

The Persistence of Accounting Accruals Components: An Empirical Study of Some Algerian Companies

مدى استمرارية مكونات المستحقات المحاسبية: حالة بعض الشركات الجزائرية

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Abstract:

This paper aims to explore and measure the persistence of accounting accruals components comparing with the operating cash flows. The study was based on Sloan (1996) and used a panel data of 20 Algerian companies during 2007-2018. The results suggest that the non-discretionary accounting accruals and operating cash flows of the Algerian companies are persistent, while the discretionary accruals are not persistent. The results indicate also that the non-discretionary accounting accruals and operating cash flows present the same level of persistence. Therefore, the low persistence of accruals comparing with cash flows in the literature may be due to discretionary accruals as a result of earnings management practices.

Keywords: Accounting quality; Earnings persistence; Operating cash flows; Non-discretionary accruals; Discretionary accruals.

Jel Classification Codes: M40 ; M41

الملخص:

هدفت الدراسة إلى استكشاف وقياس استمرارية مكونات المستحقات المحاسبية مقارنة بالتدفقات النقدية التشغيلية، استنادا إلى نموذج Sloan (1996)، وباستخدام بيانات سلسلة مقطعية لـ 20 شركة جزائرية خلال 2007-2018. أشارت النتائج إلى أن المستحقات المحاسبية غير الاختيارية والتدفقات النقدية التشغيلية للشركات الجزائرية المدروسة تتميز بالاستمرارية، في حين كانت المستحقات الاختيارية غير مستمرة. كما أن المستحقات المحاسبية غير الاختيارية والتدفقات النقدية التشغيلية لهما نفس مستوى الاستمرارية، لذا فإن انخفاض استمرارية المستحقات المحاسبية مقارنة بالتدفقات النقدية في الأدبيات يرجع إلى المستحقات الاختيارية نتيجة لممارسات إدارة الأرباح. الكلمات المفتاحية: الجودة المحاسبية؛ استمرارية الأرباح؛ التدفقات النقدية التشغيلية؛ المستحقات غير الاختيارية؛ المستحقات الاختيارية.

تصنيف (Jel): M40؛ M41

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Introduction

The usefulness of financial information for decision-making is a required attribute according to the Conceptual Framework for Financial Reporting (IASB, 2018, p: 17-21). This can be achieved by the activation of fundamental and enhancing qualitative characteristics, which provides high-quality of financial information for the primary user group. Consequently, the managers and financial statements' users give more attention to the quality of financial information as an indicator of its usefulness.

The quality of financial information has been expressed in the literature using many terms, like accounting quality, financial reporting quality, financial statements quality, and earnings quality. The literature has also employed many measures consistent with these terms. Sloan (1996) proposed "Earnings persistence" as a measure of the earnings quality, which aims to follow the walk of future earnings starting from current earnings.

The persistence is a necessary property of earnings, when the forecasting of future cash flows is crucial to the company's valuation, it is difficult to achieve that directly without establishing a link between the future cash flows and the future earnings, which requires a link between the current earnings and the future earnings; the last link is known in the literature as the earnings persistence. In other words, earnings persistence means that current earnings must allow users to predict the company's future performance, which is an indicator of expected cash flows that determine the company's current value.

The quality of financial information is the primary focus of managers when selecting and applying accounting policies to prepare financial statements. It is also the focus of the standard-setters when issuing new standards or amending existing standards. For that, the international standard-setter (IASB) has introduced many improvements to its standards and was under several pressures in this regard. Although the standard-setters have determined the qualitative characteristics of high quality of financial information, they did not define a practical indicator for that. This was the subject of previous studies, which have proposed many proxies for the accounting quality, most notably the earnings persistence, which highly related to the qualitative characteristics of useful financial information.

- State the problem

Since the earliest of 90's, Algeria has known a revolutionary economic transition from socialism to capitalism, which required reforms in many sectors. In response to this transition and looking for a high level of financial information quality, an accounting reform was started at the end of

the 90's. The accounting reform has finalized in 2007 with the adoption of the Financial Accounting System (SCF), which has been inspired and adapted with the international reference (IAS/IFRS), motivating by the developments in international accounting, and the increasing trend towards the standardization of accounting practices at the international level.

The effective application of the Financial Accounting System (SCF) by the Algerian companies started on 01/01/2010. The new accounting reference has included several previously unknown accounting practices, especially its high focus on measuring earnings, to provide a faithful representation of the company's financial performance. This measurement is driven primarily by the principle of "substance over form" and oriented to reflect firstly the economic aspects of transactions then their legal aspects.

