The Role of Operating Accounting Accruals in Explaining Cash-Flows: Evidence from Algerian Companies 2011-2018

دور المستحقات المحاسبية التشغيلية في تفسير التدفقات النقدية: أدلة من الشركات الجزائرية 2011–2018

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Abstract:

The purpose of this study is to explore the ability of operating accounting accruals to explain cash flows of Algerian companies. Our sample included an unbalanced panel data of 97 year-firm observations from 17 companies during the period 2011-2018. Cash flows were measured by the net cash flows from operations while operating accruals were expressed by the change in inventories, change in debtors, and change in creditors. Results indicate a weak ability of operating accruals to explain cash flows as no statistically significant relationship was found between cash flows and operating accruals except for the change in debtors which was significant. In contrast, we found a strong and statistically significant positive relationship between cash flows and total accruals. Therefore, we concluded that the total accruals are a better indicator than operating accruals for cash flows in Algerian companies.

Key words: *Accounting accruals; Accounting information; Algerian companies; Cash flows; Operating accruals.*

ملخص :

هدفت هذه الدراسة إلى فحص قدرة المستحقات المحاسبية التشغيلية على تفسير التدفقات النقدية للمؤسسات الاقتصادية الجزائرية، وقد شملت 17 مؤسسة اقتصادية بين 2011–2018، من خلال بيانات زمنية مقطعية غير متوازنة، وبلغ عدد المشاهدات الكلية 97 مشاهدة. وقد تم قياس التدفقات النقدية بصافي التدفقات النقدية التشغيلية، وتم التعبير عن المستحقات المحاسبية التشغيلية بتغير المخزونات، تغير المدينين وتغير الدائنين. تشير النتائج إلى ضعف قدرة المستحقات المحاسبية التشغيلية على تفسير التدفقات النقدية، حيث توصلنا إلى عدم وجود علاقة ذات دلالة إحصائية للتدفقات النقدية مع المستحقات المحاسبية التشغيلية، باستثناء علاقتها بالتغير في المدينين التي كانت معنوية، في حين تم تسجيل علاقة طردية قوية ودالة إحصائيا بين التدفقات النقدية وإجمالي المستحقات المحاسبية، وهو دليل على أن المستحقات المحاسبية الإجمالية مؤشر أفضل من مكونات المستحقات المحاسبية التشغيلية في تفسير التدفقات النقدية للمؤسسات الاقتصادية الجزائرية.

الكلمات المفتاحية: المستحقات المحاسبية ،المعلومات المحاسبية،الشركات الجزائرية،تدفقات نقدية

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1. INTRODUCTION

For a long time, accounting was considered the main language of business. It aims to translate the activities of companies and to provide periodical financial information about these activities to stakeholders. Moreover, it is the basis of financial communication, where financial reports are considered the most substantial channel of that communication, and the most important source of information that contributes to the reduction of the information asymmetry between the different categories of financial statements users. Thus, accounting is a significant mechanism to support transparency and disclosure. However, the practices of earnings management and accounting data management have become an obstacle to achieving those goals, and a source of misleading users about the company's performance and its financial position.

In Algeria, decision-making depending on financial information is one of the challenges that face users of financial statements. Thus, obtaining additional information is crucial to reduce uncertainty. In this regard, cash flows have a substantial position in the decision-making process, particularly for the banking system since the external funding network in Algeria relies widely on banks that need information about expected returns in the credit decision-making process and the assessment of the timing and certainty of future cash flows. Furthermore, the reporting entity itself is usually interested in identifying the ability to convert accounting accruals (hereafter referred to as accruals) into cash flows as a precautionary measure to achieve the due obligations on time towards various parties and to avoid additional costs or administrative issues. Consequently, there is a considerable emphasis on accruals, particularly operating accruals, and their ability to explain cash flows, which prompted us to explore this subject on a sample of Algerian companies to evaluate the suitability of the outputs of the Algerian Financial Accounting System (SCF) for credit and investment decisions.

Algerian companies perform their activities in a developing economic environment characterized by feeble competition, an inactive stock market, and the dependency of funding on the banking system. This situation generates several problems for banks, creditors, and even some shareholders in financial companies related to the ability of these companies to provide cash flows from their operating activities and particularly to obtain their rights. From this perspective, this paper came to address the question of the ability of operating accruals to explain cash flows in Algerian companies.

