IMPACT OF ACCOUNTING CONSERVATISM ON INCOME SMOOTHING: EMPIRICAL EVIDENCE FROM ALGERIA

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Abstract: This paper investigates the impact of accounting conservatism on income smoothing as a proxy for accounting manipulation. The study used 993 observations for 133 Algerian companies from 2012 to 2020, where income smoothing was measured by the variations in cash flows relative to earnings. However, conservatism was measured through non-operating accounting accruals, accruals-to-earnings ratio before extraordinary items, and allowances. The results showed that total accruals do not impact income smoothing versus positive impacts from non-operating accruals and allowances to income smoothing. Therefore, the study concluded that accounting conservatism facilitates income smoothing in Algerian companies by extending the discretionary room available for managers to manipulate earnings. These results require accounting regulators to consider the role of conservatism in manipulation when setting or amending accounting standards. They also imply that auditors should give more attention to conservative accounting practices to limit the opportunistic behavior of managers and increase the reliability of financial information.

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1. Introduction

Since the emergence of standardization in financial accounting, researchers have given special attention to earnings quality to provide adequate measures to assess it. There is no consensus about an accepted proxy for earnings quality since it is considered a multidimensional concept. Therefore, empirical studies use several proxies that capture different properties of accounting information and are interpreted differently without the superiority of a specific proxy (Menicucci, 2020). In this context, accounting conservatism and income smoothing are among the adequate measures widely used to express accounting quality (Almeida, Neto, Bastianello, & Moneque, 2012; Menicucci, 2020; Fatchan & Widagdo, 2021).

Accounting conservatism and income smoothing present many differences regarding their techniques and impacts on financial reports. Conservatism is a requirement of accounting standards that must be respected, whereas income smoothing is a choice that can breach accounting standards (Ewert & Wagenhofer, 2012). Market risks are a prominent factor that explains the company's value, which is reflected in earnings volatility (Abogun, Adigbole, & Olorede, 2021) that can be affected through income smoothing. Accounting conservatism can also be explained by the concept of risk since is adopted as a response to uncertainty and risks inherent in business activities (Kimouche, 2020).

Both conservatism and income smoothing can cause biases in financial reports and distort their informational content when missing or removing relevant information (Ewert & Wagenhofer, 2012). However, they can also enhance the quality of financial reports if they are used to effectively communicate private information and signal the users about uncertain situations (Menicucci, 2020). Additionally, conservatism could contribute to efficient contracting between the company and its stakeholders (Molenaar, 2009). Demerjian, Donovan and Lewis-Western (2020) stated that income smoothing improves the usefulness of earnings in contracts by improving the association of reported earnings with the company's economic performance. However, other studies have revealed that accounting conservatism and income smoothing distort financial reports, adding noise to the company's contracts and reducing their efficiency (Qiang, 2007; Abogun et al., 2021).

In recent years, many studies have explored the relationship between accounting conservatism and accounting manipulation as a way to test the conservatism's ability to restrict the opportunistic behavior of managers (Valipour, Talebnia, & Javanmard, 2011; Siueia & Jianling, 2017). Most studies relied on earnings management as a proxy for accounting manipulation, providing mixed evidence about the role of conservatism in limiting earnings management. The first group of studies suggests that accounting conservatism is a means to constrain the opportunistic behavior of

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managers that attempt to manipulate earnings (Chen, Hemmer, & Zhang, 2007; Dunbar, He, Phillips, & Teitel, 2007; Lin, Wu, Fang, & Wun, 2014; Haque, Mughal, & Zahid, 2016). The second group of studies showed that accounting conservatism is a way for managers to manipulate earnings due to the available discretion (Molenaar, 2009; Jackson & Liu, 2010; Krismiaji & Astuti, 2020; Bryan, McKnight, & Houmes, 2021). The third group of studies found that even though conservatism limits accounting earnings management, it facilitates real earnings management practices (Kangarluei & Hesar, 2011; García Lara, García Osma, & Penalva, 2020). Income smoothing as a special case of earnings management (Valipour et al., 2011; Almeida et al., 2012; Menicucci, 2020; Abogun et al., 2021) was the subject of many studies, while its relationship with accounting conservatism did not get enough attention in the literature. There is no consensus about the relationship between accounting conservatism and income smoothing. Some studies either found a positive association between the two variables or found that non-smoothing companies are more conservative, which is explained by the role of conservatism in limiting income-smoothing practices (Almeida et al., 2012; Siueia & Jianling, 2017; Dos Santos & Dos Santos, 2020). Other studies have found that accounting conservatism provides managers with discretionary room to smooth earnings (Valipour et al., 2011; Ozili, 2017; Ozili, 2019).

