# Using the ARDL approach to Interpretation of the relationship between Creative accounting practices and tax evasion

Company Case Study: COCA-COLA (1998-2020)

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#### Abstract:

This study aims to measure the relationship between creative accounting and tax evasion in the international companies. Therefore, COCA-COLA Company was selected as a case study during the period 1998-2020.

In the context of financial statements, the Beneish model is used to detect creative accounting practices. Also to capture the effect of creative accounting on tax evasion, we estimated the long-run linkage by using the ARDL bounds testing approach to cointegration in two categories, fraudulent behaviour and aggressive accounting. The test results prove of this study COCA-COLA company practice creative accounting during all years of study when the condition M-score > -2.22. Then, there is feedback long run and relationship between creative accounting and tax evasion through aggressive accounting category about two variables DEPI, TATA and DSRI not effect. In addition, there is not feedback long run and relationship between creative accounting run and relationship between creative long run and relationship between creative long run and relationship between creative accounting run and relationship between creative accounting run and relationship between creative accounting run and relationship between creative long run and relationship between creative long run and relationship between creative accounting run and relationship between creative long run and relationship between creative accounting and tax evasion through fraud behaviour category.

**Keywords:** Creative accounting, tax evasion, ARDL, international company. **JEL Classification : F65; M41; G32.** 

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## 1. Introduction:

According to Michael J. Jones (2011) states that, in a perfect world, there is no reason to call for creative accounting or fraud: the results would be excellent, the bonuses and the price of the shares would be high, and the financial operations would be in line with both the managerial and users' expectations. But we are not perfect, the world we live in is far from perfection and accounting is not an exception to this rule. In addition, The subject of "creative accounting" is usually portrayed as a harmful and negative act, where the image that appears in the minds of specialists is the image of manipulation and deception, but many researchers believe that creative accounting is a tool very similar to a weapon, if used correctly It can be of great benefit to the user, but if it is badly handled or falls into the wrong hands, it can cause a lot of damage, and therefore many researchers believe that the weapon is innocent and the fault lies with the user (Ciocan Claudia Cătălina,2017)

Furthermore, it should be noted that uncovering creative accounting practices is not an easy task in practice according to Patricia M. Dechow and Douglas J. Skinner (2000) argued that it is difficult to identify companies that abuse accounting. Notwithstanding, many researchers rejected the negative concepts of creative accounting, for example Watts and Zimmerman researchers (1970) touched on accounting practices and principles about positive creative accounting (Fizza Tassadaq, Qaisar Ali Malik, 2015).

Also, Raybaud Turillo B & Teller R (1997) never mentioned the downside of creative accounting, seeing it as only a tool for improving annual accounts, and a pillar serving the needs of financial engineering (Miroslav Skoda, Yaroslav Vyklyuk, 2018). French researchers Pasqualini F. & Castel R (1995) said about creative accounting The idea is that accountants offer imagination, such as inventing new financial instruments, but the imagination of accountants may not always serve the pursuit of legitimate goals, which made creative accounting take on many meanings (Artur Hołda, Anna Staszel,2016). Also confirmed by JAWAD, Firas Aziz M. & XIA, Xinping (2015) on the "innovative" aspects of creative accounting practices in manipulating accounting numbers, and argued that "innovation is an essential part of accounting practices." (Madan Lal Bhasin, 2015)

According to (AlQutaish,et al ,2011) argued that the purpose of creative accounting is to manipulate financial statements to reach certain goals by integrating accounting numbers in order to create a satisfactory impression for users of financial statements. Also, (Abdullah Bataineh & Louay Badie ,2010) see that it is the application of certain methods to give the institution a better view in

terms of the strength of its financial position, the size of its profits or its competitive advantage.

Michael J. Jones finds that creative accounting techniques are increasing in countries with a predominantly Anglo-Saxon culture, where corporate activities are financed through capital markets and the tax system is separated from the financial system. He believes that taxes are a factor that contributes to the use of creative accounting techniques, given that taxable profits are calculated on the basis of accounting reports (Ciocan Claudia Cătălina, 2017). Also in 2018 Corporate Europe Observatory Report, major accounting firms (Deloitte, EY, KPMG, and PwC) are the largest tax management firms, advising many of the largest firms in the European Union, and thus are an integral part of the tax evasion industry. It is a sector that each year costs billions of dollars in lost European tax revenue and public service funding. According to the Accounting for Influence study, the European Union loses up to 190 billion euros annually in tax revenue through the global tax evasion industry, particularly the Big Four (Kostadinka Kuneva, 2018).

The purpose of this study was to investigate to measurement of creative accounting practices in The Coca-Cola Company and the relationship with tax evasion behavior. The current study attempts to answer the following main questions: How can creative accounting practices lead to tax evasion in COCA-COLA during the period (1998-2020)?

The motivation of this study stems from many considerations. Firstly, this study updates the existing literature of relationship between creative accounting and tax evasion in economic institution in long period (1998-2020) because show a clear result in this study. Secondly, The Coca-Cola Company is a company that stimulates research on the subject, especially after it was subjected to tax fines in 2018, which may affect its reputation and the possibility of being accused of tax evasion. Also, the unclear relation between creative accounting practices and tax evasion in the research literature is a catalyst for research on this study.