Starting from the previous evolutions, our study asks a question about the persistence of accounting accruals components as a proxy of earning quality in some Algerian companies. Our study has guided by the following research questions:

- Are the non-discretionary accounting accruals of studied Algerian companies persistent?
- Are the discretionary accounting accruals of studied Algerian companies persistent?
- Are the non-discretionary and discretionary accounting accruals more persistent than operating cash flows of studied Algerian companies?

- Purpose and importance

The importance of our study stems from the importance of its subject, where the characteristics of earnings and its components are the main determinants of financial statements quality that represents a target of various parties related to the company. Carrying out the study in the Algerian environment with its particularities, it also increases its importance, considering the lack of studies in this field.

The objective of this study is mainly to measure the persistence of non-discretionary and discretionary accounting accruals in Algerian companies when compared with the persistence of operating cash flows.

- Hypotheses

The following null hypotheses were tested at 5% level of significance:

- **Hypothesis 1:** The non-discretionary accounting accruals of studied Algerian companies are not persistent.
- **Hypothesis 2:** The discretionary accounting accruals of studied Algerian companies are not persistent.
- **Hypothesis 3:** The non-discretionary and discretionary accounting accruals are not more persistent than operating cash flows of studied Algerian companies.

1. Theoretical background

1.1. The persistence of earnings and earnings quality

The users of financial statements are much concerned about earnings quality as a proxy of financial information quality. Managers seek improving earnings quality to meet analysts' forecasts and other user's needs as means to protect themselves. On the other hand, analysts are interested in how best to measure earnings quality to maximize the portfolio of investors. According to Lyimo (2014, p. 17), it is becoming now difficult for analysts, managers, investors and other users to ignore the rising role of earnings quality in the allocation of resources.

Earnings persistence is a characteristic to enhance earnings quality, as it is highly related to the relevance of financial information that refers to its predictive and confirmatory value (IASB, 2018, p. 31). These components of relevance require sustainable or core earnings in a way making reported earnings a good indicator for future earnings (Bissessur, 2008, p. 40). According to Dechow & Schrand (2004), earnings are a higher quality if they are: more persistent and less volatile, more strongly associated with future cash flows, and more strongly associated with stock price performance or market value. For that, earnings persistence is not a complete definition of earnings quality (Hanlon, 2005, p. 142).

Earnings persistence has been defined as the extent to which earnings in a year predict future earnings. This concept focuses on sustainability and volatility, since persistent earnings indicate sustainable and less volatile earnings and thus, a higher predictive ability of time-series properties of earnings (Clubb & Wu, 2014; Perotti & Wagenhofer, 2014; Licerán-Gutiérrez & Cano-Rodríguez, 2019). Earnings persistence has long been viewed as a desirable property, as it wins much favor from users when they invoke benchmarks to forecast future earnings or assess permanent earnings (Cheng & Liu, 2016, p. 31).

The most commonly used empirical proxy for earnings persistence is the auto-regression coefficient of earnings on lagged earnings proposed by Sloan (1996), which measures the ability of current earnings to predict a one-year ahead earnings. This model was later extended by disaggregating lagged earnings into cash flows and the main components of accruals, based on the idea that the cash-flow component of earnings has greater predictive ability than the accrual component does.

The persistence is a characteristic of earnings, upon the data that helps investors to assess future performance (Kordestani et al., 2015, p. 354), i.e. earnings persistence measures the importance of earnings for the prediction

of future profitability. Sun (2010) claimed that high earnings persistence is an ideal characteristic to reduce risk in assessing firm value and contracting. Penman & Zhang (2002) considered earnings persistence as a good indicator of earnings quality because high-quality of earnings must be predictable and sustainable.

1.2. The persistence of accounting accruals versus cash flows

The accounting measurement of earnings focuses on the “accrual principle”, which gives rise to two known components: operating cash flows and accounting accruals. Without referring to any particular principles, accounting uses accruals because transactions may, or may not, have a cash component. Accounting accruals have a low level of reliability and a high level of pertinence when compared with Cash flows. Consequently, the introduction of accruals requires equilibrium between its positive and negative effects on earnings quality.

Accounting accruals are the total adjustments on cash flows, permitted by accounting standards (Healy, 1985), by which current cash flow is modified to create a more predictive performance measure, namely earnings (Barth et al., 2016, p. 772). Accruals include items that permit the transition from cash accounting to accrual accounting and transactions that affect the earnings schema over time, permitting managers to transfer results between different periods. Accruals appear when the timing of transaction recognition differs from the timing of cash receipts or payments. As a result, financial reporting uses accruals to alter the timing of cash flows recognition in earnings to enhance performance measurement.