The purpose of this paper is to extend the literature and enrich the debate about the relationship between the proxies of earnings quality. It asks a question about the role of conservatism in constraining or facilitating income smoothing based on the financial reports of Algerian companies. The research is motivated by the lack of studies on that subject, especially in Algeria and developing economies in general. Although few studies were carried out in Algeria, the findings revealed a high level of conservatism in Algerian companies (Kezzal, Zergoune, & Zergoune, 2019; Kimouche, 2020). However, only the study of Kezzal (2018) explored the relationship between conservatism and income smoothing without any evidence of a significant relationship. Compared to Kezzal (2018), who employed a small sample including 235 observations for 47 companies, this study extended the sample and used different proxies for accounting conservatism and income smoothing.

The remainder of this paper is structured as follows: Section 1 reviews the literature; Section 2 describes the data and methodology; Section 3 presents the empirical results; Section 4 discusses the findings. Finally, the conclusions were summarised in the last section.

2. Literature review
2.1. Income smoothing
Beidleman (1973) defined income smoothing as the intentional dampening of abnormal variations in earnings over time. Income smoothing intends to provide a

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stable view of future earnings flows, showing constant earnings growth over time (Dos Santos & Dos Santos, 2020) by reducing earnings in prosperous years and increasing earnings during difficult years (Ozili, 2017, 2019). Income smoothing is a special case of earnings management by which managers can reduce the volatility of performance and control their abnormal fluctuations to disclose a constant earnings stream. Income smoothing can be employed to restate earnings by transferring expenses from underperformed periods to highly performed periods or transferring revenues from periods with high performance to underperformed periods (Menicucci, 2020; Abogun et al., 2021).

The literature distinguishes between intentional and natural income smoothing following the techniques used (Eckel, 1981; Albrecht & Richardson, 1990; Dos Santos & Dos Santos, 2020). Intentional income smoothing occurs when managers intend to control the timing of business decisions (Valipour et al., 2011), which expresses a real smoothing that impacts cash flows and earnings. Intentional income smoothing also occurs when managers intend to select specific accounting policies and estimates to change the allocation of revenues and expenditures over time in the desired manner (Valipour et al., 2011; Almeida et al., 2012) without any impact on cash flows, which expresses an artificial (accrual) smoothing. Contrarily, even though natural income smoothing depends on the accrual process, it does not contain a manipulation intention by managers (Almeida et al., 2012).

For a long time, income smoothing has been considered a manipulation action that leads to noise in financial reports and reduces earnings quality. According to an opportunistic view, income smoothing motivated by managers' opportunism could garble the communication process and introduce noise to the earnings series, leading to less informative earnings (Chang, Ho, & Liu, 2021). Income smoothing can reduce the ability of financial reports to reflect the economic reality of a company and can also reduce the ability of stock returns to capture future losses, thus concealing the extent of the company's risks and increasing the informational asymmetry in markets (Almeida et al., 2012).

On the other hand, income smoothing can enhance the informativeness of financial reports when used to effectively communicate private information (Menicucci, 2020). According to an informational view, income smoothing can improve the company's value by reducing the volatility of its earnings and required return. Income smoothing can also enhance earnings persistence by strengthening the association between current and future earnings, leading to higher informativeness of earnings. Therefore, income smoothing is a tool for lower information uncertainty and a low cost of capital (Chang et al., 2021). Siueia and Jianling (2017) concluded that smoothing companies are more likely to have a low capital cost and obtain better ratings from agencies.