The structure of the paper is as follows: Section 2 reviews Legal controversy of creative accounting in the economic institution and the literature on relationship between creative accounting and tax evasion in economic institution. While Section 3 presents the data and outlines the methodology. Section 4 discusses the empirical findings. Finally, Section 5 provides some concluding remarks.

#### 2. Theoretical Framework and Hypothesis Development:

This section reviews the studies related the relationship between creative accounting and tax evasion.

#### 2.1 Legal controversy of creative accounting in the companies:

The most important research that examined the legality of creative accounting practices, a study (Rajmund Mirdala et al., 2014) through a questionnaire distributed to a sample of accountancy experts in the State of Serbia. Among its most important results: The respondents believe that the most important factors that Lead to an increase in the use of creative accounting techniques is the presence of unstructured financial reports due to the presence of new technology by 26.5%, external auditors do not exercise due diligence by 35.3%, ambiguity in financial reporting standards (IFRS) by 32.4%, lack of recognition by accounting Judicial law by 38.2%, and negligence on the part of accountants by 38.2% as well. And nearly half of the respondents (50%) look at creative accounting as the process of implementing accounting techniques that fall within the financial reporting and legislative framework, and about a quarter of respondents (25%) do not have a clear idea about this problem, which is considered as evidence that the dividing line between creative accounting Positive and negative are very accurate. Also from the results of the study, 50% of the respondents believe that institutions have a good accountant who uses creative accounting techniques positively, while 35% believe that the accountant uses creative accounting techniques negatively, and 15% have no idea about the subject.

Beshiru Sanusi, Prince Famous Izedonmi (2014) argued that creative accounting practices should be "considered a serious crime", and thus accounting bodies, law courts and other regulatory authorities need to adopt strict measures to stop this unethical practice. As Ijeoma Ngozi Blessing (2015) sees, there is strong evidence that the emergence of forensic accounting "restored confidence in the credibility of companies and their financial reporting" (Madan LAL BHASIN, 2016). Also Bhasin, M.L (2016) confirms that forensic accounting will be among the list of 20 of the most important professions in demand in the future. (Branka Remenarić et al, 2018)

Breton, G & Taffler, R. J (1995) found that although creative accounting is a completely legitimate business that remains within the limits of legal accounting, it may completely contradict its spirit, because financial statements paint a picture of the business of the institution in a way that contradicts the facts and that Under the guise of goodwill (Artur Hołda, Anna Staszel, 2016).

We also find the researchers (ătălița-Mihaela LESCOI-FRUMUȘA, Mihaela MARTIU, 2016), who have studied the topic of creative accounting policies between legal and illegal boundaries, believe that every manipulation that violates the law is fraudulent, and therefore ethics must be included, and we should equally condemn the manipulation that is within the framework of The law was a deliberate act of concealing the true picture from reality. B Sanusi, PF Izedonmi (2014)

argued that creative accounting practices should "consider a serious crime, and therefore accounting bodies, law courts and other regulatory authorities need to adopt strict measures to stop this unethical practice (Madan LAL BHASIN, 2016).

Thus, it can be said that creative accounting is a legal behavior, so that these practices should not conflict with the spirit of the law.

#### 2.2 Relation between creative accounting and tax evasion:

The studies on Relation between creative accounting and tax evasion, some of them are presented according to (RADA, D, 2014) in the case of creative accounting, we cannot blame the imperfection of the legal framework, but we must recognize that due to gaps in legislation, people may resort to self-interest tax handling. (Grosu, V, 2018) argued the analysis of the phenomenon of tax evasion also concerns the interactions between creative accounting, management and tax fraud. Tax fraud can also be seen through binomial light: creative accounting (to the extent that it violates tax laws) and organization management. In addition, (Doina, R, 2012) said the consequences used of creative accounting are multiple, and we may cite among them tax dodging.

(Vržina, S., 2017), Examined the Complexity of value added tax regulation as source of creative accounting. He found that in countries where higher VAT rates apply, choosing a lower rate can be a source of tax evasion. Wrong choice of a lower VAT rate is often considered a consequence of complex tax regulations. (Amat and Gowthorpe, 2012; Balacil and Pop 2008; Niskanen and keloharju 2000; Hermann and Inoue, 1996) argued that tax evasion lead to aggressive accounting practices in companies because it depends on accounting income. (Malkani, and Haloush, 2008) said that negative creative accounting techniques lead to tax evasion, which is by submitting incorrect financial reports, making wrong entries or adjustments, forged books, destroying accounting books, concealing assets or concealing sources of income ...etc (Egbunike, et al, 2015).

Also, (Kamau, C. G., et al, 2012) randomly collected and analyzed data from thirty six accountants working for various companies in Kenya, and singled established that tax avoidance and evasion is indeed one of the major factors contributing to practice of creative accounting among companies in private sector. (Niskanen and Keloharju, 2000) also argued that taxation is the main driver of creative accounting in Finland. (Herrmann and Inoue, 1996) see taxation as a catalyst for creative accounting practices in Japan. Also, (Balaciu and Pop, 2008) highlighted the most important incentives for creative accounting practices in Bangladesh. One of the motives was tax evasion. (Nora Stangova, Agnesa Vighova ,2016) studied the relationship between tax evasion and creative accounting in the state of Slovakia, researchers believe that creative accounting has a significant

impact on public finances in the form of taxes, and for this reason creative accounting is closely related to tax evasion .