Accounting accruals arise primarily from the “accrual basis”, which requires the allocation of amounts arising from transactions that concern more than one period. They are also the results of other accounting principles related to the recognition and measurement, such as conservatism, time period, revenue recognition, and matching. The implementation of these principles requires generally using of judgment and estimation, to link each transaction to the period in which they occur, and allocate financial flows over periods, if they concern more than one period. Accruals represent the non-cash earnings, including the non-paid expenses and non-received income and other accounting adjustments.

Accounting accruals and operating cash flows have different characteristics in terms of persistence because they reflect different aspects of performance. According to Bernstein (1993, p. 461), operating cash flow, as a measure of performance, is less subject to distortion than is the earning figure. This is so because the accrual system, which produces the earning, relies on accruals, deferrals, allocations, and valuations, all of which involve higher degrees of subjectivity than what enters the determination of

operating cash flow. That is why analysts prefer to relate cash flow to reported earning as a check on the quality of that earning.

Studies stated that the accrued component of earning is less persistent than its cash component. Two main explanations for that are documented. The first is the measurement error hypothesis, which stated that subjectivity and distortions in financial reporting lead to transitory measurement error in accruals (Xie, 2001; Dechow & Dichev, 2002; McNichols, 2002; Richardson et al., 2005; Richardson et al., 2006). The second is the investment hypothesis, which stated that accruals are closely linked to investment and predict lower future profitability because of decreasing returns to scale, adjustment costs associated with investment, or conservatism in accounting (Fairfield et al., 2003; Dechow & Ge, 2006).

Lewellen & Resutek (2019) proposed a third explanation (The product markets hypothesis), suggesting that an increase in input prices raises the firm's production and inventory costs today but lowers future profits when the inventory is sold. An increase in demand leads to a temporary rise in profits and working capital, followed by mean reversion in the variables as competition drives prices and profitability back to their long-term equilibrium levels. According to Lewellen & Resutek (2019), all three hypotheses imply that accruals should be negatively related to next year's profitability, but they make different predictions about the long-run behavior of profits, profitability, sales, and expenses.

Some academics and practitioners advocate 'backing out' accruals in evaluating corporate performance, encouraging investors to focus on cash flows rather than earnings. Yet most investors still clearly embrace the earnings number with its accruals intact. Investors should base on both the cash flow and accrual components of earnings when forecasting future performance and determining the firm's value (Sloan, 1999, p. 231).

1.3. The persistence of non-discretionary versus discretionary accruals

The studies distinguished between two components of accruals in terms of quality: the non-discretionary and discretionary accruals. Non-discretionary accruals arise as a result of current transactions and consider as normal due to the level of the company's performance, its strategy, industry agreements, and other economic factors. Discretionary accruals arise from the available accounting flexibility that enables managers to make judgments and estimations and choose between accounting policies. Discretionary accruals are abnormal, considering that they do not relate to the performance or strategy of the company, industry agreements or other factors, they only reflect the managers' accounting decisions.

The studies did not treat accruals components in terms of persistence, while there are several differences between their characteristics. Non-discretionary accruals are a mandatory accounting item that does not contain any margin for managers to make judgments or methods selections. However, Discretionary accruals are non-mandatory accounting item that is recorded within the accounting that has yet to be realized, i.e. company may or may not choose to recognize a future accounting item by making an accrual for it right now. Furthermore, discretionary accruals mean that the company uses its discretion in deciding whether or not make the accrual; an example of this would be impairment loss, depreciation and amortization method, and cost of inventories determination.

The non-discretionary accruals that are mainly driven by growth in operating activity are generally excluded from studies, as they are normal and can be easily expected, which differ substantially from the remaining discretionary accruals that are more likely to reflect transitory accounting distortions (Tapia & Fernández, 2011, p. 136), so they become hard to expect. Since most of the variation in accruals is assigned to discretionary accruals, the trading strategy based on discretionary accruals is frequently used to manage earnings. Xie (2001) found that investors tend to misprice the discretionary component of accruals, i.e. the component more susceptible to earnings manipulation.