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2.2. Accounting conservatism

There is a long tradition of accounting conservatism in practice. However, the position of conservatism in financial accounting is not clear if it is a generally accepted principle, an attribute of reliability, or a constraint on qualitative characteristics (Kimouche, 2020). Nevertheless, conservatism is a core concept that justifies many accounting practices for recognition and measurement. The literature identified a definition of conservatism by Bliss (1924) as "anticipating no profits, but anticipating all losses". Consistent with that view, conservatism reflects the asymmetric accounting treatment of gains and losses regarding the verification requirements; it expresses the recognition of expected losses more quickly than expected gains (André & Filip, 2016; Menicucci, 2020). Therefore, accounting conservatism is also known as "timely loss recognition" or "asymmetric timeliness of earnings".

Conservatism is a prudent reaction to uncertain situations to ensure that risks inherent in business activities are adequately recognized. Conservatism requires the exercise of caution when reporting and measuring assets and liabilities or expenses and revenues. Conservative accounting practices recognize only potential decreases in assets and increases in liabilities even before their realization, without considering potential increases in assets and decreases in liabilities (Menicucci, 2020; Kimouche, 2020). Conservatism requires managers to be pessimistic when accounting for assets and income more than liabilities and expenditures by recording assets and revenues with the lowest values among the possible alternatives and liabilities and expenses with the highest possible values (Fatchan & Widagdo, 2021).

The literature distinguishes between two broad forms of accounting conservatism: conditional conservatism (ex-post conservatism or earnings conservatism), which is related to economic event news; and unconditional conservatism (balance sheet conservatism or ex-ante conservatism), which is independent of economic event news. Conditional conservatism is justified by news about the business environment conditions through more timely recognition of bad news in earnings versus high verification in reporting good news (Basu, 1997). It refers to the diminution of net assets in the timely receiving of unfavorable event news without any increase in net assets due to favorable event news (Menicucci, 2020).

Conditional conservatism is often associated with a higher level of earnings quality because it is a tool to limit manipulation and earnings-increasing and reduce the overinvestment problem (Menicucci, 2020). Conditional conservatism can also enhance the efficiency of debt contracts since it brings new information about the economic environment faced by the company (Fatchan & Widagdo, 2021). According to Heflin, Hsu and Jin (2015), conditional conservatism makes income smoothing more difficult for managers. However, it reduces the persistence and

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informativeness of earnings, leading to more forecasting errors and dispersion for analysts.

Unconditional conservatism is applied consistently without the occurrence of any specific events; it is an accounting rule required for more reliability in financial reports (Bryan et al., 2021). Unconditional conservatism implies that when two alternatives are available for measurement and recognition, the lowest assessment of assets and income or the highest assessment of liabilities and expenses should be adopted (Menicucci, 2020). Unconditional conservatism is frequent and causes a permanent decline in the company's book value, limiting the recognition of any internally generated goodwill (Fatchan & Widagdo, 2021). Unconditional conservatism has usually been considered a negative attribute of financial reporting as it is expected to decrease earnings quality and provide more flexibility for earnings management (Jackson & Liu, 2010; Menicucci, 2020). It also represents a biased and systemic underestimation of net assets without considering the received news events (André, Filip, & Paugam, 2015).

2.2. Accounting conservatism and income smoothing

Accounting conservatism and income smoothing as measures of earnings quality have been the subjects of many studies since the emergence of positive accounting research, especially after the 1960s. However, the relationship between accounting conservatism and income smoothing as a subject of study has been accessed only in the last few years. That stream is part of a field of research intended to empirically test the assumption that accounting conservatism can limit manipulation in financial reports. Initially, the literature focused on earnings management as the most common form of manipulation, and later, income smoothing was highlighted as a case of earnings management. The study of Chen et al. (2007) is among the first pertinent studies that examined the role of conservative accounting standards in mitigating unobservable earnings manipulation. The study concluded that the level of earnings manipulation is lower in conservative accounting regimes compared to unbiased ones.