(Egbunike, et al ,2015), investigated whether tax evasion is one of the factors that affect aggressive accounting practices in Nigeria, and they found that there is a significant and positive relationship between tax evasion and creative accounting practices, and they suggest that the state should establish laws To reduce alternative accounting practices. Also, researchers (Ayala and Giancarlo, 2006) said that aggressive accounting practices are not practiced openly, but are according to different intentions, because accountants did not realize these practices, which led to the collapse of many companies at the global level, such as: Enron & World Com.

Also (Hafiza Aishah Hashima, et al ,2016) studied the relationship between harmful accounting practices and aggressive tax reports in Malaysia during the period (2008-2011), the study found that there is a positive relationship, but not significant. Economist (Vaalmikki Arjoon, 2016) said, "Raising the tax rate on income earners will promote tax evasion through creative accounting practices.

KPMG Audit Office in 2004 believes that the incentives for fraud are sometimes very similar to those related to creative accounting, as the most motivating factors for fraud are greed outside the legal framework, while creative accounting involves working within the legal framework by manipulating accounting numbers such as the Parmalat case where the Bank of America by tampering with around (€3.950 billion) (Michael Jones, 2011). In a study by (C. LENNOX, P. et al, 2013) on the relationship between tax evasion and accounting fraud in the United States of America. They found that tax aggressive U.S. public firms are less likely to commit accounting fraud.

#### 3. Research Method

This paper is based on applied research using a quantitative method approach .In this section, we tried studied The Beneish model used to detect creative accounting practices. Also the study applied a well-known approach by Pesaran et al. (2001) called the autoregressive distributed lag (ARDL) that examines the long-run and short-run effects between creative accounting and tax evasion in the Coca-Cola Company during the period from 1998 to 2020.

Beneish et al. (2013) distinguish two categories of ratios. Category practicing aggressive accounting include three ratios (DSRI, DEPI, TATA) while the category of propensity to commit fraud behaviour include five ratios (SGI, AQI, GMI, SGAI, and LVGI). So we formed two models (2-1, 2-2). The first mode

studied the effect of aggressive accounting in tax evasion and the second model studied the effect of fraud in tax evasion.

### 3.1 A case study- COCA COLA company

The company was founded in the year 1886 and is active in Europe, the Middle East, Africa, Latin America, North America, and Asia. The company produces and sells non-alcoholic drinks, in addition to juice, dairy products, vegetable drinks, tea and coffee, carbonated water, and is aimed at athletes ... etc. It is the third-largest producer of bottled water in the world. The company distributes its brands in more than 200 countries; the company has the largest beverage distribution system in the world, enabling it to sell 29 billion, 30.3 billion and 29.6 billion units of our products in 2020, 2019 and 2018 respectively. The company has 05 largest independent institutions: Coca-Cola FEMSA, Coca-Cola European Partners plc, Coca-Cola HBC AG, Arca Continental, S.A.B, and Swire Beverages. These branches fill 40% of the total volume of the production unit in the company as a whole; the company employs in 2020 and 2019, respectively, 80,300 and 86,200 employees (www.cocacola.com).

The total assets of the Corporation increased during the period (1998 – 2020) from about: 19.4 to 87.30 million dollars, with an estimated growth rate of 356.1%. Likewise, the volume of sales increased during the same period from about: 18.81 to \$ 31.85 million, an estimated growth rate of 69.32%. Figure 1 display also the statutory US federal rate (STFR) that the company pays during the period from (1998-2017) is 35% annually, and then decreased in 2018 To 21%, while the effective tax rate witnessed the lowest rate in 2010 at 16.7%, while the highest rate in 2017 was 82.5% and 16.7,20.3%, respectively for the years 2019 and 2020. Figure 1 show that effective tax rate was almost less than the statutory US federal rate (STFR), Until the year 2017 Where was the company hit with heavy tax fines estimated \$1.8 billion(Anjana Haines,2020) . Considered a negative signal about tax compliance and social responsibility.

Figure 01: Coca-Cola (ETR)and(STFR) during the period (1998-2020)



Source : https://www.coca-colacompany.com/ 29/07/2021

Also, Coca-Cola is a multinational company that manages many accounting and tax systems, especially in the countries where it has its branches, and this gives it a degree of flexibility in using accounting policies to achieve its financial goals. Consolidated financial statements are prepared in accordance with accounting principles generally accepted in the United States ("U.S. GAAP") (coca cola annual financial report, 2020).In 2015, a fine of \$ 3.3 billion was imposed by the tax authorities to the company due to back taxes, for the years (2007-2009), which caused the corporation to enter into a legal dispute regarding transfer pricing (Kevin Drawbaugh, 2018). It was mentioned in the international tax review that this dispute is one of the top US tax controversies in 2018 (ITR, 2018).