The present study aims to examine the ability of operating accounting receivables to explain cash flows and offer additional information besides disclosed financial statements as a support to help users of financial reports in evaluating the timing, the certainty, and the value relevant of future cash flows, and thus assisting them to take economic decisions. The importance of the present problem can be confirmed by the substantial impact of accruals and cash flows on users of financial reports due to inappropriate information provided by economic companies.

The paper was structured as follows. After presenting the theoretical framework of the study in section one, we review in section two the literature and develop the study's hypothesis. Section three depicts the methods of the study, while section four is devoted to present the results and their discussion. Finally, the conclusion summarizes the arguments of the study.

2. Theoretical framework

2.1. The concept of accruals

The conceptual frameworks of the two major accounting standards setters in the world FASB (1987) and IASB (1989) agree that the accrual basis of accounting overpowers the cash basis in terms of timing of the recognition of income and expenses to get more adequate indicators on the company's performance. Accrual accounting is an accounting approach that recognizes the company's transactions when economic events occur without taking into consideration the time of

the receipts and payments related to them (Khan & Mayes, 2009). According to this methodology, revenues are recognized when income is earned, and expenses are recognized when liabilities or resources are consumed.

According to Sloan (1996, p. 219), earnings consist of cash flows and accruals, and the quality of these earnings is related to the continuity of cash flows more than accruals. In this regard, accruals are defined as the difference between earnings and net operating cash flows (Needles et al., 1994), or it is the non-cash portion of earnings (Geagon, 2009, p. 4). Moreover, (Kimouche, 2019, p. 1159) adds that accruals include the components that allow the transformation from the cash basis of accounting to the accrual basis.

The financial and accounting literature has presented several studies that process the concept of accruals from various aspects focusing remarkably on the concept of earnings management and earnings quality. In this context, Needles et al. (1994, p. 565) define accruals as the element of earnings subject to the estimation of managers according to the Generally Accepted Accounting Principles (GAAP). Furthermore, Dechow (1994) argues that accruals result from the comparison between the pertinence and faithful representation. This concept was confirmed by Sloan (1994) who suggests that earnings consist of two parts: a monetary part that is characterized by faithful representation and a lower level of pertinence, and a part of accruals characterized by pertinence and a lesser level of faithful representation.

2.2. Components of accruals

We can determine the components of accruals based on their relationship with earnings and on the basic accounting equation represented by equality between the two sides of the balance sheet. This can be formulated mathematically as follows:

$$\text{Assets} = \text{Liabilities} + \text{Equity} \quad \ldots\ldots (1)$$

Both sides of equation (1) must be equal at any time and under any circumstances. As a result, it is expected that equation (1) is correct between any two periods, and therefore "change" can be included on both sides of the equation becoming as follows:

$$\text{Change in assets} = \text{change in liabilities} + \text{change in equity} \quad \ldots\ldots (2)$$

Furthermore, assets can be divided into cash assets (CASH) and non-cash assets. Non-cash assets can be expressed as the long-term non-cash assets (LTNA) and the current non-cash assets (CNA). On the other side of the equation, liabilities can be divided into the long-term liabilities (LTL) and the short-term liabilities (CL), while equity is equal to capital (CC) and retained earnings (RE). Consequently, equation (2) can be reformulated as follows:

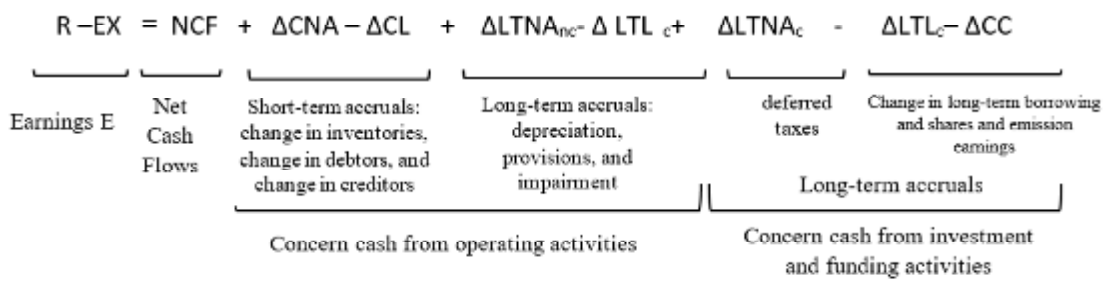
$$CASH + CNA + LTNA = CL + LTL + CC + RE \quad \ldots\ldots (3)$$