Dunbar et al. (2007) examined the interaction between accounting conservatism and earnings management. Their results showed a negative relationship between conditional conservatism and earnings management against a positive relationship between unconditional accounting conservatism and earnings management. They argue that unconditional conservatism generates slack that enables managers to avoid decreasing net assets in the presence of bad news. Molenaar (2009) studied the relationship between accounting conservatism and earnings management for 218 listed banks in the US during 2000-2007. The findings indicated that the discretion contained in loan loss provisions is used by US banks to manage earnings and

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influence conditional accounting conservatism to achieve the management's desired performance levels.

Jackson and Liu (2010) examined the interaction between conservatism and earnings management, relying on the allowance for uncollectible accounts. They concluded that conservatism facilitates earnings management by managing bad debt expenses downward to meet or beat analysts' earnings forecasts. Kangarluei and Hesar (2011) investigated the effect of conservatism on earnings management depending on a sample of 92 companies from the Tehran stock exchange from 2002 to 2010. The results showed that accounting conservatism limits accounting earnings management and facilitates real earnings management through sales and general and administrative expenses.

Valipour et al. (2011) investigated the interaction between income smoothing and conditional conservatism for 117 companies listed on the Tehran Stock Exchange from 2001 to 2009. The results indicated that smoothing companies use the veil of accounting conservatism to manage earnings. The explanations revealed that conservative companies have more motivations to smooth earnings downwards. Almeida et al. (2012) analyzed the relationship between income smoothing and conditional accounting conservatism for 2,080 Brazilian firm-year observations from 1997 to 2009. The results indicated that non-smoothing companies present high levels of conditional accounting conservatism.

Lin et al. (2014) were interested in the relationship between accounting conservatism and earnings manipulation and the effect of institutional investors. They suggested that companies with conservative financial reports are less engaged in earnings manipulation, while institutional investor shareholdings could motivate managers to engage in earnings management. Haque et al. (2016) investigated the relationship between accounting conservatism and earnings management using a sample of 4,204 firm-year observations for 317 non-financial Pakistani companies over the period 1999-2013. The findings showed a negative impact of accounting conservatism on earnings management.

Siueia and Jianling (2017) examined the relationship between income smoothing and conditional conservatism using 483 Mozambican firm-year observations from 2010 to 2016. According to the results, non-smoothing companies are more conservative.

Ozili (2017) analyzed whether loan loss provisions as a conservative practice were used to smooth earnings in African banks and whether they had been affected by capital market motivations and auditing. Using 302 banks from 19 countries, including Algeria, from 2004 to 2013, he found that loan loss provisions have been used to smooth earnings by African banks with a positive effect from capital market motivations.

Ozili (2019) investigated the effect of corruption on income smoothing, employing 302 African banks from 19 countries from 2004 to 2013, including Algeria. The

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results indicated that African banks use loan loss provisions to smooth earnings, suggesting that income smoothing in African banks decreased with investor protection and increased in corrupt environments. Dos Santos and Dos Santos (2020) analyzed the relationship between income smoothing and accounting conservatism in Brazilian credit unions using 5,717 firm-year observations from 2012-2018. They found that managers in non-smoothing credit unions are more conservative compared to smoothing credit unions, where managers avoid accounting conservatism to postpone possible losses.

Krismiaji and Astuti (2020) found that conservatism affects earnings management positively. However, García Lara et al. (2020) found that conditional conservatism reduces accounting earnings management, leading to a trade-off between accounting and real earnings management. Al Ani and Chong (2021) explored the interplay between auditing conservatism, accounting conservatism, and earnings quality expressed by four proxies, including income smoothing. Using all companies listed in Muscat over 2012-2017, the results showed that auditing conservatism affects earnings quality positively, while the impact of conservatism on income smoothing is not significant.

Bryan et al. (2021) examined the relationship between conservatism and earnings management, relying on allowances for doubtful accounts and bad debt. The study included 795 observations for 88 North American companies from 2005 to 2017. The results demonstrated that managers are excessively conservative when accounting for the allowances for doubtful accounts as a means of earnings management to achieve target earnings. Paolone, Albahloul and Tiscini (2022) compared the level of conservatism between smoothers and non-smoothers for EU-listed companies from the food and drink industry in 2019. They provided evidence that companies are strongly conservative, while the subsample of non-smoothing companies presents higher levels of conditional conservatism.