There are two perspectives in positive accounting theory about the role of discretionary accruals in the usefulness of earnings: signaling and opportunism. According to the signaling hypothesis, discretionary accruals can improve the information content of earnings by allowing managers to signal their private information about future cash flows. However, according to the opportunism hypothesis, discretionary accruals can be used opportunistically, and thus can distort the information in earnings (Farshadfar & Monem, 2011, p. 597).

It appears clearly that the non-discretionary accruals tend to be sustainable and expectable, as they reflect the normal and continuous component of earnings. On the other hand, the discretionary accruals tend to be volatile and transitory, as they reflect the abnormal and occasional component of earnings. Discretionary accruals are due to the inherent flexibility and discretions embedded in accounting standards that offer opportunities for corporate managers to adjust earnings, either upward or downward (Li, 2019, p. 191), through earnings management practices. Consequently, discretionary accruals are expected to be less persistent or not persistent comparing with cash flows and non-discretionary accruals.

2. Literature review

The idea that current earnings are a starting point for the prediction of future earnings is not new; this was a subject of study for previous works since the 50's (Graham & Dodd, 1951; Ball & Brown, 1968; Ball & Watts, 1972; Watts & Leftwich, 1977; Lipe, 1986). On the other hand, accruals have widely used by studies as a proxy of accounting quality since the middle of 80's (Healy, 1985; Jones, 1991). In this context, Subramanyam (1996) used a variant of the Jones (1991) model and examined the market pricing and predictive usefulness of the discretionary component of accruals with respect to future cash flows. He found that, on average, discretionary accruals are useful in predicting future operating cash flows.

Barth et al. (2001) investigated the predictive usefulness of disaggregated accruals with respect to future operating cash flows. They found that each accrual component is significant with the predicted sign (positive for asset accruals and negative for liability accruals) in predicting future cash flows, incremental to current cash flows.

Fairfield et al. (2003) tested the conclusion of prior research providing evidence that a higher proportion of accrued versus cash earnings is associated with lower earnings performance in the subsequent period. Using 35083 firm-year observations from COMPUSTAT during 1964-1993, they found that accruals and cash flows have no differential relation with one-year ahead operating income. They suggested that the lower persistence of accruals versus cash flows may not be due to earnings management, but may rather be due to the effect of growth on future profitability.

Francis and Smith (2005) reexamined prior studies' conclusion that accruals are less persistent than cash flows, focusing on two aspects of persistence: time specificity and firm-specificity. The study included 83962 firm-year observations from the COMPUSTAT database, during the period of 1962-2001. The results showed that the inclusion of non-current period transactions leads to a downward (upward) bias on the persistence of accruals (cash flows). Using developed alternative measures of accruals and cash flows, the study showed that the differential persistence of cash flows over accruals is more than 70% smaller. The evaluation of persistence using firm-specific estimations indicated that more than 85% of firms shown no evidence that accruals are less persistent than cash flows.

Dechow & Ge (2006) analyzed the effects of magnitude and sign of accruals on earnings persistence, using 63875 firm-year observations over 1988-2002, obtained from the COMPUSTAT. The results showed that the low persistence of earnings in low accrual firms is primarily driven by special items, and that special item-low accrual firms have higher future

stock returns than other low accrual firms. The results showed also that special item-low accrual firms have poor past performance and declines in investor recognition (analyst coverage and institutional holdings).

Ebaid (2011) examined the persistence of earnings in Egypt, and whether is more attributable to cash flow or accrual component of earnings. Based on 74 Egyptian listed firms over 1999-2007, the study found that the earnings of Egyptian firms are persistent, although the persistence parameters are less than those documented in developed markets. The study also found that the persistence of earnings performance is attributed more to the cash flow component than to the accrual component of earnings.

Farshadfar & Monem (2011) examined whether discretionary and non-discretionary accruals improve the predictive ability of earnings for the forecasting of future cash flows in Australia. Using 4537 firm-year observations over 1992-2004, they demonstrated that discretionary accruals improve the predictive ability of earnings in the forecasting of future cash flows. Furthermore, the discretionary and non-discretionary accruals and direct method cash flow components together are more useful than (i) aggregate earnings, (ii) aggregate operating cash flow and total accruals, and (iii) aggregate operating cash flow, discretionary accruals and non-discretionary accruals.

Artikis and Papanastasopoulos (2016) tested the persistence and pricing of the cash component of earnings in UK listed firms. Their sample included 24731 firm-year observations from 1981 to 2013. They found that the cash component of earnings is more persistent than the accrual component. Cash retained by the firm as changes in the cash balance also appears to be more persistent than accruals, whereas cash attributed to debt holders has approximately the same persistence level of accrual component.