The main issues in the dispute include the method used to allocate profits to seven foreign branches. Coca-Cola and IRS have approved a methodology ("Method 10-50-50") to calculate the profits of foreign subsidiaries of Coca-Cola. Under this method, foreign subsidiaries will retain 10% of total revenue as a routine return and the remaining operating income (after some adjustments) will be divided by 50% to 50% between the company and the mother country. The final agreement covered Coca Cola's tax years and auditing by tax authorities from 1987 until the end of the agreement in 1995 (Justin Radziewicz ,2021).

Study Hypotheses: To answer the question we will test the following hypotheses:

H1: There is a creative accounting practice in The Coca-Cola Company that is revealed through a model M. DANIEL BENEISH?

H2: There is an effect between aggressive accounting practices and tax evasion in a Coca-Cola Company?

H3: There is an effect between fraud behaviour and tax evasion in a Coca-Cola Company?

#### 3.2 Study Models:

To estimate the study model 1:

In this model, we used financial indicators in the Beneish model to detect creative accounting practices, the formula of M-Score is as follows:

Mscore = -4.840 + 0.920 \* DSRI + 0.115 \* DEPI + 4.679 \* TATA + 0.528 \* GMI + 0.404 \* AQI - 0.172 \* SGAI + 0.892 \* SGI - 0.327 \* LVGI

Where:

Days' sales in receivable index (DSRI) = (Net Receivables<sub>t</sub> / Sales<sub>t</sub>) / (Net Receivables<sub>t-1</sub> / Sales<sub>t-1</sub>)

GMI: Gross Margin Index =  $[(Sales_{t-1} - Cost of Goods Sold_{t-1}) / Sales_{t-1}] / [(Sales_t - Cost of Goods Sold_t) / Sales_t])$ 

SGI: Sales growth Index =  $Sales_t / Sales_{t-1}$ 

 $LVGI: Leverage Index = [(Current Liabilities_t + Total Long-term Debt_t)/Total Assetst] / [(Current Liabilities_{t-1} + Total Long-term Debt_{t-1}) / Total Assets_{t-1}]$ 

TATA: Total Accruals to Total Assets= (Current Assets<sub>t</sub> - Cash  $Flow_t$  - tax  $Payable_t$ -depriciation<sub>t</sub>-amortization<sub>t</sub>) / Total Assets<sub>t</sub>

(SGAI)Selling, General, & Admin. Expenses Index: (SG&A Expense<sub>t</sub>/Sales<sub>t</sub>) / (SG&A Expense<sub>t-1</sub>/Sales<sub>t-1</sub>)

If the coefficient M-score  $\succ$  -2.22, it indicates that the institution has practiced creative accounting practices. (Özcan, A., 2018)

To estimate the study model 2:

Equation (2-1) can be written in ARDL (2-1) form as follows:

$$CashETR_{t} = \infty_{0} + \sum_{i=1}^{p} a_{1}CashETR_{t-1} + \sum_{i=1}^{p} a_{2}DSRI_{t-1} + \sum_{i=1}^{p} a_{3}DEPI_{t-1} + \sum_{i=1}^{p} a_{4}TATA_{t-1} + \lambda_{1}CashETR_{t-1} + \lambda_{2}DSRI_{t-1} + \lambda_{3}DEPI_{t-1} + \lambda_{4}TATA_{t-1} + \varepsilon_{t-1} + \varepsilon_{t$$

Equation (2-2) can be written in ARDL (2-2) form as follows:

 $\begin{aligned} CashETR_{t} &= \infty_{0} + \sum_{i=1}^{p} b_{1}CashETR_{t-1} + \sum_{i=1}^{p} b_{2}GMI + \sum_{i=1}^{p} b_{3}AQI \\ &+ \sum_{i=1}^{p} b_{4}SGAI + \sum_{i=1}^{p} b_{5}SGI_{t-1} + \sum_{i=1}^{p} b_{6}LVGI + \lambda_{1}CashETR_{t-1} + \lambda_{2}SGI_{t-1} \\ &+ \lambda_{3}AQI_{t-1} + \lambda_{4}GMI_{t-1} + \lambda_{5}SGAI_{t-1} + \lambda_{6}LVGI_{t-1} + \varepsilon_{t} \\ CashETR : cash effective tax rate (proxy of tax evasion) \end{aligned}$ 

 $CashETR = \frac{cash - taxes - paid}{pre - tax - income}$ 

 $\varepsilon_t$ : represents the error term

Where  $\infty_0^{\circ}$  represents drift component while  $\Delta$  shows the first difference  $\varepsilon_t$  shows the white noise. The study uses the Akaike information criterion (AIC) for choosing the lag length. After finding the long-run association existing between variables, the study uses the error correction model (ECM) to find the short-run dynamics.