In Algeria, only two studies are highly connected with this study; Kezzal (2018) explored the effect of conservatism on the quality of financial information measured by earnings management and income smoothing. The study included 235 firm-year observations for 47 Algerian companies from 2011 to 2015. The results showed a weak positive effect of accounting conservatism on earnings management with no impact on income smoothing. Trirat, Chalabi and Kimouche (2021) explored the role of conservatism in enhancing accounting information quality through a survey of the opinions of 54 financial auditors of Algerian public companies from Skikda. The results showed that accounting conservatism plays a significant role in enhancing the quality of accounting information. Moreover, the role of balance sheet conservatism is higher than that of earnings conservatism.

Compared to the literature, this study is among the first in developing countries like Algeria that have different economic and institutional characteristics regarding

governance systems and control mechanisms. Therefore, the relationship between accounting conservatism and income smoothing can differ. In addition, this study uses different measures for variables by avoiding the classification of companies into conservative and non-conservative or smoothers and non-smoothers. Compared to the previous studies in Algeria, this study extends the sample by employing more companies over a long period and uses different proxies for accounting conservatism and income smoothing.

3. Data and methodology
3.1. Sample and data collection
This study included 993 firm-year observations for 133 Algerian non-financial companies from 2012 to 2020. Financial companies were excluded because accounting for financial operations has a specific system in Algeria, where cash flows and accruals are determined differently from other industries. The selection of companies relies on the accessibility to financial reports since Algerian companies do not have many reporting requirements because the majority are family or public and are not listed on the Algiers Stock Exchange. Additionally, there are high levels of secrecy and caution regarding the disclosure characterizing corporate governance in Algerian companies. Financial information has been collected from the electronic sites of companies and the database of the National Centre for Commercial Register (CNRC portal: https://sidjilcom.cnrc.dz).

3.2. Model specification
The model of this study takes the form of a multiple linear regression that measures the effect of accounting conservatism on income smoothing. The model was controlled by financial leverage, company size, and return on equity.

$$IS_{it} = \alpha_0 + \alpha_1 CONLAC_{it} + \alpha_2 CONTAC_{it} + \alpha_3 ALW_{it} + \alpha_4 LEV_{it} + \alpha_5 SIZE_{it} + \alpha_6 ROE_{it} + \xi_{it} \qquad (1)$$

Where IS_{it} is the level of income smoothing for the period; $CONLAC_{it}$ is the level of conservatism for the period measured by the non-operating accruals; $CONTAC_{it}$ is the level of conservatism for the period measured by the total accruals; ALW_{it} is the level of conservatism for the period measured by the allowances for amortization, impairment and provisions; LEV_{it} is the financial leverage of company at the end of the period; $SIZE_{it}$ is the company size at the end of the period; ROE_{it} is the return on equity for the period; α_0 is an intercept; α_1, α_2, α_3, α_4, α_5, and α_6 are the parameters; ξ_{it} is the error term.

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3.3. Measurement of income smoothing

The literature identified two common proxies for income smoothing; the first depends on the relationship between the variability of earnings and the variability of sales or operating cash flows. However, the second depends on the association between the variations in accounting accruals and the variations in cash flows (Dechow, Ge, & Schrand, 2010). This study relies on the variation in net cash flows from operations relative to the variation in earnings, so the company practises income smoothing when the volatility of cash flows is greater than the volatility of earnings (Francis, LaFond, Olsson, & Schipper, 2004; Leuz, Nanda, & Wysocki, 2003; Chang et al., 2021). Income smoothing [IS] was calculated as the absolute value of the relative change in cash flows divided by the relative change in earnings.

4. Empirical results

4.1. Descriptive statistics

Table 1 summarises the descriptive statistics results of variables for 993 observations that concern 133 companies during the nine years (2012-2020). The results show that the mean of income smoothing (IS) reached 2.0696, which means that the variation in earnings is greater than the variation in cash flows. Therefore, Algerian companies can be practitioners of earnings smoothing by reducing the variability of their earnings compared to cash flows. The mean of non-operating accruals reached 25.49% of total assets with a negative sign, indicating conservative accounting practices in Algerian companies.