Dimitropoulos and Koronios (2018) studied the predictability and persistence of earnings in the European football clubs and whether the UEFA's Financial Fair Play (FFP) forced clubs to produce a more predictable earnings stream. They investigated 109 European top-tier clubs over 2008-2016. Empirical evidence indicated that the cash flow component of earnings is more relevant in predicting one-year ahead earnings. The relevance of cash flow has improved after the installation of the FFP regulation. Moreover, the above mentioned finding is more significant for the smaller league clubs.

Adiati et al. (2018) examined the effect of deferred tax and accruals on the persistence of earnings in the Indonesian listed companies. They employed 1609 firm-year observations over 2007-2014. Their results suggested that deferred tax and accruals had negative effects on earnings persistence. These results remained qualitatively unchanged after controlling

for the industry sector, year dummy variables, and negative accruals. However, when the sample was split into positive and negative deferred tax, the results showed a negative effect of deferred tax on earnings persistence only for positive deferred tax subsample.

The previously presented studies were primarily carried out in developing countries and secondly in emerging countries. These studies have generally indicated a high level of persistence of earning's cash component comparing with its accrual component. However, our study focuses on the disaggregation of accounting accruals to its main components and testing their effects on future earnings in terms of persistence. On the other hand, our study included companies from a developing country like Algeria; this adds a value to the literature.

3. Research design

3.1. Model specification

Sloan (1996) proposed a model to measure the earnings persistence, which links the next period earnings with the current earnings in auto-regression model, as shown in Equation (1). The earnings persistence can be measured by the coefficient α_1 ; where the higher the coefficient α_1 , the more the current earnings ($Earnings_t$) can predict the next period earnings ($Earnings_{t+1}$) and thus, the greater the earnings persistence is.

$$Earnings_{t+1} = \alpha_0 + \alpha_1 Earnings_t + v_{t+1} \quad (1)$$

Sloan (1996) extended Equation (1) through disaggregating current earnings into cash flows and accounting accruals, in order to measure the persistence of each component, as shown in Equation (2). According to Sloan (1996, p. 297) the smaller coefficient on accruals ($y_1 < y_2$) relative to cash flows reflects the lower persistence of earnings performance attributable to the accrual component of earnings and vice versa.

$$Earnings_{t+1} = y_0 + y_1 Accruals_t + y_2 Cash\ Flows_t + v_{t+1} \quad (2)$$

This study has extended the Equation (2) through disaggregating accounting accruals into its main components: non-discretionary (Non-disc Accruals_t) and discretionary (Disc Accruals_t), as shown in Equation (3).

$$Earnings_{t+1} = \lambda_0 + \lambda_1 Non-disc\ Accruals_t + \lambda_2 Disc\ Accruals_t + \lambda_3 Cash\ Flows_t + v_{t+1} \quad (3)$$

Finally, as we used a panel data, we can present the model of study in Equation (4).

$$NI_{it+1} = \delta_{it} + \sigma_{it}CF_{it} + \mu_{it}NDAC_{it} + \eta_{it}DAC_{it} + \xi_{it+1} \quad (4)$$

Where NI_{it} is the earnings of current period; NI_{it+1} is the earnings of subsequent period; CF_{it} is the net operating cash flows of current period; $NDAC_{it}$ is the non-discretionary accruals of current period; DAC_{it} is the discretionary accruals of current period; σ_{it} , μ_{it} , and η_{it} are the auto-regression coefficients of operating cash flows, non-discretionary and discretionary accruals respectively; δ_{it} is an estimate of the subsequent period earnings when the cash and accrued component of earnings take the value zero, ξ_{it+1} is the subsequent period earnings that are not predicted by the cash and accrued component of earnings.

3.2. Data collection

Considering the difficulties related to the collection of data from companies in Algeria, the study included only 20 big size Algerian companies that publish or provide publically and regularly their annual financial statements. The study covered 12 years (2007-2018), while the financial data of each company covered different sub-period, and thus the resulting panel data is unbalanced. Data comprised 145 firm-year observations, which decreased to 125 firm-year observations, as a result of the time delay of the dependent variable (next period earnings). The data have primarily collected via contacting the headquarters of companies and secondly using the COSOB's electronic sites and the electronic sites of some companies.

