

**Contribution to the study of the impact of Covid 19 on the
management of accounting results : Case of the
Telecommunications and New Technologies Sector in Morocco.**

**Contribution à l'étude de l'impact du Covid 19 sur la gestion des
résultats comptables : Cas du Secteur de télécommunications et
nouvelles technologies au Maroc.**

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Abstract :

The impact of the current epidemic on the management of accounting results is still an open research topic. This article focuses on the management of corporate accounting results in the first year of the pandemic.

The theoretical framework is based on political-contractual theory, agency and regulatory theory, and governance and accounting threshold theory. Our study differs from existing studies in that it focuses on a sector that has been able to continue its activity despite the crisis situation.

At the end of the analysis, annual financial reports published on the website of the Moroccan Capital Market Authority were used in the empirical part to verify ex-post whether earnings management has taken place for all listed companies in the telecommunications and new technologies sector. Our results were used to verify the hypotheses relating to errors on the Eviews software using the Panel model.

The result obtained confirms the existence of such an operation. As a perspective to this work, we propose further research that addresses the influence of the factors and reasons that may push the managers of these companies to such legal manipulations in a crisis context such as the COVID-19 period.

Key words : « Management of accounting results » ; « Discretionary Accruals » ; « Total Accruals » ; « Positive theory » ; « COVID-19 ».

Résumé :

La répercussion de la présente épidémie sur la gestion des résultats comptables reste encore un sujet de recherche ouvert. Cet article s'intéresse à la gestion des résultats comptable des entreprises lors de la première année de la pandémie.

Le cadre théorique repose sur la théorie politico-contractuelle, la théorie d'agence et de réglementation ainsi que la théorie de gouvernance et des seuils comptables. Notre étude se démarque des études existantes du fait qu'elle se focalise sur un secteur qui a pu poursuivre son activité malgré la situation de crise.

Au terme d'analyse, des rapports annuels financiers publiés sur le site de l'autorité marocaine des marchés de capitaux ont été utilisés au niveau de la partie empirique afin de vérifier ex-post si une gestion de résultat a eu lieu pour l'ensemble des entreprises cotées du secteur de télécommunications et de nouvelles technologies, nos résultats ont été retenus pour vérification des hypothèses relatives aux erreurs sur le logiciel Eviews en utilisant le modèle de Panel.

Le résultat obtenu confirme l'existence d'une telle opération. Nous proposons comme perspective à ce travail d'autres recherches répondant à l'influence des facteurs et des raisons qui peuvent pousser les dirigeants de ces entreprises à de telles manipulations légales dans un contexte de crise tel que la période COVID-19.

Mots clés : « Gestion des résultats comptables » ; « Accruals discrétionnaires » ; « Accruals totaux » ; « théorie positive » ; « COVID-19 ».

Introduction :

Management of a firm has some flexibility in its choice of accounting practices and methods within generally accepted accounting principles, and the management of accounting results has its theoretical underpinnings in political-contractual and other theories. There are three specific objectives that can lead a company's management to strategically manage its results : minimisation of political costs, minimisation of financing costs and maximisation of management wealth.

A crisis occurs when something unexpected and unpredictable happens. This was the case during this period when companies faced up to it, including the sector in our study.

Since the declaration of the health crisis, Moroccans have had to adapt their habits to this new context, whether for work, with the increase in teleworking, or for entertainment, with the increase in online viewing (streaming). As a result, the volumes of data supported by the networks have reached record levels.

In this sense, the objective of our research is to detect the existence of results management in the particular situation of the Covid-19 period, targeting the telecommunications and new technologies sector by answering the following question : Did the managers of listed companies in the telecommunications and new technologies sector manage their results during the first year of the pandemic?

The investigation carried out is of practical and empirical interest at several levels. This work highlights the importance of results management for companies that have not stopped their activity.

This research has a particular concern for publicly traded companies. The subject of study is the Moroccan context. The aim is to provide a comprehensive empirical analysis in the face of a wealth of empirical studies on earnings management and a relative scarcity or even non-existence for investee firms in the Covid-19 period. The main contribution of this work is to clarify the management of accounting results in the telecommunications and new technologies sector in Morocco in the face of Covid.

Despite the situation characterised by heavy uncertainties linked to Covid-19, the Moroccan population has a more positioned vision of technological advances than last year.

Trust in the internet and technology has increased. Indeed, digitalisation is helping many sectors to cope with the crisis. In the current situation, companies, public bodies and NGOs are trying to adapt digital processes, solutions and services as quickly as possible.