Moreover, it is known that retained earnings (RE) are equal to revenues (R) minus expenses (EX) for the same period with reducing dividends (D). In addition, the long-term assets can be divided according to their cash effect into two parts, the change in the long-term assets with cash effect ($\Delta LTNA_c$); and the long-term assets without cash effect ($\Delta LTNA_{nc}$). The same logic can be applied to the change in the long-term liabilities (ΔLTL_c) and ($\Delta LTLn_c$). Accordingly, and after the adjustments resulting from this division, we can present equation (4) as follows:

$$CASH + CNA + LTNA_{nc} + LTNA_c = CL + LTL_{ac} + LTL_c + \Delta CC + R - EX - D \quad \ldots(4)$$

Where the change in cash minus dividends equals the net cash flow (NCF). These components can be illustrated in figure 1.

Fig.1. Components of accruals



Source: Suggested by authors

Based on equation (4), the following sub-components can be recognised:
Earnings = net cash flow + total accruals;
Accruals = earnings - net cash flow.
Moreover, total accruals can be categorized from several angles, where the following equations can be exhibited:
Accruals = long-term accruals + short-term accruals;
Accruals = operating accruals + investment accruals + funding accruals;
Accruals = optional accruals + mandatory accruals
It is worth emphasizing at this point that operating accruals are the same as the short-term accruals shown in equation (4) represented by a change in inventories, change in debtors, and change in creditors. In other words, they represent the accruals from operations.

2.3. The role of operating accruals in explaining cash flows

Accruals provide additional information to assess the quality of accounting and deliver indicators that can be employed in the evaluation of the company's activity and the prediction of future shares' earnings (Bradshaw et al., 2001). Moreover, accruals have a substantial role in predicting future cash flows (Etheridge & Kathy, 2004). In this regard, Koerniadi and Alireza (2007) argue that management aims to support users' ability to predict future earnings and help external stakeholders to better evaluate the operating performance of the company. The aim could as well be the magnification of earnings to achieve management's interest. Furthermore, García-Teruel et al. (2009) focus on the identification of the economic effects of accounting information quality published by companies limited to accruals and their role in predicting future cash flows which help reduce the level of information asymmetry, leading to the reduction of capital and borrowing costs since the quality of accruals affects the level of the company's need for cash.

In the same vein, Barth et al. (2001, p. 30) argue that each component of accruals reflects different and useful information that helps in the evaluation of the economic performance of the company and supports the explanatory ability of future cash flows. Furthermore, the predictive ability of accruals results from the forecasts related to the future investments expected to be attained from the operating assets of the company and the deferred cash receipts and payments for financial operations in previous periods. Moreover, Lorek & Willinger (1996) suggest that the short-term accruals included in earnings for the current financial period foster the prediction of future cash flows. They include the change in inventory, change in accounts receivable, and change in accounts payable.

Correspondingly, Dechow (1994) argues that short-term accruals have an advantage over long-term accruals in improving the role of earnings as an indicator of the company's performance. Moreover, Dechow et al. (1998, p. 134) propose that operating accruals are more appropriate in

explaining future cash flows in the short term since purchases and sales receipts have a much short turnover than payments and cash receipts from investment (investment or long-term accruals).

Based on the discussion above, our current study focuses on operating accruals or accrual accounts related to current assets and liabilities, which are sometimes known as working capital accrual accounts, since they are linked to operating activities. Consequently, operating accruals also take the name of short-term accruals or operating accruals as the majority of them are due to choosing between alternative accounting policies that result in the settlement of short-term assets and liabilities, and similar effects on the revenues and expenses of the financial period (Errachidi, 2013, p. 14).