The ECM general form of Equation (2-1) is formulated below in Equation:

$$CashETR_{t} = \infty_{0} + \sum_{k=1}^{n} a_{1}CashETR_{t-k} + \sum_{k=1}^{n} a_{2}DSRI_{t-k} + \sum_{k=1}^{n} a_{3}DEPI_{t-k} + \sum_{k=1}^{n} a_{4}TATA_{t-k} + \phi ECM_{t-1} + \varepsilon_{t}$$

The ECM general form of Equation (2-2) is formulated below in Equation:

$$CashETR_{t} = \infty_{0} + \sum_{k=1}^{n} b_{1}CashETR_{t-k} + \sum_{k=1}^{n} b_{2}GMI_{t-k} + \sum_{k=1}^{n} b_{3}AQI_{t-k} + \sum_{k=1}^{n} b_{4}SGAI_{t-k} + \sum_{k=1}^{n} b_{5}SGI_{t-k} + \sum_{k=1}^{n} b_{6}LVGI_{t-k} + \phi ECM_{t-1} + \varepsilon_{t}$$

Where  $\Delta$  represents the first difference while  $\emptyset$  is the coefficients of ECM for short-run dynamics. ECM shows the speed of adjustment in long-run equilibrium after a shock in the short run. After analyzing data through Equation (2-1, 2-2), the long-run association among all variables is verified by using the Wald test. The Null hypothesis of the Wald test suggests the existence of no cointegration, while the alternative hypothesis shows the existence of cointegration. The calculated F-statistics are compared to lower and upper bound values (Pesaran & Shin, 1999). If the estimated F-statistic value is larger than the lower and upper bound then there will be cointegration.

#### 4. Result and discussion:

The following section, presents the results of this study. The results are presented according to the research questions asked in this study.

# 4.1 descriptive statistics:

The descriptive statistical calculations result of Determinants of creative accounting and tax evasion (CashETR) in COCA COLA Company are shown in table1.

-									
Observations=22	AQI	DEPI	DSRI	GMI	LVGI	TATA	SGI	SGAI	CashETR
Mean	1,020	0,093	1,010	1,008	0,001	0,111	1,032	0,010	1,998
Maximum	1,256	0,176	1,251	1,050	0,003	0,259	1,326	0,017	2,850
Minimum	0,725	0,043	0,838	0,969	0,000	0,008	0,846	0,006	1,140
Std. Dev.	0,108	0,034	0,102	0,023	0,001	0,084	0,115	0,004	0,579

Table 1: Descriptive statistic

Source: Processed by Author on the program eviews10

Table 1 shows the descriptive statistical each variable. The Asset Quality Index offers an average value of 1.020 positive and greater than 1. So, this result indicates much of a cost deferral by the company. The Days' sales in receivable index offers an average value of 1.010 suggest that company has a large increase in receivable days might accelerated revenue recognition to inflate profits. As observed The Gross Margin Index an average value of 1.008 the stability of this index is a negative signal about the company's prospects. Also Sales growth Index an average value of 1.032 greater than 1 should be noted that a growth tendency in Sales Growth index (SGI) does not imply manipulation, but nevertheless, some companies might feel pressured by the market to present some specific values of their earnings.

# 4.2 Unit root analysis:

Also, Test for Stationary result it has been well documented that time series data is generally related to spurious regression issues that can lead to very poor results. Therefore, this is verified by testing the unit root for each variable that is included in our analysis. This study uses the Augmented Dickey-Fuller (ADF) and PP Phillips- Perron (PP) tests. Result shows all variables are stable from the first differences I (1) (Table 2-1 and 2-2).

Table 2: Unit root analysis model (2-1)

	ADF 1	test (at level)	ADF test (at first difference)					
Variables	-		-	Ţ				
	Intercept	Intercept and	Intercept	Intercept				

		trend		and trend		
CashETR	-1.3471	-1.5515	-4.7140***	-4.7541***		
DSRI	-4.8376***	-4.9733***	-6.9361***	-6.7385***		
DEPI	-2.1182	-3.1663	-7.4218***	-7.3414***		
ТАТА	-1.6860	-1.3969	-4.3023***	4.3391**		
	P–P te	est (at level )	P–P test (at	first difference)		
Variables	Intercept	Intercept and trend	Intercept	Intercept and trend		
CashETR	-1.347	1.636	-4.714***	4.776***		
DSRI	-7.452***	-10.261***	-12.840***	-12.169***		
DEPI	-2.118	-3.234	-7.342***	-8.597***		
TATA	-1.686	-1.396	-4.303***	-4.337**		

Table 3: Unit root analysis model (2-2)

Variables	ADF test (at leve	1)	ADF to difference)	est (at first		
	Intercept	Intercept and trend	Intercept	Intercept and trend		
CashETR	-1.3471	-1.5515	-4.7140***	4.7541***		
GMI	-3.9361***	-3.3851*	-4.5869***	4.7055***		
AQI	-7.5176***	-7.2174***	-4.7594***	5.3878***		
SGAI	-1.6372	-1.8544	-6.3224***	4.8435***		
SGI	-3.5108**	-3.6295*	-6.4711***	6.5469***		
LVGI	-3.6376**	-0.4970	-5.8417***	6.2909***		
Notes: **, **	*Mean the rejection of null h	pothesis at 5 and 1 per	cent levels of signific	cance.		
	P–P test (at level)	)	P–P test (at f	irst difference)		
Variables						

مجلة الدراسات التجارية والاقتصادية المعاصرة المجلد (05) العدد (01) (2021) 791

	Intercept	Intercept and	Intercept	Intercept
		trend		and trend
CashETR	-1.347	-1.6362	-4.714***	-4.776***
GMI	-3.519**	-3.3851*	-6.941**	-7.174***
AQI	-5.464***	-7.5698***	-11.106**	-12.270***
SGAI	-1.830	-1.8544	-6.210***	-6.958***
SGI	-3.474**	-3.5977*	-8.9813**	-10.302***
LVGI	-7.718***	-2.1574	-5.9167**	-17.155***
Notoci ** **	*Moon the mination of mult he			

Notes: \*\*, \*\*\*Mean the rejection of null hypothesis at 5 and 1 percent levels of significance.