Moroccans have thus become more demanding in terms of internet speed. Their connectivity needs are more and more apparent. The habits of companies have also changed to meet the needs of their customers by avoiding as much as possible the displacement of the latter. Indeed, the primary solution was the massive use of teleworking by equipping employees with personal connectivity solutions and videoconferences.

Following our research question, we will first present the theoretical framework. Also, a presentation of the research methodology. Subsequently, a presentation of the empirical through a quantitative study.

Finally, we will conclude our work by discussing some perspectives, limitations and main contributions of the research.

1. LITERATURE REVIEW :

1.1. CONCEPTUAL FRAMEWORK :

Several definitions concerning the different aspects of accounting data management are proposed in the literature. In the following, we propose to recall the most important ones:

1.1.1 NOTION OF MAR (Management of Accounting Results) :

Firms manage accounting data on a long-term basis, and a definition and representation of the phenomenon of accounting data will allow for a better control of the actors involved in this management. The management of a company can artificially direct its results in order to influence the way investors perceive their company (Dégorge et al., 1999).

The management of accounting data is the habitation of discretion ceded to managers in terms of accounting choices or structuring of operations, with the aim of bringing about a change in the wealth transfer risk associated with the firm, as perceived in practice by the market (Hervé Solow, 2003).

1.1.2 NEIGHBORHOOD CONCEPTS OF ARM (Accounting Results Management):

We propose accounting policy and choice, creative accounting and fraud as related concepts.

In order to minimise uncertainty for users of accounting information and the comparability of accounts over time and space and to reduce the regulation of the expression and presentation of financial statements, managers of companies and groups allow for flexibility in the choices and methods of accounting for transactions, which constitute the accounting policy as defined below (Costa, 2000).

According to (Griffiths, 1986), creative accounting is defined as "the implementation of more or less ingenious practices aimed at manipulating accounts or at least circumventing accounting rules deemed to be detrimental to a firm's bottom line and apparent financial position, or taking advantage of the inconsistencies or flexibility offered by accounting standards".

According to (Shah, 1996), results management involves shifting the period affected by a transaction by changing the methods of measurement by speeding up a sale or postponing a purchase.

(Fern, 1994) states that fraud arises in the context of financial statements from an illegal act. Fraud is antonymous to any act that makes financial statements significantly misleading, for example: the fabrication of false invoices.

1.2. THEORETICAL FRAMEWORK :

1.2.1 ACCOUNTING AND FINANCE THEORIES (basis for research on results management) :

Applied research, which consists of extrapolating a certain logic of accounting by means of observation of practice over a very long period of time, which makes it possible to establish an accounting theory in order to develop knowledge.

According to (Wattes and Zimmermann, 1986), a positive approach to accounting is a perspective that seeks to predict and explain accounting practices. It seeks to explain actual practices, thus, the latter would be free of value judgements and subjectivity unlike a normative approach.

The positive theory verifies whether the economic assumptions made about managerial behaviour in managing results are valid, explains why accounting is used and provides a framework for predicting accounting choices (choices are made in terms of individual objectives and in terms of the effects of accounting methods in achieving these objectives, explaining ex-post opportunistic behaviour).

In order to understand and predict the attitude of actors who are passionate about accounting information (Costa, 2009), we speak of the political-contractual theory of the positive accounting theory.

This theory is based on the agency theory which has been considered as a contract whereby one person (the principal) employs another person (the agent) to perform some task on his behalf which involves a delegation of some decision-making power to the agent.

The contract is determined with certainty by the hypothesis of imperfect information and by the presence of information asymmetry between the principal and the agent, this asymmetry causes divergences of interest between these two actors (Costa, 2009).

Profit-based managers choose accounting practices that increase profit, (Hagerman and Zmjewski, 1979) for them the objectives of business managers are not unidirectional, however, this is in relation to the choice of depreciation method (accelerated or straight-line) and the treatment of investment tax credits (capital cost reduction method and accrual method).

According to (Zmjewski and Hagerman, 1981), the higher the debt-to-equity ratio of shareholders, the more likely it is that managers will opt for accounting practices that increase current profits, the greater the profits, the more likely it is that covenants will be met and the easier it would be to pay dividends to shareholders.

Thus, the regulatory theory whose main purpose is the transfer of wealth. In order to achieve this objective, the means widely used by companies is generally the accounting result. The aim here is to avoid the scrutiny of legislators and politicians. The political process thus manifests itself as a competition of individuals (Chalayer, 1994).