3. Review of the literature and development of the hypotheses

The relationship between accruals and cash flows has captured the attention of many researchers in an attempt to attain a better benchmark for companies' performance. In this regard, Rayburn (1986) explored the relationship between operating cash flows and accruals with extraordinary returns in a sample of 175 American companies during the period 1957-1982. Her results indicated that operating cash flows and current accruals help in evaluating securities. The author emphasized that these results are achieved in the case of large companies and may not be generalized to smaller ones, encouraging more research on the role of accruals and their components in giving more informative content to investors.

In the same vein, Sloan (1996) has focused on examining whether stock prices reflect information about future earnings contained in accruals and cash flows components of current earnings. The author used 40679 observations from American companies during the period 1962-1991. The study concluded that the extent of the continuity of current earnings in the future depends on the ratio of cash components and accruals to current earnings as investors focus on earnings, and fail to reflect the information contained in the accruals' components and cash flows of current earnings to allow this information to affect future earnings.

Moreover, Lorek and Willinger (1996) have used a multivariate time series model in forecasting cash flows, relying on earnings, cash flows, and short-term accruals as independent variables. The study included 174 American companies between 1979-1991. Findings were consistent with the view of the Financial Accounting Standards Board (FASB) of 1978 revealing that cash flows are strengthened by looking at earnings, with a focus on short-term accruals that are included in the earnings represented by the change in inventories, the change in accounts receivable, and the change in creditors' accounts (FASB, 1978).

Meanwhile, Garrod et al. (2000) examined the informative content of earnings, cash flows, and accruals (short and long term) on a sample of 676 observations from non-financial companies listed in the London SE for the period 1992-1996. The researchers concluded that cash flows provide better informative content than earnings, and called upon future research to focus on the qualitative differences between short-term and long-term accruals.

Furthermore, according to Barth et al. (2001), the bias towards earnings or cash flows as indexes to predict future cash flows is due to accruals being a part of earnings. Elleuche (2001) added that dividing earnings into their basic components allows users of financial reports a better informative content, since earnings are divided into cash flows and accruals, and earnings' advantage is due to the accruals included in them.

Arnedo et al. (2012) focused on exploring whether accruals have an informative value to forecast future cash flows using a sample of 4397 Spanish companies. Their results were consistent with the argument that accruals have additional informative content and are more pertinent for the forecasting of future cash flows, that is, the errors presented by an accruals-based model are much less than those obtained with cash flows. This predictive ability increases when including accruals in a detailed manner (five components) as suggested by Barth et al. (2001).

More recently, Barth et al. (2016) explored the informative role of accruals in forecasting cash flows and future earnings and assessing equity using 39114 observations from 4265 American companies during the period 1989-2013. The study assumed that the companies' cash flows are generated by an existing economic factor and transient cash flows that are not related to the economic factor. Authors also presumed that the economic factor for the current period could generate cash flows in the current period or in the current and next two periods, and likewise with accruals, and therefore each type of accruals has a different coefficient in evaluating and forecasting cash flows or future earnings. According to their findings, dividing accruals depending on their synchronization with current cash flows or for the current and next two periods increases the ability to predict future cash flows and the interpretation of the company's value.

Lastly, Kimouche (2019) aimed to explore the ability of short-term accruals to predict future cash flows with 117 observations using data from 14 Algerian companies for the period 2003-2015. Results indicated a low ability of short-term accruals to predict cash flows for the next period, as the relationship with the components of short-term accruals was not significant except for their relationship with the change in the accounts of suppliers and creditors.

It is worth giving further details at this point that prior research relied on accruals for different periods (annual, semi-annual, quarterly) to explore whether they provide better indicators in explaining and predicting future cash flows. We also emphasize the diversity and inclusiveness of prior literature and its dependence on various methods and tools. We consider our paper an extension of these studies and an attempt to explore the Algerian sphere in this aspect that is rarely covered. Furthermore, the operating accruals were not separately addressed in previous research, particularly in the Algerian economic environment, which is considered a developing economy that differs from developed ones. Thus, and based on the previous literature, we propose our study's hypotheses as follows:

- Hypothesis 1 (*H1*): total accruals can explain cash flows of Algerian companies;
- Hypothesis 2 (*H2*): operating accruals contribute to explaining cash flows of Algerian companies;
- Hypothesis 3 (*H3*): operating accruals are more able to explain cash flows of the Algerian companies than total accruals.