According to the results, total accounting accruals represent 44.42% of earnings before extraordinary items, suggesting a high level of accounting conservatism in Algerian companies versus a low value of allowances that reached 9.95% of total assets. Regarding the control variables, Algerian companies are highly leveraged with a debt ratio of 2.286 from equity and have a medium level of performance with a return on equity of 13.45%, on average. Finally, the Jarque-Bera statistics suggest that the data distribution of all variables is not normal.

Table 1 Descriptive statistics of data

Variables	IS	CONLAC	CONTAC	ALW	LEV	SIZE	ROE
Mean	2.0696	-0.2549	0.4442	0.0959	2.2860	13.450	0.1345
Median	1.7211	-0.1219	0.2149	0.0332	0.5153	10.360	0.0536
Maximum	8.5530	0.3240	1.3233	0.4910	8.5441	19.169	3.1690
Minimum	0.2191	-0.7827	-1.1294	0.0171	0.0065	5.5910	-4.5910
Std. Dev.	5.1252	0.6703	1.9560	0.3979	4.7860	6.5080	2.5082
Jarque-Bera	20818	17990.	95527.	20699.	40297.	25975.	55891.
Probability	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Observations	993	993	993	993	993	993	993

Source: Self-processing.

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4.2. Correlation analysis

Table 2 shows the correlation results between the variables, indicating a strong positive association between income smoothing and non-operating accounting accruals; this correlation is significant at the 1% level. The association between income smoothing and return on equity is also positive and significant at the 1% level, but it is medium. The results suggest weak associations between income smoothing, on the one hand, and total accounting accruals and leverage, on the other hand. However, the first is positive and significant at the 5% level, and the second is negative and significant at the 1% level. Finally, the associations between income smoothing, on the one hand, and allowances and company size, on the other hand, are not significant. In conclusion, these results revealed a strong relationship between income smoothing and non-operating accounting accruals as a proxy for accounting conservatism and weak relationships between income smoothing and the two other measures of conservatism (accounting accruals and allowances). Additionally, the results show that the Variance Inflation Factors (VIF) are very weak, which excludes the existence of any collinearity between the independent variables.

Table 2 Correlation between variables

Correlation Probability	IS	CONLAC	CONTAC	ALW	LEV	SIZE	ROE	VIF
IS	1	0.6515	0.0781	-0.0164	-0.1012	0.0522	0.5456	-
	-----	0.0000	0.0139	0.6061	0.0014	0.1003	0.0000	
CONLAC		1	0.0471	-0.1362	-0.0453	-0.0067	0.3294	1,700
		-----	0.1382	0.0000	0.1537	0.8319	0.0000	
CONTAC			1	-0.0680	-0.6411	-0.0032	-0.0056	1,001
			-----	0.0323	0.0000	0.9199	0.8612	
ALW				1	0.1315	0.0015	0.0126	1,019
				-----	0.0000	0.9619	0.6911	
LEV					1	0.0003	-0.0031	1,721
					-----	0.9936	0.9220	
SIZE						1	-0.0317	1,001
						-----	0.3193	
ROE							1	1,002

Source: Self processing.

4.3. Model estimation results

We estimated the study model through the three known panel data methods, as shown in Table 3. The results suggest the significance of the model at the 1% level

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in the three cases with a high explanatory power, which is higher under the Fixed Effects Method comparing the Random Effects and Pooled Regression Method. All parameters are significant at the 1% level, except for the intercept and the parameter of total accounting accruals, which are insignificant, and the coefficient of allowances, which is significant at the 5% under the Random Effects and Pooled Regression Method. The results indicate a strong positive impact of non-operating accounting accruals and a weak positive impact of allowances on income smoothing; the two impacts are higher under the Fixed Effects Method. Additionally, the results find a strong positive impact of return on equity, a weak positive impact of company size, and a weak negative impact of leverage on income smoothing; the three impacts have close values under the three methods of estimation.