Large firms are more sensitive to political pressures than small firms and are subject to greater wealth transfer (Zimmerman, 1983).

This is the theory of regulation, (Posner, 1974) which considered that regulation is a response to the demands of various interest groups who compete with each other to maximise the profits of their members.

1.2.2 Other frameworks for analysing the management of accounting results :

The positive accounting theory has been criticized by (Jeanjean ,1999) and (Chobrak,2009), thus the initiation of governance theory by recent developments in thresholds, earnings management and governance mechanisms are also generally mobilized by governance theory. Several previous studies have focused on the relationship between capital concentration and the quality of accounting information.

This theory can be explanatory of managerial behaviour. It can be used to understand the management of results in all contexts. Except that in a particular context of high volatility and inadequate legal accounting rules, the support of an accounting framework reduces the possibilities of carrying out accounting manipulations and limits the practice of earnings management.

2. RESEARCH METHODOLOGY :

By definition, the structure of the research constitutes the framework through which we can articulate the different components of a research. According to (Royer and Zarlowski, 1999), our work is composed of three stages: research question, literature review and analysis of results.

Our problematic is of an explanatory nature and a quantitative methodology is appropriate. In our work, we place ourselves in the positivist paradigm by having followed a hypothetico-deductive approach which consists in making a judgement on the relevance of the hypotheses posed (Charreire and Durieux, 1999).

This is the approach followed by our research. It is based on data collection, hypothesis testing, validation of the predictions for generalisation arising from the scientific effort, deductive tendency starting from abstract ideas and thus drawn from fields of knowledge related to accounting to formulate the axioms from which to produce the rules that will guide the behaviour of users of the accounting technique.

3. HYPOTHESES :

The first stage of our work consisted in the elaboration of research hypotheses related to our problematic. The analysis of P&L management rating methodologies in the first year of the pandemic for the telecommunications and new technologies sector, in order to test our hypotheses, allowed us to define the variables retained.

The purpose of our choice requires a relevant and rich theoretical basis that allows the elaboration of hypotheses in the face of our specific context, which is the telecommunications and new technologies sector.

As a result of our research, we have drawn the following hypotheses:

H1 : The managers of companies in the telecommunications and new technologies sector during the COVID-19 health crisis would adopt accounting choices aimed at managing their results.

H2 : Given the continuation of their activity, despite the pandemic and the increase in teleworking, the managers of these companies would adopt accounting practices to reduce political costs.

H3 : In order to create room for manoeuvre in the future, these managers would blacken the financial situation of companies.

H4 : Governance mechanisms would influence the decision of managers in such transactions.

Faced with an obvious time constraint we tried to validate our basic hypothesis (H1), we propose further research responding to the influence of the factors and reasons that can push the managers of companies in the telecommunications and new technologies sector to such legal manipulations in a context of health crisis: the covid-19 period.

4. DATA COLLECTION PROTOCOL :

Our study will verify whether listed Moroccan companies in the telecommunications and new technologies sector have managed their results upwards or downwards during the first year of the pandemic. The data used for our study are the annual financial reports of the 8 listed companies from 2009 to 2020 from the Moroccan Capital Markets Authority.

The number of companies listed on the stock exchange is 8 for the telecommunications and new technologies sector, remaining in the context of the pandemic (DISWAY, M2M, IAM, INVOLYS, MICRODATA, HPS, IB MAROC). The company S2M was excluded from our study due to the lack of data, as it was only listed on the stock exchange in 2011 and the observation period of our study is 10 years.

5. CHOICE OF RESEARCH DESIGN :

The type of empirical tests for P&L management suggests interviews, questionnaires, observation of managers, statements by managers, or data collection from other stakeholders such as auditors. **Analysis of accounting documents or reports from official organisations to check ex-post whether PEM has taken place (objective study).**

Paul Healy was the first to adopt accruals as an indicator of earnings management in his 1985 article in the Journal of Accounting and Economics. He defines accruals as the sum of accounting adjustments to the firm's cash flows allowed by standard setters (Healy, 1985).

An economic model that includes economic factors in the calculation of discretionary accruals has been used, namely the modified Jones model which considers that in order to improve the estimation of earnings management companies have tried to minimise their earnings for the

introduction of tax restrictions by including trade receivables which are often the object of earnings management by granting more favourable payment terms.