4. Methods

This study covers the annual financial statements of 17 Algerian companies for the period 2011-2018. We propose a model in the form of a multiple linear regression equation linking the dependent variable (cash flows) and the independent variables (total accruals, change in inventory, change in debtors' accounts, and change in creditors' accounts). Correlation and other statistical tests that allow examining the study hypotheses were used such as the overall significance test for each equation, and a T-test to examine the significance of the regression coefficients.

4.1. Model specification

The study's model contains two equations (4) and (5) as follows:

$$\mathbf{OCFit = \alpha 1 + \beta 1\ TACC_{it} + \varepsilon_{it}} \quad \text{..... (4)}$$

$$\mathbf{OCFit = \alpha 2 + \beta 2\ \Delta INV_{it} + \delta 2\ \Delta AR_{it} + \mu 2\ \Delta AP_{it} + \chi_{it}} \quad \text{..... (5)}$$

Where:

OCF_{it}: is the net cash flows from the operating activities of the company (i) during the period (t);
$TACC_{it}$: is the total operating accruals of the company (i) during the period (t);
ΔINV_{it}: is the change of stocks for the company (i) between periods (t) and (t-1);
AR_{it}: is the change in debtors' accounts for the company (i) between periods (t) and (t-1);
AP_{it}: is the company (i) creditors' accounts change between periods (t) and (t-1);
α_1, α_2: are constants;
1, β2, δ2, 2: are regression coefficients;
ε_{it}, χ_{it}: are the random errors, expresses the part of cash flows that cannot be explained by the

variables of the study, but is due to other factors and random errors.

4.2. Variables Measurement

We divided all variables by total assets (A_{it}) to reduce any difference resulting from the variation in the sizes of the companies in the sample. We also note that the change of debtors (ΔAR_{it}) and the change of creditors (ΔAP_{it}) in most companies are equal to the change in customers' accounts and the change in suppliers' accounts due to the absence of other debtors and creditors in the financial statements of the study sample. Details on the measurement of variables are summarised in Table 1.

Table 1. Measurement of the study's variables

Variable	Code	Method of measurement
Cash-flows	OCF_{it}	Net cash flow from operating activities / total assets
Total accruals	$TACC_{it}$	(Net earnings - net operating cash flow) / Total assets
Inventory change	ΔINV_{it}	(Period t inventory - period t-1 inventory) / Total Assets
Debtors change	ΔAR_{it}	(Debtors for period t - Debtors for period t-1) / Total assets
Creditors change	ΔAP_{it}	(Creditors for period t - Creditors for period t-1) / Total Assets

Source: authors

4.3. Data

Algerian companies prepare their financial statements regularly. However, due to the confidential culture that characterises the Algerian environment, these statements are not easily accessible. Our sample includes 17 non-financial Algerian companies collected mainly through contacting their central offices and selected randomly based on the availability of financial information. Data cover eight years (2011-2018) allowing an unbalanced cross-sectional time-series data (unbalanced panel data) due to the difference in the number of studied periods for each company resulting from the incomplete financial data of some companies and the omission of outliers affecting the study model, bringing the total number of views to 98 observations.

5. Results and discussion

5.1. Descriptive statistic and correlation

To begin with, Table 2 illustrates descriptive statistics of 98 observations for 17 companies during the period of study.

Table 2. Descriptive statistics for the study's variables

	ΔAP_{it}	ΔAR_{it}	ΔINV_{it}	$TACC_{it}$	OCF_{it}
Mean	0.247327	-0.220211	0.019840	0.010271	-0.019895
Median	0.012820	-0.021150	9.50E-05	0.008298	0.006878
Max	3.188724	0.974233	0.605658	0.223428	0.287597
Min	-0.156230	-3.049761	-0.254857	-0.183384	-0.899308
Std. Dev.	0.619871	0.578339	0.101678	0.067158	0.138242
Obser.	97	97	97	97	97

Source: formed by authors based on EViews V10 outputs

The maximum and minimum values presented in Table 2 show positive and negative values for all variables which indicates a fluctuation in the values of variables between different periods and companies. The highest was for net cash flows (OCF_{it}) and the lowest was for the change in creditors' accounts (AP_{it}). According to the mean, the net cash flows from the operating activities represent 24.73% of the total assets on average, which indicates that the operating cash inflows in the studied companies are greater than the outflows. Furthermore, the mean for accruals represents

22.02% of the total assets in the negative direction indicating that the companies in our sample tend to manage their earnings to bear the least possible amount of taxes. For their part, standard deviations indicate a converging dispersion between operating cash flows and accruals by 61.98% and 57.83% respectively. This is considered a rather high percentage and is due to the discrepancy between the companies under study. We also note a convergence between the values of the mean and the standard deviation of each of the change in inventory, the change of debtors, and the change of creditors.