Table 3 Model of study estimation results

Independent variables		Dependent variable: IS		
		Estimation methods		
		Pooled Regression Model	Fixed Effects Model	Random Effects Model
CONLAC	Coefficient	0.2558	0.2872	0.2576
	t-statistic	(16.078)**	(16.037)**	(16.3315)**
CONTAC	Coefficient	0.0004	0.0003	0.0004
	t-statistic	0.7424	0.6550	0.7520
ALW	Coefficient	0.0684	0.1148	0.0725
	t-statistic	(1.9159)*	(2.9343)**	(2.0477)*
LEV	Coefficient	-0.0011	-0.0011	-0.0011
	t-statistic	(-3.1476)**	(-2.7279)**	(-3.1547)**
SIZE	Coefficient	0.0395	0.0413	0.0396
	t-statistic	(3.8967)**	(3.7732)**	(3.9519)**
ROE	Coefficient	0.4165	0.3874	0.4147
	t-statistic	(25.379)**	(21.859)**	(25.556)**
Intercept	Coefficient	0.0053	0.0056	0.0047
	t-statistic	0.2424	0.2559	0.2061
R^2		0.6612	0.7194	0.6614
F-statistic		(320.334)**	(14.7181)**	(320.733)**
Durbin-Watson		1.7934	2.1471	1.8288
Log likelihood		-987.309	-893.816	-
Periods included		9	9	9
Cross-sections included		133	133	133
Observations		993	993	993

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

Source: Self processing.

4.4. Model selection results

To select the valid model among the three previously estimated, the F-restricted test was performed to compare the Fixed Effects Model with the Pooled Regression Model. Then, the Random Effects Model was compared with the Fixed Effects Model through the Hausman test. Table 4 summarises the F-restricted test results, suggesting that the calculated value (F') is more than the F-critical value from the Fisher table at the 1% level, which means that the Fixed Effects Model is valid compared to the Pooled Regression Model.

Table 4 The results of the F-restricted test

N	T	K	R^2_{FEM}	R^2_{PM}	F'	F-critical value
133	9	7	0.7194	0.6612	1.3403	1.2600

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

Where: *N* is the number of cross-sections; *T* is the number of periods; *K* is the number of estimated parameters including the intercept; R^2_{FEM} is the determination coefficient from the Fixed Effects Model; R^2_{PM} is the determination coefficient from the Pooled Regression Model; *F'* is the F-calculated value; *F-critical value*: is the F from F-distribution table at degrees of freedom *(N – 1)* and *(N×T – N – K)*.
Null: Pooled Regression Model is valid.

Source: Self processing.

Table 5 indicates that the Hausman test is significant at the 1% level, and thus the Fixed Effects Model is valid compared to the Random Effects Model. These results are consistent with the Durbin-Watson statistics, indicating that the residuals of the Fixed Effects Model are not auto-correlated, since the calculated Durbin-Watson statistic (= 2.1471) is situated between 2 and 2.169 (= 4 - dU), knowing that (dU = 1.831) is the upper critical value from the Durbin-Watson table. However, the residuals of the Random Effects and Pooled Regression Model may be auto-correlated since the Durbin-Watson statistics that reached 1.8288 and 1.7934, respectively, are situated between the lower critical value (dL = 1.707) and the upper critical value (dU = 1.831). Therefore, the Fixed Effects Model is valid.

Table 5 The results of the Hausman test

Test Summary*	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	27.1398	6	0.0001

* Null: Random Effects Model is valid.

Source: Self processing.

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5. Discussion

According to the results, the study model should be estimated using the Fixed Effects Method, which indicates that the model is significant with high explanatory power since independent variables explain 71.94% of the variations in income smoothing in Algerian companies. The results show that total accounting accruals do not impact income smoothing versus the positive effects of non-operating accounting accruals and allowances as proxies for conservatism on income smoothing. Thus, Algerian companies rely on non-operating accruals and allowances to smooth earnings by reducing their variability over time compared to cash flows. The results suggest a negative impact of leverage on income smoothing, but that impact is too weak to be considered. The results show positive effects of company size and return on equity on income smoothing, so big and high-performed companies practise income smoothing more than small and low-performed companies.

