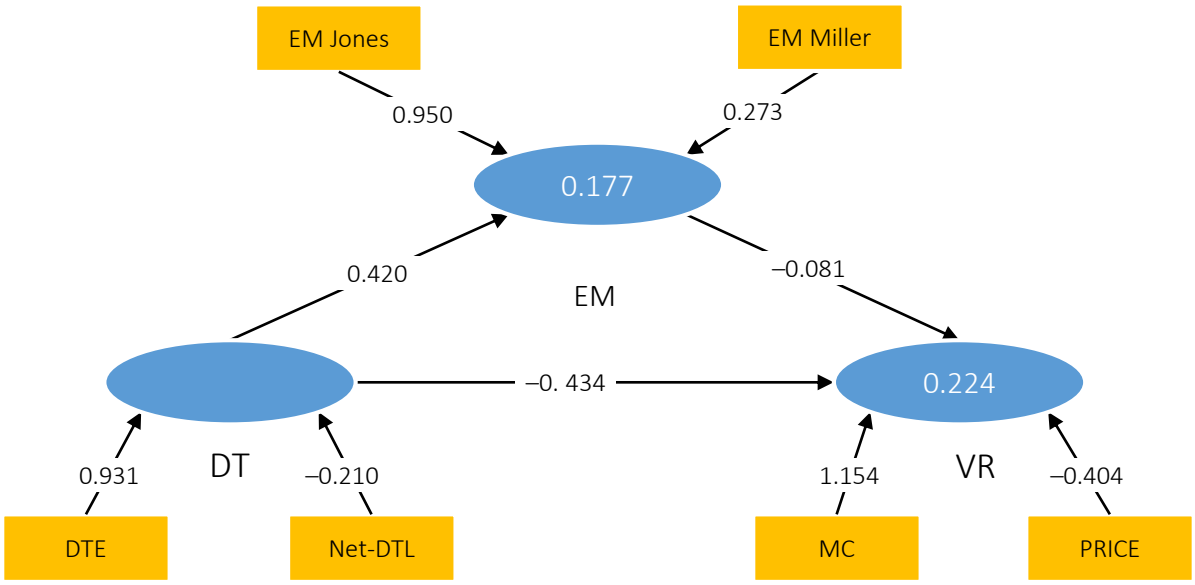

Figure 2. Structural model (outer model)

2.4.2. *Outer model assessment (measurement model)*

The results obtained from the convergent validity test are presented in Table 4.

Table 4 shows the value of the loading factor (convergent validity) of each indicator, since having a statistical *t*-value of > 1.96 means valid indicators and all *t*-values in this table, so all indicators are valid.

2.4.3. *Discriminant validity*

Table 5 presents the results obtained from the discriminant validity test.

Table 5. Values of discriminant validity (cross-loading)

Source: Data processed for 2019.

Variables	DT	EM	VR
DTE	0.979	0.418	–0.452
Net-DTL	–0.423	–0.148	0.225
EM Jones	0.403	0.962	–0.255
EM Miller	0.136	0.314	–0.076
MC	–0.434	–0.274	0.940
PRICE	–0.083	–0.133	0.209

Table 5 shows that all indicators making up each variable (the values in bold) meets the discriminant validity since it has the largest outer loading value for the variable it formed only.

2.4.4. *Inner model assessment (structural model)*

Table 6 represents *R*-square to judge a goodness-fit of the model.

Table 6. *R*-square value

Source: Data processed for 2019.

Constructs	*R*-square
EM	0.177
VR	0.224

In principle, this study used two variables influenced by other variables, i.e., the deferred tax variable affected the earnings management variable. Similarly, both deferred tax and earnings management variables also affected the value relevance variable.

Using available data in Table 5, Q^2 is calculated to represents goodness-of-fit (predictive relevance) since the higher Q^2, the more the model is fit with the data. The value of Q^2 is calculated from the following equation:

$$Q^2\text{value} = 1-\left[\left(1-R^2\right)\cdot\left(1-R^2\right)\right] =$$
$$= 1-\left[\left(1-0.177\right)\cdot\left(1-0.224\right)\right] = 0.361.$$