Thus, according to the modified Jones model, non-discretionary accruals are as follows:

$$\text{NDAC}_{i,t} / \text{TA}_{i,t-1} = \alpha (1/\text{TA}_{i,t-1}) + \beta (\text{FA}_{i,t} / \text{TA}_{i,t-1}) + \delta ((\Delta\text{TO}_{i,t} - \Delta\text{CTO}_{i,t}) / (\text{TA}_{i,t-1}))$$

With,

$\text{NDAC}_{i,t}$ = the non-discretionary accruals of company i in year t

$\text{TA}_{i,t-1}$ = total balance sheet or total assets of firm i in year $(t-1)$.

$\Delta\text{TO}_{i,t}$ = variation in turnover of firm i in year (t) and $(t-1)$.

$\Delta\text{CTO}_{i,t}$ = variation in credit turnover of firm i in year (t) = balance of customer account (t) - balance of customer account $(t-1)$.

$\text{FIXED ASSETS}_{i,t}$ = Gross depreciable fixed assets of firm i in year (t) .

t : The year index included in the estimation period of company i in year t

α , β and δ are estimated based on data from a sample of firms for which we consider calculating non-discretionary accruals from the following regression:

$$\text{TAC}_{i,t} / \text{TA}_{i,t-1} = \alpha_s (1/\text{TA}_{i,t-1}) + \beta_s (\text{FA}_{i,t} / \text{TA}_{i,t-1}) + \delta_s ((\Delta\text{TO}_{i,t} - \Delta\text{CTO}_{i,t}) / (\text{TA}_{i,t-1})) + \varepsilon_{i,t}$$

With,

$\text{TAC}_{i,t}$ = Total Accruals of firm i in year (t) .

$\varepsilon_{i,t}$ = an estimate of discretionary accruals

α_s , β_s and δ_s are the estimators of α , β and δ from the regression.

Once the non-discretionary part of the accruals (**NDAC**) is determined, we calculate the discretionary part as follows

$$\text{DAC}_{i,t} / \text{TA}_{i,t-1} = \text{TAC}_{i,t} / \text{TA}_{i,t-1} - \text{NDAC}_{i,t} / \text{TA}_{i,t-1} = \varepsilon_{i,t}$$

$\text{DAC}_{i,t}$: Discretionary accruals that measure the management of results are estimated by the (modified Jones, 1995) model.

The Jones model is better at detecting discretionary accounting and financial choices than the models that have been used previously. (Peasnell et al., 2000) testify that the modified Jones model is the most widely used model for earnings management. Furthermore, (Bartov et al., 2000) conclude that this model is the best among the existing ones and is able to estimate discretionary accruals and thus to detect earnings management. This same result was later confirmed by (Klein, 2002).

Our economic model is based on the Panel model. From a methodological point of view, this model is the most widely used econometric estimation technique in empirical studies, in this work they are applied in the calculation of accruals ; on the other hand, different econometric tests essential to our model are also proposed.

This via 70 observations, companies and years formed by the grouping of 7 listed companies of the telecommunications and new technologies sector, the accruals are calculated for each of the companies i and for each year for a period of 10 years (estimation period) before the year of the event which is 2020, The choice of the period is based on the stability and validity of these accruals which can be affected by structural changes, most researchers in this field have concluded that this model is the best among those that exist and is capable of estimating discretionary accruals and thus detecting earnings management.