4. Results and discussion

4.1. Descriptive statistic and Correlation

Firstly, concerning descriptive statistics, Table N°1 summarizes the statistics of 145 observations that concern 20 companies for 12 years, which takes the form of unbalanced panel data. According to the mean, earnings (NI_{it}) of the studied companies represent 4.38% of their total assets on average, which indicates a low performance of the companies during the period. As shown in Table N°1, the non-discretionary accruals ($NDAC_{it}$) are much more than cash flows (CF_{it}), while the discretionary accruals (DAC_{it}) are close to the cash flows. This may refer to earnings management by the Algerian companies. According to the minimum values, earnings and cash flows comprise negative values, which overloaded their means. However, non-discretionary and discretionary accruals do not contain any negative values. The standard deviations indicate that operating cash flows are more dispersal than non-discretionary accruals, earnings, and discretionary accruals respectively.

Table (1): Descriptive statistics for 145 firm-years observations (2007-2018).

	NI_{it}	CF_{it}	$NDAC_{it}$	DAC_{it}
Mean	0.04737	-0.03048	0.06957	0.03082
Median	0.04312	-0.01278	0.04219	0.02426
Max	0.28033	0.17545	0.40702	0.29955
Min	-0.12657	-0.50783	0.00154	0.00002
Std. Dev.	0.05954	0.10294	0.07735	0.03270
Sum	6.86921	-4.41992	10.0881	4.46947
Obser.	145	145	145	145

Source: Based on EViews V10.

Secondly, concerning correlation, Table N° 2 shows that the correlations of operating cash flows (CF_{it}) with non-discretionary ($NDAC_{it}$) and discretionary (DAC_{it}) accounting accruals are negative and significant at the 1% level, but they are weak. The correlation between non-discretionary and discretionary accruals is also significant at the 1% level and weak, but it is positive. These results suggest the absence of collinearity. Table N° 2 shows that the correlations of earnings (NI_{it}) with cash flows and non-discretionary accounting accruals are significant at the 1% level and medium. However, the correlation between earnings and discretionary accounting accruals is weak and significant at the 1% level.

Table (2): Pearson's correlation coefficients between the variables.

	NI_{it}	OCF_{it}	$NDACC_{it}$	$DACC_{it}$
NI_{it}	1.0000 -----			
OCF_{it}	0.5462 0.0027	1.0000 -----		
$NDACC_{it}$	0.5355 0.0000	-0.1980 0.0000	1.0000 -----	
$DACC_{it}$	0.3365 0.0000	-0.2364 0.0000	0.2103 0.0000	1.0000 -----

Source: Based on EViews V10.

4.2. Unit root test

Before the estimation of our model, it is necessary to examine the stationary or the order of integration of the individual panel data. For that, four unit root tests were employed at the level, i.e. $I(0)$, including the three

possible options (Individual intercept, Individual intercept and trend, None). The null hypothesis of all tests assumes the presence of a unit root (non-stationary) of panel data. The results summarized in Table 3 indicate the absence of unit root for all variables, as the significance levels are less than 5%, except for earnings (NI_{it}) only when *Im, Pesaran and Shin* is used under the individual intercept and trend option, and for operating cash flows (CF_{it}) when *Levin, Lin & Chu t* or *Im, Pesaran and Shin* are used under the individual intercept and trend option. These results suggest the stationary of all variables at the level, i.e. $I(0)$.

Table (3): Panel data unit root test results in the level i.e. $I(0)$.

	Method	Statistics			
		NI_{it}	OCF_{it}	$NDACC_{it}$	$DACC_{it}$
Individual intercept	Null: Unit root (assumes common unit root process)				
	Levin, Lin & Chu t	-10.08**	-17.13**	-27.65**	-5.192**
	Null: Unit root (assumes individual unit root process)				
	Im, Pesaran and Shin W-stat	-4.782**	-6.820**	-11.46**	-5.597**
	ADF - Fisher Chi-square	67.92**	85.85**	115.7**	78.16**
Individual intercept and trend	PP - Fisher Chi-square	61.70**	99.99**	122.6**	102.3**
	Null: Unit root (assumes common unit root process)				
	Levin, Lin & Chu t	6.232**	6.26	-42.17**	-7.974**
	Null: Unit root (assumes individual unit root process)				
	Im, Pesaran and Shin W-stat	-1.165	-1.18	-4.955**	-2.906**
None	ADF - Fisher Chi-square	49.95**	55.27**	90.60**	80.61**
	PP - Fisher Chi-square	71.11**	71.73**	102.2**	93.17**
	Null: Unit root (assumes common unit root process)				
	Levin, Lin & Chu t	-9.141**	-5.27**	-5.838**	-1.773*
	Null: Unit root (assumes individual unit root process)				
	ADF - Fisher Chi-square	99.40**	98.59**	73.20**	36.55*
	PP - Fisher Chi-square	89.78**	90.77**	80.49**	31.56*

* Significant at 5% level

** Significant at 1% level

Source: Based on EViews V10.