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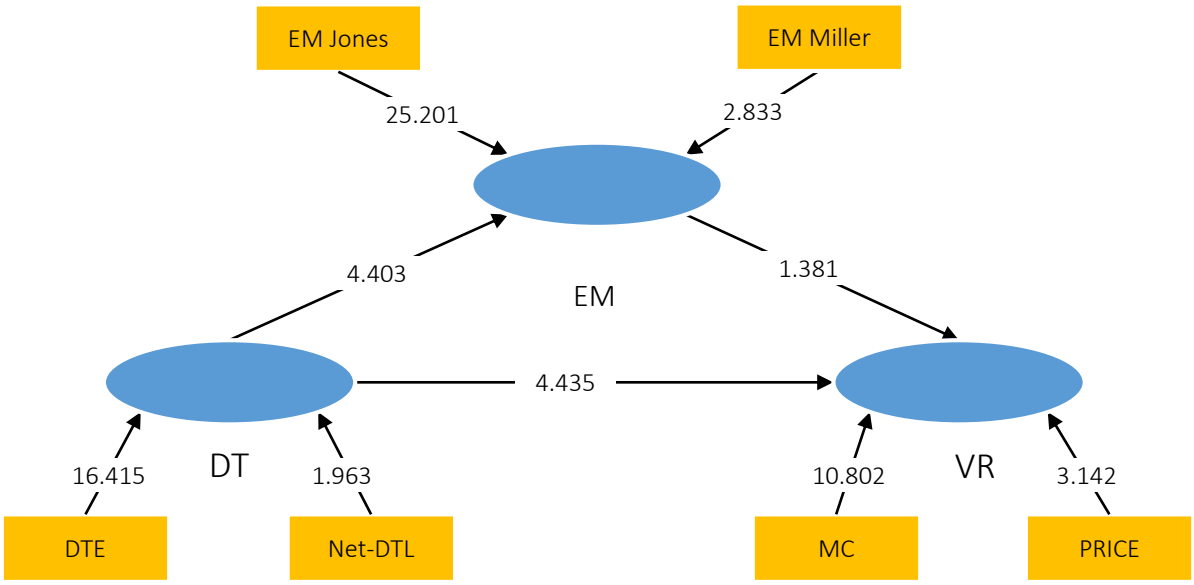

Figure 3. Structural model (inner model)

Based on Q^2, the amount of variability of the research data, which could be explained by the structural model, was 36.1% since the structural model in the study has a good fit.

3. RESULTS

Table 7 shows the test results with bootstrapping of the PLS analyses.

According to Table 7, the obtained results are presented as follows:

1. The relationship between the deferred tax and earnings management practices can be obtained from line 1 since the path coefficient is 0.420 with a *t*-value of 4.403 is higher than 1.96, which means that there is a positive and significant relationship between deferred tax and earnings management. So the first hypothesis (*H1*) is accepted. The result indicates a significant relationship, which is not consistent with Mudjiyanti (2018), Purnamasari (2019), Mulatsih et al. (2019), and Safitri et al. (2019). Besides, the result indicates a positive relationship, which is not consistent with Mulyani et al. (2018). However, this result supports Noor et al. (2007), Kasipillai and Mahenthiran (2013), and Rafay and Ajmal (2014).
2. Value relevance of earnings management can be obtained from line 2 since path coefficient is -0.081 with a *t*-value of 1.381, which is lower than 1.96, which indicates an insignificant relationship between earnings management practices and both share prices and market val-

Table 7. Path coefficient

Source: Data processed for 2019.

No.	Path	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	*T*-statistics (O/STDEV)	*P*-value	Decision
1	D → EM	0.420***	0.414	0.095	4.403	0.000	Accepted
2	EM → VR	–0.081	–0.079	0.058	1.381	0.167	Rejected
3	DT → VR	–0.434***	–0.427	0.098	4.435	0.000	Accepted
4	DT → EM → VR	–0.034	–0.032	0.025	1.349	0.178	Rejected

ue of equities. So the second hypothesis (*H2*) is rejected. The result indicates an insignificant relationship, which is not consistent with Shan (2015) and Callao et al. (2016). However, this result supports Dewi and Wirama (2019), since the agreement with these studies due to the similarity of markets that data was collected from, which is emerging markets, either Singapore, Indonesia, or Egypt.

3. The relationship between the deferred tax and value relevance can be obtained of line 3 and 4 since line 3 indicates the direct relationship between them, since path coefficient is –0.434 with *t*-value of 4.435, is higher than 1.96, which means that there is negative and significant direct VR of deferred tax. However, line 4 is interested in the indirect value relevance of deferred tax through earnings management, since indirect path coefficient is –0.034 with *t*-value of 1.349, is lower than 1.96, which means that there is an insignificant indirect value relevance of deferred tax through earnings management, based on concerning the third hypothesis (*H3*) with the indirect effect, so this hypothesis is rejected. The result of negative direct value relevance of deferred tax supports Guia and Dantas (2019) due to the similarity of markets that data was collected from, which is emerging markets, either Brazil or Egypt. However, this result supports Chang et al. (2009), Dhaliwal et al. (2013), Hanlon et al. (2014), Bauman and Show (2016), and Badenhorst and Ferreira (2016) since they indicate a positive direct effect.