Furthermore, the correlation between the dependent variable and the explanatory variables is illustrated in Table 3.

Table 3. Correlation between the study's variables

Correlation Probability	OCF_{it}	$TACC_{it}$	ΔINV_{it}	ΔAR_{it}	ΔAP_{it}
OCF_{it}	1.000 -----				
$TACC_{it}$	0.782 0.000	1.000 -----			
ΔINV_{it}	-0.131 0.1271	-0.232 0.007	1.000 -----		
ΔAR_{it}	-0.005 0.949	0.046 0.591	-0.918 0.781	1.000 -----	
ΔAP_{it}	-0.083 0.415	0.100 0.326	0.251 0.012	0.019 0.851	1.000 ------
Observations	97	97	97	97	97

Source: EViews V10 outputs

Table 3 reports that all correlations are not significant as the levels of significance were more than 5% for all relationships, except for that between operating cash flows (OCF_{it}) and total accruals ($TACC_{it}$) which was significant at the level of 1% and its value was negative and reached 0.782.

5.2. Unit root test

To test the stability and determine the integration rank of our variables we performed four unit-root tests at a level I(0) with the three possible options: individual intercept, individual intercept, and trend, and none.

Table 4. Panel data unit root test results at level I(0)

		Statistics				
	Method	**OCF_{it}**	**$TACC_{it}$**	**ΔINV_{it}**	**ΔAR_{it}**	**ΔAP_{it}**
Individual intercept	Null: Unit root (assumes common unit root process)					
	Levin, Lin & Chu t	-10.66**	-6.48**	-1747**	-9.87**	-391.74**
	Null: Unit root (assumes individual unit root process)					
	Im, Pesaran and Shin W	-3.54808**	-1.45	-404.4**	-3.37**	-59.58**
	ADF - Fisher Chi-square	64.15**	46.24*	71.58**	60.4715**	78.93**
	PP - Fisher Chi-square	100.06**	59.06**	79.79**	58.70**	75.19**
Individual intercept and trend	Null: Unit root (assumes common unit root process)					
	Levin, Lin & Chu t	- 12.81**	-11.47**	-1093**	-17.45**	- 16.71**
	Breirung t-stat	2.02**	1.24	0.0001	-1.49322	-0.0008
	Null: Unit root (assumes individual unit root process)					
	Im, Pesaran and Shin W	-3.58455**	-1.04629	-174.5**	-1.13522	-1.07
	ADF - Fisher Chi-square	58.97**	39.7944**	64.59**	40.8998	43.8826

	PP - Fisher Chi-square	96.84**	70.6317**	95.04**	73.0268**	67.3075**
None	Null: Unit root (assumes common unit root process)					
	Levin, Lin & Chu t	-13.14**	-3.41**	-20.01**	-8.280**	-28.83**
	Null: Unit root (assumes individual unit root process)					
	ADF - Fisher Chi-square	116.34**	67.99**	103.20**	100.46**	133.45**
	PP - Fisher Chi-square	121.86**	77.94**	105.16**	99.56**	131.75**

* Significant at 5% level ** Significant at 1% level

Source: EViews V10 outputs

The null hypothesis for all tests depicted in Table 4 is the existence of a unit root (non-stationary) in the panel data. Table 4 reveals the absence of a unit root for all variables with a level of significance less than 5%, except for the total accruals ($TACC_{it}$) when Im, Pesaran, and Shin W-stat is used under the individual intercept option, and for the change in debtor (ΔAR_{it}) and the change in creditors (ΔAP_{it}) when using Im, Pesaran and Shin W and ADF - Fisher Chi-square under the intercept and trend option. These results suggest that all variables are stationary at level I (0).