6. RESULTS AND DISCUSSION :

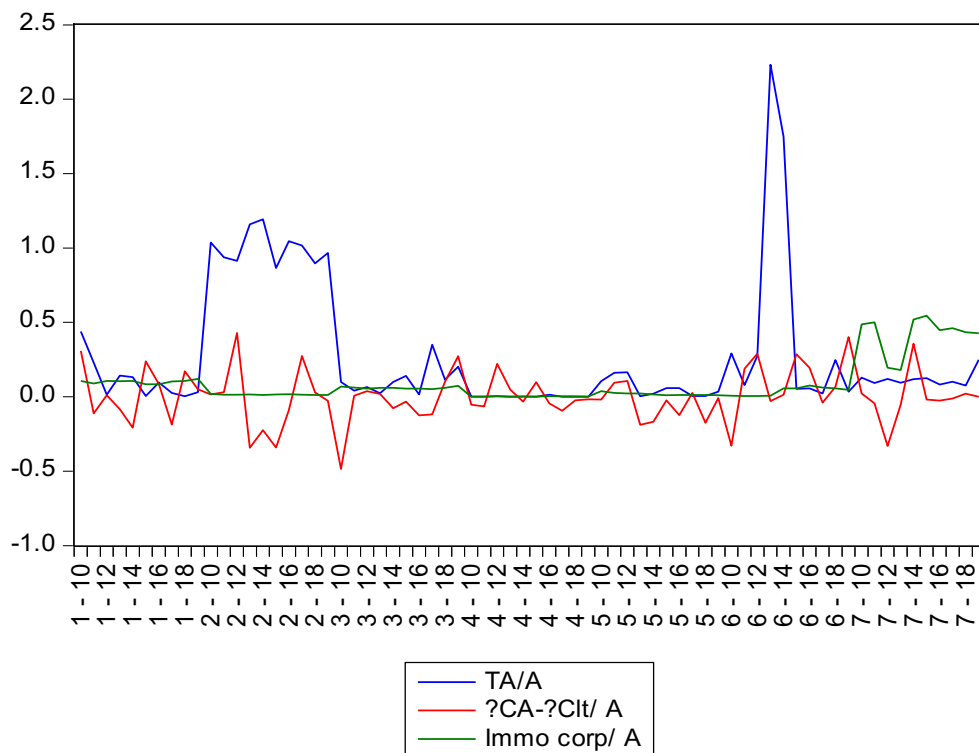
In this section, the results of our quantitative study are presented through the descriptive analysis of total accruals and their components as well as specification tests prior to the estimation of the parameters of the empirical results research model in relation to the validation tests of the research hypotheses.

To achieve our objective, we selected a sample of 7 listed companies (70 observations).

The aim at this level is to verify the hypotheses of our work, namely the basic hypothesis of our research which consists in the detection of the management of accounting results during the first year of the pandemic for the telecommunications and new technologies sector.

The accruals accounts for each of the companies over a 10-year period (the estimation period between 2010 and 2019, before the pandemic starts in Morocco in 2020). The estimated coefficients over this period are combined in the 2020 values (the first year of the pandemic) to obtain the expected normal accruals in 2020.

Figure N°1 : Graphical representation of the studied variables



Source : Eviews Result

It can be seen in Figure 1 on page 14 that there is a significant change in the same direction for all the variables studied. It can also be seen that the series are stationary, except for the TA/A variable, i.e. the mean and variance do not fluctuate as a function of time (no violation of the stationarity conditions).

Table 1 : Descriptive statistics of the variables used

	TA_A	TO_CUS_A	FA_A
Mean	0.273852	0.223166	0.093448
Median	0.095059	0.014288	0.089350
Maximum	2.231896	0.428228	0.545055
Minimum	0.000143	0.485172	0.000127
Std. Dev.	0.449608	0.177434	0.145689
Skewness	2.288551	0.057142	2.121363
Kurtosis	8.190145	3.492339	6.112456

Jarque-Bera	139.6718	0.745088	80.75700
Probability	0.000000	0.688979	0.324004
Sum	19.16962	0.151605	6.541343
Sum Sq. Dev.	13.94815	2.172303	1.464542
Comments	70	70	70

Source : Eviews Result

Table 1 on page 15 allows us to draw some information, notably

For the TA/A :

- The mean value of the TA/A is close to the median;
- The distribution of the TA/A series follows a normal distribution, indeed, the p-value associated with the JARQUE-BERA $P(JB > 3.38) = 0.18 > 5\%$.

For FIXED ASSETS :

- The average value of the F.Ais close to the median;
- The distribution of the F.A series follows the normal distribution. Indeed, the p-value associated with the JARQUE-BERA $P(JB > 80,75700) = 0.324004 > 5\%$.

For the TURN OVER-CUSTOMER :

- The mean value of ITO-CUS is significantly at the median. The distribution of this variable is indeed skewed at the 5% level,

$$ske = \beta^{\frac{1}{2}} - 0 \vee \frac{6}{\sqrt{n}} = 0.057142 \vee \frac{6}{\sqrt{70}} = 1.67 > 1.96$$

- The distribution of the TO-CUS variable is normally flattened:

$$Kur = \beta_2 - 3 \vee \frac{24}{\sqrt{n}} = 3.492339 - 3 \vee \frac{24}{\sqrt{70}} = 0.55 < 1.96$$

- The distribution of the variable TO-CUS obeys the normal distribution at the 2% threshold.

As panel data were the basis of our study, it is necessary to ascertain beforehand whether the data are homogeneous or heterogeneous.

The results of the various specification tests we have carried out are summarised below.