4.3. Model estimation

Table N° 4 summarizes the results of the model's estimation using the three known methods of panel data (Pooled regression, Fixed effects, and Random effects), which show that the three methods provide the same results in terms of the significance of the model and the parameters. The results suggest that the model is significant at the 1% level, and also the constant and the regression coefficients of both the operating cash flows

(OCF_{it}) and the non-discretionary accruals ($NDAC_{it}$) are significant at the 1% level, while the regression coefficient of discretionary accruals (DAC_{it}) is not significant. In terms of value, the results suggest a convergence between the results of the Pooled Regression Model and the Random Effects Model when compared with the Fixed Effects Model. According to the determination coefficients, the model is more predictable of next period earnings under the Fixed Effects then Pooled Regression and Random Effects respectively. However, according to the regression coefficients, operating cash flows and non-discretionary accruals are more predictable of next period earnings, i.e. more persistent under Pooled Regression then Random Effects and Fixed Effects respectively, while the discretionary accruals are not persistent under the three models, and thus do not predict future performance.

Table (4): Model's results using the different methods of panel data.

Independent variables		Dependent variable: NI_{it+1}		
		Estimation method		
		Pooled Regression Model	Fixed Effects Model	Random Effects Model
Constant	Coefficient t-statistic	0.0264 (3.5079)**	0.0315 (4.0092)**	0.0284 (3.4652)**
OCF_{it}	Coefficient t-statistic	0.5737 (9.7392)**	0.5208 (8.4216)**	0.5575 (9.4846)**
$NDAC_{it}$	Coefficient t-statistic	0.5680 (7.3836)**	0.5191 (6.5230)**	0.5523 (7.2244)**
DAC_{it}	Coefficient t-statistic	-0.1217 (-0.7315)	-0.2293 (-1.3317)	-0.1562 (-0.9444)
Adj. R^2		0.4442	0.5356	0.4382
F-statistic		(34.04)**	(9.0633)**	(33.24)**
Durbin-Watson		1.73	1.64	1.70
S.E. of regression		0.0445	0.0432	0.0433
Sum squared residuals		0.2393	0.2049	0.2266
Log likelihood		213.78	223.48	-
Periods included		12	12	12
Cross-sections included		20	20	20
Obs.		125	125	125

* Significant at 5% level

** Significant at 1% level

Source: Based on EViews V10.

4.4. Model selection

Before testing the hypotheses, we need to examine which model is valid for that. This can be achieved through the comparison between the Pooled Regression Model and the Fixed/Random Effects Model using *F*-test, in the first step; then the comparison between Fixed Effects Model and Random Effects Model using *Hausman* test, in the second step.

Firstly, the comparison between Pooled Regression Model and Fixed Effects Model using an *F*-test requires testing the following hypothesis:

H₀: Pooled Regression Model is valid.

H₁: Fixed Effects Model or Random Effects Model is valid.

Starting from Table N° 5, which presents the results of *F*-test, it appears that the *F*-calculated value (*F'*) is more than the *F*-critical value obtained from the *F*-distribution at numerator degree of freedom (*N* – 1) and denominator degree of freedom (*NT* – *N* – *K*). This means that the model of study must be estimated using the Fixed Effects Model or Random Effects Model, as assumed by *H₁*.

Table (5): F-test results.

N	T	K	R ² _{FEM}	R ² _{PM}	F'	F-critical value
20	12	4	0.5356	0.4442	2.24	1.91

$$F' = \frac{(R_{FEM}^2 - R_{PM}^2) / (N - 1)}{(1 - R_{FEM}^2) / (N \times T - N - K)}$$

Where: *F'* is the *F*-calculated value, *N* is the number of sections, *T* is the number of periods, *K* is the number of estimated parameters, *R_{FEM}²* is the determination coefficient from the Fixed Effects Model, *R_{PM}²* is the determination coefficient from the Pooled Regression Model.

Source: Based on EViews V10.

Secondly, we need employing the *Hausman* test to determine whether the Fixed Effects Model or the Random Effects Model is appropriate to estimate the model of study, through testing the following hypothesis:

H''₀: Random Effects Model is valid.

H''₁: Fixed Effects Model is valid.