#### 4.3 creative accounting practices detecting:

Table 4 Appendix shows results Beneish model outputs for Coca-Cola Company during the period from 1998 to 2020 presents the results of testing the first hypothesis. Thus, it can be said that the Coca-Cola Company has practiced creative accounting during all the period from 1998 to 2020, because Coefficient M-score  $\succeq$  -2.22.

# 4.4 the effect between creative accounting practices and tax evasion in COCA COLA company:

#### 4.4.1 Lag length criteria:

After checking the unit root test, the next stage is to use the ARDL approach to check the long-term relationship between the variables in two series. It is necessary to choose the appropriate lag length before applying the ARDL bounds test. In addition, the choice of lag length should be exercised with caution, as inappropriate lag length can lead to biased results and cannot be accepted for policy analysis. Consequently, to confirm that the lag length is chosen appropriately, we use the AIC to illustrate the relative lag length. The AIC criterion gives robust results and has excellent performance compared to the SC and HQ. The results are presented in Table 4and 5. We determined that the lag 2 fits our sample size in the model (2-1) and lag 2 in the model (2-2).

Lag order selection model (2-1): ARDL (1, 1, 2, 2);

Lag order selection model (2-2): ARDL (1, 2, 2, 2, 2, 2).

#### 4.4.2 Bound test approach:

In model (2-1) our findings of the cointegration test based on the ARDL bounds testing approach are detailed in Table 5. Results reveal that the calculated F-statistics are 11.05 which are greater than Wupper critical bound (UCB) at 1, 2.5,

5 and 10 percent of significance levels when DSRI, DEPI, TATA used as independent variables, cointegration relationship exist.

Also, model (2-2) our findings of the cointegration test based on the ARDL bounds testing approach are detailed in Table 6. Results reveal that the calculated F-statistics are 45.69 which are greater than Wupper critical bound (UCB) at 1, 2.5, 5 and 10 percent of significance levels when GMI, AQI, SGAI, SGI, LVGI used as independent variables cointegration relationship exist. Which confirm the robustness of long-run association in two models.

Variable	CashETR	DSRI	DEPI	TATA	Diagnostic tests	Value
Optimal lag structure		(1, 1, 2)	2, 2)		<i>R</i> <sup>2</sup> (Prob F: 0.00932)	0.957
F-st (Bounds Test)		11.05	740	$Adj-R^2$	0.909	
Critical values (%)	1	2.5	5	10	$\chi^2$ NORMAL	0.832
Lower bounds I(0)	5.17	4.52	4.01	3.47	$\chi^2$ SERIAL	0.431
Upper bounds I(1)	6.36	5.62	5.07	4.45	Heteroskedasticity. T	0.719

Table 5: Results of ARDL (2-1) cointegration test:

Table 6: Results of ARDL (2-2) cointegration test:

Variable	CashETR	GMI	AQI	SGAI	SGI	LVGI	Diagnostic tests	Value
Optimal lag		(1,	2, 2,		$R^2$	0.999		
structure								
F-st (Bounds Test)		45.69	9029			$\operatorname{Adj}-R^2$	0.990	
Critical values (%)	1	2.	.5	5	-	10	$\chi^2$ NORMAL	0.228
Lower bounds I(0)	3.93	3.4	49	3.12	2	.75	$\chi^2$ SERIAL	0.330
Upper bounds I(1)	5.23	4.67		4.25	3	.79	Heteroskedasticity. T	0.620

# 4.3.3 Long-run and short-run analysis model (2-1,2-2):

This study confirmed the long-run cointegration among cashETR dependent variable (tax evasion) and aggressive accounting determinants in the model (2-1). Table 7 demonstrates the long-run results, explanatory variable TATA positively and significantly affected tax evasion. Also variable DEPI negatively and significantly affected tax evasion and variable DSRI not effect significantly. Also confirmed there is not long-run cointegration among cash ETR dependent variable and fraudulent behavior determinants in the model (2-2).

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DEPI	-17.41951	3.681604	-4.731500	0.0011
DSRI	-0.042784	1.230825	-0.034761	0.9730
TATA	6.576429	1.527610	4.305046	0.0020

 Table 7: ARDL Long Run Form and Bounds Test- Levels Equation in model (2-1)

 aggressive accounting

CointEq =Chashetr-(-17.419\* DEPI-0.044\*DSRI+6.57\*TATA)

Table 8: ARDL Long Run Form and Bounds Test -Levels Equation in model (2-2)fraudulent behavior

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AQI	-10.81691	2.837016	-3.812777	0.0624
GMI	-11.06166	14.65469	-0.754820	0.5291
LVGI	2115.070	2071.977	1.020798	0.4147
SGAI	-469.4863	269.6708	-1.740961	0.2238
SGI	8.278258	4.451079	1.859832	0.2040

CointEq=Chashetr-(-10.816\*AQI-11.061\*GMI+2115.07\*TATA-469.48\*SGAI+8.278\*SGI)

In model (2-1) the value (ECT = -0.96) indicates the speed of adjustment of lags of past errors is 96.5% approx.Table 9 show that.