The formulation of the model equation to be estimated is as follows:

$$AN/A = f(TO - CUS, FA)$$

The choice of the analysis method is very important because it must allow us to establish a relationship between the variables. In our work, we use a multivariate explanatory method that will allow us to detect the relationship between the variables studied. In fact, we use multiple linear regression by applying the Ordinary Least Squares method, the statistical validation of the overall quality of the models is assessed by econometricians. The economic validation is done on the basis of the expected signs. That is, for $t = 2010, \dots, 2019$

$$- \frac{AN}{A_{-1}} = \frac{\beta_0}{A_{-1}} + \beta_1$$

where the different variables represent the following:

- β_0 : The model constant ;
- β_1, β_2 : Regression coefficients ;
- ε_t : the error term which contains all factors not taken into account in the model or other types of specification errors such as the form of the mathematical relationship, sampling error and measurement errors on the variables.

The coefficients **a=1.296, B1= -15.34, B2=-9.32** are used in the modified Jones model to obtain the discretionary accruals (DA). Therefore the equation of the model is :

$$\frac{AN}{A_{-1}} = \frac{1,299600}{A_{-1}} + (-15,34321)$$

Table N°2: Discretionary Accruals for the total sample with the (modified Jones 1995) model

Model	N	AT	$\frac{NA}{A_{-1}}$	DA	%
JONES MODIFIED	7	-0,001283321	-0, 356375328	0, 35509201	35,5%

Source : Prepared by us

The results in Table 2 on page 17 show that the average discretionary accruals represent 35% of the previous year's total assets.

To validate the model, a set of assumptions about the errors, which are estimated by the residual, will be tested.

Table 3: Error hypothesis testing

Error testing	Test statistics	Probability associated with the test statistic	Conclusion given a 5% risk
Error normality test	Jarque-Berra	The p-value of $JB = 0.07 > 5\%$	The null hypothesis of normality of errors is accepted.
Error autocorrelation test	BREUSCH Test – GODFREY	The probability of the test statistic is greater than 5%. 0,08	The null hypothesis H_0 of no correlation between the errors and the explanatory variables is accepted.
Heteroscedasticity test	White's test,	The p-value associated with the LM statistic is $0.5502 > 5\%$.	We therefore accept the H_0 hypothesis and conclude that there is no heteroscedasticity of errors. The model is homoscedastic.

Source : Prepared by us

The hypotheses relating to the regression by the method of the ordinary least squares (OLS) at the level of table n°3 on page 17 are verified and consequently our model is validated, we will then study its stability.

To study the stability of the coefficients of the management of the accounting results, in other words the coefficient of our model, we will refer to the CHOW test. This test makes it possible to confirm or deny the existence of a significant difference between the sum of the squares of the residuals of the whole period and the addition of the sum of the squares of the residuals calculated from two sub-periods, if the difference is not significant it means that the fact of splitting the sample in two does not improve the quality of the model, this one remains stable over the whole period.

According to this test, we accept the hypothesis H_0 , in fact the surplus value associated with the LM statistic is $0.0754 > 5\%$. We conclude that the model is globally stable.

These steps allow us to confirm our basic hypothesis H1 on the existence of a management of results by the companies of the telecommunications and new technologies sector in Morocco. The result confirms the existence of earnings management during this period, with the management of these companies artificially managing their earnings to influence investors in order to generate a change in risk and by reducing investor uncertainty about accounting information.

Conclusion :

The pandemic has introduced many people to the benefits of digital tools and remote consultation to reduce the risk of infection, particularly in the workplace. With the rise of online shopping, the most confident were workers in the telecommunications and new technologies sector.

COVID-19 has triggered a large-scale transformation process in almost all areas of work and private life (travel, teleworking, education) but also shopping, health advice and leisure, hence the need to find value-added digital solutions not only during the crisis but also beyond.

Empirical research needs to verify in more detail the consequences of accounting choices, as well as focus on monitoring and enforcement by regulatory authorities accompanied by the recommendations of the standard setter of the National Accounting Council in Morocco, in order to limit such accounting manipulations.

A principles-based framework seems more effective than a rules-based framework, which is why our study was based on ex-post (published annual report). The fact that contract theory researchers have taken their economic data from the financial statements is a great anomaly; if we want to explain an accounting change, we should not be limited to the data contained in the financial statements that were subject to the same accounting change.

Our study also has managerial implications, as it contributes to ensuring the quality of information.

Our work is essentially limited to the detection of management where we propose further research on whether these accounting manipulations decrease political costs or whether the managers of these companies blacken their financial situations without forgetting the managerial implications through governance mechanisms and their influences on these types of information.

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