Compared to the literature, the results of this study are inconsistent with the findings of many previous studies that found a negative relationship between conservatism and accounting manipulation and that conservative accounting practice can limit earnings management (Chen et al., 2007; Kangarluei & Hesar, 2011; Lin et al., 2014; Haque et al., 2016). The results also differ from studies that showed high levels of accounting conservatism in non-smoothing companies (Siueia & Jianling, 2017; Almeida et al., 2012; Dos Santos & Dos Santos, 2020; Paolone et al., 2022). This study confirms studies that provide evidence of a positive relationship between accounting manipulation and conservatism due to the discretion contained in several conservative accounting practices, which facilitate earnings management (Molenaar, 2009; Jackson & Liu, 2010; Krismiaji & Astuti, 2020).

This study is consistent with studies that have found that accounting conservatism provides a veil for managers to smooth earnings (Valipour et al., 2011; Ozili, 2017, 2019). The study confirms Bryan et al. (2021), who argued that managers are excessively conservative when accounting for the allowance for doubtful accounts as a means of earnings management. However, it differs from Al Ani and Chong (2021) and Kezzal (2018), who suggest that the impact of accounting conservatism on income smoothing is insignificant. This study also confirms the findings of Dunbar et al. (2007), who revealed a positive relationship between unconditional accounting conservatism and earnings management since non-operating accounting accruals are a source of balance sheet (unconditional) conservatism. However, Dunbar et al. (2007) revealed a negative relationship between conditional conservatism and earnings management, which is not consistent with the positive association found in the present study between income smoothing and allowances.

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6. Conclusions

In recent years, the debate about the relationship between accounting conservatism and accounting manipulation has been the subject of many studies that have distinguished three assumptions. The first argues that accounting conservatism is a constraint for accounting manipulation because it can reduce managers' aggressiveness. The second reveals that accounting conservatism extends the discretion room, facilitating accounting manipulation. However, the third argues that the impact of accounting conservatism is neutral regarding accounting manipulation. Studying that relationship is important to provide evidence about the role of accounting conservatism in enhancing accounting quality.

This study is a part of that debate by exploring the impact of accounting conservatism on income smoothing in Algeria using 993 firm-year observations for 133 Algerian non-financial companies over 2012-2020. The study relied on a multiple regression model, where income smoothing has been measured by the variation in net cash flows from operations relative to the variation in earnings. However, accounting conservatism has been measured through non-operating accounting accruals, accruals-to-earnings ratio before extraordinary items, and allowances for amortization, impairment, and provisions.

The results showed that total accounting accruals do not impact income smoothing versus positive impacts from non-operating accounting accruals and allowances on income smoothing. Therefore, the study concluded that accounting conservatism facilitates income smoothing in Algerian companies by extending the discretionary room available for managers to manipulate earnings. The study found a positive relationship between company size and income smoothing, which is consistent with the political cost hypothesis. The study also found a positive relationship between return on equity and income smoothing, which can be explained by the desire of high-performed companies to sustain their performance.

We expect that this study contributes to the literature in two aspects. On the one hand, it is the first in Algeria and among the first in developing countries; hence, it provides additional evidence to studies carried out in developed and emerging countries about the impact of conservatism on accounting quality, especially income smoothing. On the other hand, previous studies have often measured income smoothing by grouping companies into smoothers and non-smoothers, as well as accounting conservatism by categorizing companies into conservative and non-conservative. However, this study employs continuous measures that could provide more accurate results.

The results of this study have several implications for companies' related parties in Algeria. They require accounting regulators to consider the role of conservatism in manipulation when setting or amending accounting standards to improve financial reporting quality and protect companies' stakeholders. They also require auditors to

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give more attention to conservative accounting practices in Algerian companies to limit the opportunistic behavior of managers and increase the reliability of financial information. Future studies are invited to employ different proxies for conservatism and accounting manipulation to determine what aspects of accounting conservatism constrain or facilitate accounting manipulation.

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Author Contributions

BK conceived the study and was responsible for the literature, research design, development of the data analysis. IC was responsible for the data collection, data interpretation, and proofreading of the work.

Disclosure statement

The authors declare no conflict of interest.

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