5.3. Model estimation

For the estimation of equations (4) and (5) we relied on three methods: pooled regression, fixed effects, and random effects. Outcomes of the equation (4) estimation are shown in Table 5.

Table 5. Equation (4) results using the different methods of panel data

Independent variables		**Estimation method**		
		Pooled Regression Model	**Fixed Effects Model**	**Random Effects Model**
Constant	Coefficient	0.0235	0.0739	0.0235
	t-statistic	-29.002	3.641**	1.0548
$TACC_{it}$	Coefficient	-1.0159	-0.7873	-1.0159
	t-statistic	-29.0022**	-12.7107**	-27.977**
Adj. R2		0.8985	0.9428	0.8974
F-statistic		841.1277**	66.99**	841.127**
Durbin-Watson		1.11	2.01	1.11
S.E. of regression		0.198	0.148	0.1985
Sum squared residuals		3.743	1.5809	-
Log-likelihood		20.21	62.021	-
Obs.		97	97	97

* Significant at 5% level ** Significant at 1% level

Source: EViews V10 outputs

As illustrated in Table 5, the model was significant at the level of 1% in the three cases. The constant parameter was statistically significant at the level of 1% and positive in all scenarios with close values. The parameter related to total accruals ($TACC_{it}$) was negative in the three cases and take the same value in the pooled regression and random-effects models. However, the total accruals' parameter ($TACC_{it}$) was higher in the fixed effects model yet statistically significant at the level of 1% in all cases. Table 5 demonstrates as well that the determination coefficient takes the highest value in the pooled regression model. Finally, we note that the Durbin-Watson statistic in the fixed effects model takes an acceptable value of 2.01 unlike the pooled regression and the random-effects model where it takes the same values (1.11) which must be rejected.Moreover, the results of the equation (5) estimation are shown in Table 6.

Table 6. Equation (5) results using the different methods of panel data

Independent variables		Estimation method: Pooled Regression Model	Fixed Effects Model	Random Effects Model
Constant	Coefficient	0.2389	0.2496	0.2389
	t-statistic	3.608**	8.9359**	3.5502**
$TACC_{it}$	Coefficient	0.4758	0.1012	0.4758
	t-statistic	0.7336	0.3322	-1.0151
Adj. R2		-0.0090	0.8721	-0.009
F-statistic		0.7131**	18.3642**	0.7131**
Durbin-Watson		0.36	1.36	0.36
S.E. of regression		0.62	0.2595	0.6226
Sum squared residuals		36.05	4.7164	-
Log-likelihood		-89.64	9.0106	-
Obs.		97	97	97

* Significant at 5% level ** Significant at 1% level

Source: EViews V10 outputs

Table 6 reveals that the model was significant at 1% in all cases with the fixed effects model showing the largest value of (F). The constant parameter was statistically significant at the 1% level and positive in all cases with close values. However, the parameters related to each the change in inventories (INV_{it}) and the change in debtors (AR_{it}) did not have any statistical significance. Change in creditors (AP_{it}) was significant at the level of 5%. Furthermore, the fixed effects model takes a positive value that close to one for the determination coefficient (0.8721) which indicate that one of the independent variables in the model explains at least 87.21% of the changes in operating cash flows, unlike the pooled regression and the random-effects models that take negative values suggesting that they should be excluded.

The discussion above allows us to conclude that the fixed effects model is appropriate for estimating the study model.

5.4. Hypotheses Testing and discussion

The analysis presented in the previous section revealed that the fixed effects model is appropriate for estimating the parameters of our model since it deals with Panel data in cases of heterogeneity between groups. The goal of the fixed effects model is to explore the behavior of each set of Panel data alone (i.e., each company) which fits the Algerian economic environment represented by the companies understudy that is characterized by a disparity in terms of size and activity.