Model (2-1): The error correction equation can be estimated as follows:

 $\Delta CashETR = 3.6561 - 0.072 * \Delta @TREND + 0.771 * \Delta TATA_{t} - 3.448 * \Delta TATA_{t-1} - 5.437 * \Delta DEPI_{t} + 0.217 * \Delta DSRI_{t} + 0.522 * \Delta DSRI_{t-1} - 0.9655e_{t-1} + \varepsilon t$ 

 Table 9: ARDL Error Correction Regression (aggressive accounting)

 Model (2-1)

Dependent Variable: D(cashetr) Selected Model: ARDL(1, 2, 1, 2) Case 5: Unrestricted Constant and Unrestricted Trend Date: 12/13/12 Time: 20:10 Sample: 1999 2020 Included observations: 20

ECM Regression Case 5: Unrestricted Constant and Unrestricted Trend													
Variable	Coefficients	Std. Error	t-Statistic	Prob.									
С	3.656776	0.454388	8.047690	0.0000									
@TREND	-0.072004	0.009786	-7.358021	0.0000									
D(TATA)	0.771541	0.765056	1.008477	0.3396									
<b>D</b> ( <b>TATA</b> (-1))	-3.448826	0.768726	-4.486420	0.0015									
D(DEPI)	-5.347501	1.909051	-2.801131	0.0207									
D(DSRI)	0.217766	0.269307	0.808616	0.4396									
D(DSRI(-1))	0.522534	0.250086	2.089411	0.0662									
CointEq(-1)*	-0.965516	0.125729	-7.679373	0.0000									
R-squared	0.868754	Mean de	pendent var	0.030050									
Adjusted R-squared	0.792193	S.D. depe	endent var	0.333604									
S.E. of regression	0.152076	Akaike ii	nfo criterion	-0.639696									
Sum squared resid	0.277526	Schwarz	criterion	-0.241403									
Log likelihood	14.39696	Hannan-	Quinn criter.	-0.561945									
F-statistic	11.34729	Durbin-V	Vatson stat	2.415972									
Prob(F-statistic)	0.000189												

\* p-value incompatible with t-Bounds distribution.

Focusing on the first model (2-1), observed that the estimated coefficients of the long-run relationship show the significant impact of two independent variables on tax evasion (cashETR), during the period of the study. Moreover, the variable namely Depreciation Index's value (DEPI), (Coefficient=-17.41, Prob=0.0011) means that an increase in depreciation leads to a decrease in cashETR by an amount (-17.41). Coca-cola company has the highest value of DEPI In 2015 estimated 1.97 million \$ and lower value in 1998 estimated 0.38 million \$, to settle at average 1.40 million \$ in the last five years. The results about the significant impact of DEPI on cashETR can be justified on increase in the volume of the company's investments in tangible and intangible assets which makes the company benefit from tax savings.

Many researchers highlighted the depreciation as one of the creative accounting mechanisms among them (Cernuşca, L., 2009) studied methods, techniques and practice of creative accounting for depreciation. Also (Ali Shah, S. Z., et al ,2011) see that companies can Change the rate of depreciation method or change the method itself to increase or decrease the depreciation expense and effect on taxable income. So, it can be said that depreciation is considered a variable that may lead in the long run to tax evasion.

Second, total accrual on total assets index (TATA), (Coefficient=6.57, Prob=0.0020) means that a decrease in total accrual leads to a decrease in cashETR by an amount (6.576). This approach sees that managers use total accrual, especially discretionary (extraordinary) in order to manipulate income for the benefit of owners and shareholders.

This is consistent with the findings of researchers about the behaviour of earning management by using tax, including: Scholes, M. S., Wilson, G. P., & Wolfson, M. A (1992) provided evidence that companies attempt to change income by deferring revenue recognition or speeding up expense recognition to reduce tax expenses. Also MA Desai, D Dharmapala found that the financial and taxable income reporting system allows for "the province of much creative decision-making", arguing that aggressive tax management is the main source of the differences. (Benjamin C. Ayers, et al, 2008).

Furthermore, the short-run dynamics estimated using the ARDL. It can be observed from Table 9 that in the short-run; the coefficients of DEPI and TATA has significantly negative impact on the tax evasion (CashETR). One percent rise in DEPI is expect to decrease cashetr by just 5.34% at level. Which implies that the elasticity of CashETR to change in DEPI is elastic. But it is positive and significant. Also One percent rise in TATA is expected to decrease CashETR by just 3.44% at level. Which implies that the elasticity of CashETR to change in TATA is elastic.