4. DISCUSSION

The paper has one main objective, which is to analyze the effect of deferred tax and earnings management practices on the investors' decisions, which are reflected in share prices and market value of equities. This objective is divided into four sub-objectives: the first is investigating the effect of deferred tax on these practices, the second is investigating the value relevance of these practices, the third is investigating the direct value relevance of deferred tax, which concerns a direct relationship between deferred tax and both share prices and market value of equities, the fourth concerns an indirect relationship between the last two variables through earnings management practices, which can be done by verifying the mediation effect of these practices in value relevance of deferred tax.

Regarding the first sub-objective, Table 7 indicates that management uses deferred tax information to manipulate earnings since management practices chances to manipulate earnings increase when deferred tax expenses or net deferred tax assets increases.

Regarding the second sub-objective, Table 7 indicates no value relevance of earnings management practices, which means that these practices do not affect the investors' decisions (or preference), the reason of this result is successful of EAS, either were issued in 2006 or 2016, to reduce the effect of these practices on firms' performance.

Regarding the third sub-objective, Table 7 indicates direct value relevance of deferred tax, since the relationship between deferred tax and share prices and market value of equities is negative and direct. This result confirms that shareholders or investors' decisions (or preference) are affected by deferred tax information, which confirms that deferred tax information, either deferred tax expenses or net deferred tax assets, is one of some determinants that affect the investors' decisions.

Regarding the fourth sub-objective, Table 7 indicates no value relevance of deferred tax through earnings management practices as a mediator variable, despite a direct value relevance of deferred tax, as referred in the third objective. There is no indirect value relevance of deferred tax through earnings management practices, since investors are not interested in these practices to make their investment decisions. However, they are interested in deferred tax information, either DTE or NET-DTLs.

Finally, deferred tax introduces relevant information to investors' decisions (or preference). However, earnings management practices do not significantly affect these decisions. Besides, these practices do not significantly affect the value relevance of deferred tax information.

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CONCLUSION

Many literature reviews focus on the value relevance of deferred tax. This paper is interested in investigating it with concentrating on the mediation effect of earnings management on the relationship between deferred tax and both share prices and market value of equities for Egyptian listed non-financial firms.

For available data of 107 listed firms in EGX 100 from 2013 to 2018, which include 642 completed observations, the finding indicates the following: (1) management uses deferred tax expenses or net deferred tax assets to manipulate earnings through its positive relationship between deferred tax information and earnings management practices, which means management has a good environment to manipulate earnings if its firm has higher deferred tax expenses or net deferred tax assets, which gives a guideline to predict earnings management practices with regard to deferred tax information; (2) investors' decisions, which are expressed by both share prices and market value of equities, are affected by earnings management practices due to successful EAS to reduce the effect of these practices; (3) investor's decisions are affected by deferred tax information since investors use deferred tax information to make suitable decisions; in other words, deferred tax expenses and net deferred assets affect the investors' decisions (or preference) negatively; (4) earnings management practices have a significant and mediation role in the relationship between deferred tax and both share prices and market value of equities, which means that management does not use deferred tax to manipulate earnings to affect the investors' decisions (or preference).

The paper introduces three contributions: (1) management uses deferred tax to manipulate earnings; (2) management depends on the value relevance of deferred tax to affect the investors' decisions; (3) there is no mediation effect of earnings management practices on value relevance of deferred tax.

For future studies, researchers suggest concentrating on the effect of deferred tax and its proxies on audit quality, social responsibility, and sustainability. Moreover, researchers suggest testing the moderator effect of earnings management practices on the value relevance of deferred tax. Besides, researchers suggest re-investigating the mediation effect of earnings management practices on the value relevance of deferred tax with applying in a sample of different countries, either advanced or emerging markets, to analyze market nature of this investigation.

AUTHOR CONTRIBUTIONS

Conceptualization: Walid Shehata Mohamed Kasim Soliman, Karim Mansour Ali.
Data curation: Walid Shehata Mohamed Kasim Soliman.
Formal analysis: Walid Shehata Mohamed Kasim Soliman, Karim Mansour Ali.
Funding acquisition: Walid Shehata Mohamed Kasim Soliman.
Investigation: Walid Shehata Mohamed Kasim Soliman, Karim Mansour Ali.
Methodology: Walid Shehata Mohamed Kasim Soliman.
Project administration: Walid Shehata Mohamed Kasim Soliman.
Supervision: Walid Shehata Mohamed Kasim Soliman, Karim Mansour Ali.
Visualization: Walid Shehata Mohamed Kasim Soliman.
Writing – original draft: Walid Shehata Mohamed Kasim Soliman, Karim Mansour Ali.
Writing – review & editing: Walid Shehata Mohamed Kasim Soliman, Karim Mansour Ali.

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