The results indicated that the fixed effects model was significant at the level of 1% in both equations (4) and (5). Besides, the determination coefficient is significantly different from 0 in both cases. However, it was closer to one in equation (4) relative to equation (5) as it was estimated in the first case at 0.9428 which indicates the total accruals' ability to explain at least 94.28% of the changes in operating cash flows since it is the only explanatory variable. In equation (5) the determination coefficient was estimated at 0.8721 which indicates the ability of one or more of the explanatory variables represented by the change in inventories, the change in debtors, and the change in creditors, to explain 87.21% of the changes in operating cash flows. The rest of the changes that cannot be explained by our variables are due to other factors including random errors for each equation separately. Moreover, the results of the partial significance test of the fixed effects model have revealed that the fixed parameter was positive and significant at the level of 1% in both equations. This parameter expresses the operating cash flows when all the explanatory variables are null, which indicates the existence of other components that explain operating cash flows other than total accruals, change in inventories, change in debtors, and change in creditors.

The partial significance tests showed that the parameter related to the total accruals was statistically significant at the level of 1%. This indicated a statistically significant relationship between the total accruals and the operating cash flows; thus, our **hypothesis 1** that the total accruals can explain the cash flows of the Algerian companies is accepted. Furthermore, the two parameters

related to the change in inventories and the change of debtors did not have any statistical significance, which indicates that there is no statistically significant relationship between each of the change in inventories and the change in debtors and operating cash flows in contrast to the parameter related to the change in creditors which was statistically significant at the level of 5%. These results suggest the existence of a statistically significant relationship between the change in creditors and the operating cash flows in the studied companies; thus, our **hypothesis 2** that operating accruals contribute to explaining cash flows of the Algerian companies is accepted. However, this assumption is confirmed only in the general form without dividing these accruals into their basic elements. The results show as well that **hypothesis 3** is rejected since the operating accruals are less capable to explain cash flows of the Algerian companies compared with the total accruals.

Our results are consistent with studies suggesting that total accruals have additional informative content that helps to explain and predict operating cash flows including Arnedo et al. (2012) and Abu Nassar and Chebita (2006). However, the findings are inconsistent with several studies suggesting that separates accruals components can explain and predict cash flows, including Barth et al. (2016) and Lorek and Willinger (1996) who emphasize that short-term accruals (change in inventories, change in debtors, and the change in creditors) enhance the explanation of cash flows better than total accruals. This difference could be due to the variation in the studied economic environments or to differences in the quality of the outputs of the accounting systems.

6. Conclusion

Throughout the current study, we assessed the question of operating accruals' ability to explain the cash flows in Algerian companies to assist users of financial statements in evaluating their performance and make rational decisions regarding the allocation of economic resources. We used a linear regression model with two equations and analyzed the statistical relationship between cash flows as a dependent variable and the explanatory variables: total accruals in the first equation, change in inventories, change in debtors, and change in creditors in the second equation. We covered 17 Algerian companies between 2011-2018 bringing the total number of observations to 97.

Findings confirm that operating accruals, on the whole, do not allow the justification of cash flows in the companies under study since no statistically significant relationship has been recorded between cash flows, change in inventories, and change in debtors. However, we found a statistically significant relationship between cash flows and change in creditors at the level of significance of 5%. Moreover, the relationship between cash flows and total accruals was statistically significant. Accordingly, total accruals are a fit and a better indicator than operating accruals in explaining the cash flows of Algerian companies.

Furthermore, our findings are inconsistent with those of some studies which can be explained by the difference in the economic and institutional nature and the accounting practices between countries. Algerian companies operate in a developing economic environment characterized by weak competition and the predominance of small and medium-sized companies for which accounting bookkeeping and disclosure for the purpose of financial communication are not among their priorities. Moreover, business funding in Algeria relies almost entirely on the banking system narrowing the main users of financial information. We also emphasize the difference in the periods of study between our paper and other studies since most of them were carried out in the 1990s and 2000s and coincided with the rise of the phenomenon of creative accounting and earnings management resulting in a relatively important proportion of accruals which necessitated dividing them from different points of view to obtain additional informative content that helps to explain operating cash flows and the evaluation of companies.

Notwithstanding the importance of the findings and the explanations provided above, they are still insufficient since it is not simple to judge definitively the studied problem. Future studies require the separation between the companies under study. According to Arndo et al. (2012) the role of accruals in explaining cash flows is different among public and private organizations and can also vary depending on samples of different sizes and periods. In this vein, Dechow (1994) suggested that the methods of forming the study sample could explain the differences in the results between various studies. Consequently, more research in this area is still required.

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