As shown in Table N° 6, we found that the *Hausman* test is not significant whether at the 1% level or at the 5% level. Therefore, *H''₀* must be accepted and the model of study must be estimated using the Random Effects Model.

Table (6): Hausman test results.

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
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Cross-section random	3.7919	3	0.2848
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Source: Based on EViews V10.

4.5. Hypotheses Testing

According to the used selection criteria, the Random Effects method is the valid and adequate to estimate the model of study and test the hypotheses. Table N° 4 presented previously shows that the regression coefficient of non-discretionary accruals ($NDAC_{it}$) is significant at the 1% level. Consequently, the non-discretionary accruals can predict the next period earnings, and thus the non-discretionary accruals of the studied Algerian companies are persistent, what differs from **Hypothesis 1**. On the contrary, Table N° 4 shows that the regression coefficient of discretionary accruals (DAC_{it}) is not significant whether at the 1% level or 5% level, suggesting that the discretionary accruals cannot predict the next period earnings, which confirms **Hypothesis 2** that assumed the non-persistence of discretionary accruals of the studied Algerian companies.

The regression coefficient of operating cash flows (OCF_{it}) shown in Table N° 4 is significant at the 1% level, suggesting the persistence of operating cash flows. When comparing the regression coefficients of the non-discretionary accruals (0.5680), discretionary accruals (not significant) and operating cash flows (0.5737), in terms of significance and value, we find that the persistence of operating cash flows is much more than the persistence of discretionary accruals and very close to the persistence of non-discretionary accruals. This confirms **Hypothesis 3**, which assumed that the non-discretionary and discretionary accruals are not more persistent than the operating cash flows of the studied Algerian companies.

The results of our study confirm the results of several previous studies that revealed the persistence of accounting accruals and operating cash flows (Subramanyam, 1996; Barth et al., 2001). This is inconsistent with the hypothesis of classical literature suggesting that annual income follows a random walk process (Watts and Leftwich, 1977). Our results confirm also the results of several previous studies revealing no evidence that accruals are less persistent than cash flows (Francis and Smith, 2005). However, our results differ from the results of previous studies indicating that the persistence of earnings performance is attributed more to the cash flow component than to accrual component (Dechow & Ge, 2006; Ebaid, 2011; Artikis and Papanastasopoulos, 2016; Adiati et al., 2018; Dimitropoulos and Koronios, 2018). Finally, the results of our study show the persistence of non-discretionary component versus the non-persistence of discretionary component of accruals, so earnings management may have a negative effect

on accruals persistence, which contradicts the conclusion of Fairfield et al. (2003) supposing that the lower persistence of accruals versus cash flows may not be due to earnings management.

Conclusion

Earnings persistence is a time-series property of earnings and a determinant of earnings quality, and thus accounting quality as all, which represents the main objective of accounting standardization and the first interest for financial statement users, making accounting the focus of corporate governance. For that, a high level of transparency is required through providing relevant and reliable financial information and moving towards the expansion in disclosure.

The earnings persistence is usually attributed to earnings components in the studies, which tend to confirm that the persistence of earnings is attributed more to the cash flow component than to the accrual component. Starting from that hypothesis, this study explored the persistence of accounting accruals components comparing with the persistence of operating cash flows. The study was carried out in a developing country like Algeria, which interested in accounting standardization since the end of 90's through many reforms, in order to improve the accounting quality. The study asked the question of whether the non-discretionary and discretionary accruals of Algerian companies are persistent, and whether they present a level of persistence more than that presented by the operating cash flows.

The study was based on Sloan (1996) and used a panel data of 20 Algerian companies during 12 years (2007-2018). The results suggest that the non-discretionary accounting accruals and operating cash flows of the studied Algerian companies are persistent, while the discretionary accounting accruals are not persistent. In terms of comparison between the persistence of these items, the results indicate that the non-discretionary accounting accruals and operating cash flows present the same level of persistence. Therefore, the low persistence of accruals comparing with cash flows in the literature may be due to discretionary accruals as a result of earnings management practices.

These results imply that users of financial statements of Algerian companies can use prudently earnings and earnings components when making their decisions. However, they should also use other accounting items that improve the persistence of earnings and its components. Auditors must give more attention to earnings and earnings components in order to improve their quality and give more confidence to users. These results imply also using more than one proxy for accounting quality, because these proxies may provide results in different directions. Finally, users must

estimate the discretionary component of accruals to assess the negative effect of discretionary accruals on earnings persistence.

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