We performed a two models stability test through several diagnostic tests including Jarque–Bera normality test, LM serial correlation test, heteroskedasticity test, Ramsey Reset test, respectively. The empirical findings of this study reveal that the ARDL model has passed all the diagnostic tests successfully (Table 5 and 6).

#### 4.3.4 Structural Stability Diagnostics:

Figure 2 and 3 shows the structural stability test for the model (2-1and 2-2) parameters according to the two CUSUM TEST tests and CUSUM of Squares TEST, as Part A and C shows that the sum of the residual accumulation falls

within the column of critical values, that the estimated parameters are stable at a level of significance of 5%.

Also part B and D of the graph shows that the sum of the accumulation of squares of the residuals falls within the column of critical values, meaning that the variables included in the model are stable at the level of significance of 5%.

Figure 2: Structural stability test of model parameters model (2-1)



Source: Processed by Authors on the program eviews10





Source: Processed by Authors on the program eviews10

# 5. Conclusion and Discussion, Implication and Limitation:

# 5.1. Conclusion and Discussion

In conclusion, the urgency need to study the long run relationship between creative accounting practices and tax evasion is due to the attempt to encourage companies to create a vigilant system for the tax risks that institutions may be exposed to and may distortion their reputation in the market.

This study presented an experimental evaluation of creative accounting in an international company (COCA-COLA). The creative accounting indexes were computed using the Beneish model.

Our findings revealed that coca cola practiced creative accounting during all the period (1998 – 2020) because Coefficient M-score  $\geq$  -2.22. Also, there is feedback long run and relationship between creative accounting and tax evasion through aggressive accounting category about two variables DEPI, TATA and DSRI not effect. In addition, there is feedback long run and relationship between creative accounting and tax evasion through fraud behavior category about three variables SGAI, SGI, LVGI and GMI, AQI not effects.

#### **5.2. Implication and Limitation**

This research has implications as a strategy to accelerate the adoption of the tax risk management system, especially in big size companies. By analyzing the long run relationship between creative accounting practices and tax evasion, the companies will try to control harmful accounting behaviour that does not serve the interests of shareholders and owners. This study also suggests directions for future research can be further elaborated by expanding unit samples and using sectoral study. Despite the interesting results that can be derived from our study, we nevertheless must note a few shortcomings of this article. First, expanding the number of companies may provide better results, but we wanted to try to know the peculiarity of the COCA COLA Company under study. Second, this study requires interviews with the company's auditors or financial managers in order to investigate the subject of the study. In spite of the abovementioned limitations, the research findings demonstrate Creative accounting practices may be harmful to the company and lead to tax evasion, which is an act punishable by law and tarnishes the company's reputation in the market, and therefore companies must build a system to manage the risks of this type of practices.

С	-4,84	1 999	2 000	2 001	2 002	2 003	2 004	2 005	2 006	2 007	2 008	2 009	2 010	2 011	2 012	2 013	2 014	2 015	2 016	2 017	2 018	2 019	2 0 2 0
DSRI	0,92	1,024	0,974	1,218	0,997	0,930	0,995	0,999	1,086	1,071	0,843	1,251	1,043	0,838	0,936	1,051	0,933	0,917	1,034	1,124	1,030	1,002	0,927
GMI	0,528	1,011	1,013	1,050	1,030	1,009	0,969	1,008	0,976	1,034	0,993	1,002	1,006	1,049	1,009	0,994	0,993	1,010	0,998	0,970	0,993	1,013	1,049
AQI	0,404	1,059	0,725	0,996	1,256	1,030	0,897	1,079	1,072	1,074	0,943	0,896	1,134	0,985	0,971	1,013	0,992	1,015	0,997	1,005	1,086	1,197	1,029
SGI	0,892	1,053	1,004	0,882	1,115	1,076	1,044	1,052	1,042	1,198	1,107	0,970	1,133	1,326	1,032	0,976	0,982	0,963	0,945	0,846	0,900	1,169	0,887
DEPI	0,115	0,096	0,177	0,114	0,108	0,121	0,148	0,119	0,131	0,077	0,088	0,094	0,074	0,043	0,055	0,057	0,055	0,056	0,070	0,102	0,110	0,078	0,066
SGAI	-0,172	0,017	0,015	0,017	0,014	0,013	0,013	0,013	0,012	0,011	0,009	0,008	0,009	0,008	0,006	0,006	0,006	0,006	0,006	0,006	0,007	0,008	0,006
TATA	4,679	0,015	0,050	0,026	0,012	0,035	0,129	0,042	0,008	0,044	0,043	0,125	0,113	0,141	0,174	0,177	0,198	0,207	0,251	0,259	0,244	0,078	0,067
LVGI	-0,327	0,003	0,002	0,002	0,002	0,002	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
M so	core	-1,919	-1,968	-1,846	-1,813	-1,902	-1,503	-1,809	-1,913	-1,660	-1,961	-1,337	-1,346	-1,273	-1,315	-1,235	-1,250	-1,219	-0,937	-0,910	-0,974	-1,483	-1,905
Source	: Proce	essed b	y Auth	ors use	d the co	ompany	's fina	ncial st	atemen	ts													

Appendix 1(table 4): The results Beneish model outputs for Coca-Cola company during the period from (1998-2020)

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