

## DISCLOSURE FREQUENCY AND EARNINGS MANAGEMENT : AN ANALYSIS IN THE TUNISIAN CONTEXT

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### ABSTRACT

*The aim of this paper is to study the relationship between information disclosure by quoted Tunisian firms and earnings' management. Our survey has been achieved on a sample of 19 firms listed in the Tunis stock exchange over a period spanning from 1999 to 2008.*

*Our results confirm the existence of a negative and significant relationship between disclosure by firms which constitutes our sample and earnings management.*

*Our survey shows that information disclosure related to financial decisions and performances constitute a constraint to the proliferation of earnings' management*

*Keywords: Disclosure frequency, financial information, disclosure score, earnings management, transparency.*

### INTRODUCTION

Most studies carried out about the relationship between earnings' management and information disclosure frequency are divided into two trends. The first indicates, forecasting earnings and voluntary information disclosure encourages firms to manage earnings (Graham and al. 2005; Rahman and al.2007). Whereas the second foresees that information disclosure exposes earnings management and helps investors to detect this phenomenon (Lobo and Zhou 2001; Hunton and al. 2000; Jo and Kim 2007).

Beyer (2008) concluded that analysts have some incentives to disclose forecasts that foresee earnings correctly and directors have some incentives to disclose earnings that match or go beyond the predicted outcome yielded by analysts. Then, financial analysts can encourage earnings' management, by setting targets of earnings that are difficult or impossible to meet.

Likewise, according to Rahman and al. (2007) the press in Singapour<sup>1</sup> reported the concern that with more frequent disclosures under a quarterly reporting regime, firms will focus on short-term earnings and engage in earnings management on a more frequent basis.

Contrarily, other research emphasise that disclosure strategy enables the improvement of the transparency of publications thereby facilitating, the detection of the of earnings' management practice. Indeed, Lobo and Zhou (2001) stress the existence of a negative correlation between disclosure quality and earnings' management. The

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<sup>1</sup> The Business Times, 2 November, 2002b; the Business Times, 21 August 2002c.

former demonstrated that corporate managers who disclose more information have less management flexibility.

Hunton and al. (2006) examined the scale at which the transparency of financial publications affects attempt of earnings management whether it be during an upward trend or a downward trend. In fact, they found that the an increased transparency reduced but didn't eliminate managers' attempt to enter into the practice of earnings' management.

Jo and Kim (2007) show that disclosure increases transparency and therefore reduces incentives to manage earnings because increased transparency helps investors detect earnings' management. Greater disclosure frequency exposes earnings management, and accordingly, disclosure frequency and earnings' management are negatively associated.

Within sight of all this, we notice that the role of information disclosure in the reduction of information asymmetry received a meaningful attention in the literature, but as ascertained by Cormier and Martinez (2006), in spite of this vast literature, the politics of disclosure is not again completely included.

The objective of our paper is to enrich the debate on this issue while studying the impact of information disclosure on earnings' management in the Tunisian context.

The remainder of the paper will be outlined as follows. Section 2, presents the literature review on information disclosure, transparency and earnings' management while highlighting the different advanced explanations. In section 3 in a first time, we describe the sample and data used in the empirical survey. Then, in a second time we shall display the results. Section 4, gives a synthesis of the results and we shall conclude our research paper by some remarks.

## **LITERATURE REVIEW**

### **Information Disclosure, transparency and earnings' management: literature review**

Beforehand, it is not clear, whether the highest disclosure and the transparency of a country should increase or reduce the level of earnings' management. On the one hand, high disclosure and transparency exercise strong pressures on firms to communicate voluntary information, which brings them to manage earnings (Degeorge and al. 1999; Degeorge and al. 2005; Iatridis and Kadorinis 2009). On the other hand, in countries with high disclosure, investors and financial analysts can be disincentives to earnings' management because they can get information easily on firms (Baber and al. 2006; Yu 2008; Allayannis and Simko 2009).

In their effort to meet financial analysts' forecasts and the expectations of investors, firms find earnings management a good solution (Linen and al. 2006; Rees and Sivaramakrishnan 2007; Chevis and al. 2007). The failure to meet analysts' forecasts and the expectations of investors can be catastrophic for firms in terms of access to funds and growth opportunities (Graham and al. 2005; Bergstresser and Philippon 2006).

Firms in countries with higher disclosure have a stronger propensity to manage earnings to meet financial analysts' forecasts. That makes disclosure not credible. Degeorge and al. (2006) found in their survey on a sample of 51401 observations for 10866 non-financial firms in 26 countries from 1994 to 2002, that firms in transparent countries use short-term earnings' management techniques to reach the consensus analyst forecast. In opaque countries, analyst follow-up does not act as a curb on total

earnings management, but neither does it create any short-term pressure to manage earnings.

Degeorge and al. (1999) indicate that analysts can exert pressure on managers to handle earnings. They indicate that firms don't have analysts' forecasts undergo a fall in the prices of its shares.

Yu (2008) found in his survey on a sample of French firms that firms with analysts following have lower levels of the discretionary accruals than those firms without cover. Similarly, Allayannis and Simko (2009) indicate that financial analysts play an important role in limitation of earnings' management. They are more efficient controllers in transparent environments than in opaque environments. Besides, the more the country is transparent, the more the reduction of earnings management is bound by analysts following.

Baber and al. (2006) analyzed the reaction of share prices to the practice of accounting manipulation, when some supplementary information are disclosed voluntarily. Their results show that investors penalize the practice of accounting manipulation, when supplementary information is disclosed. The credibility of disclosures can be checked, by comparison forecast earnings to real earnings, the market react positively to the forecast if the earnings achieved increase, but react negatively to the forecast if the earnings achieved decrease (Iatridis and Kadorinis 2009).

## RESEARCH METHODOLOGY

Our empirical approach is based on model of Jo and Kim (2007) that consists in studying the impact of information disclosure on earnings' management. We begin in a first time, by putting forward some hypotheses. On the basis of these hypotheses, we shall present the model and measures of the variables used. Then, we shall display descriptive statistics. Eventually, we will show and interpret our findings.

### Hypotheses development

Schipper (1989) puts forward that information asymmetry and the lack of full communication, allow managers to deal with earnings. It implies that earnings management is more unlikely for firms that disclose more information, because transparency lowers information asymmetry and helps investors to detect earnings management. Inversely, incentives of earnings' management are likely to increase for firms where there is information asymmetry and limited disclosure. The hypothesis that is tested is as follows.

**H1:** Earnings' management is a decreasing function for the level of disclosure.

G. Iatridis and G. Kadorinis (2009) indicated that the main objective for providing voluntary disclosure of accounting information is to give explanations to agents interested in the financial picture and performance of the firms and to remove the scepticism that can hinder the growth of firms. The availability of an informative accounting and the transmission of a good accounting quality of information reduce the extent of earnings' management (Lobo and Zhou, 2001; Jo and Kim, 2007).

The disclosure of financial information is tremendous and essential for protecting investors against fraud and for the good financial market operation. Indeed, the free access to the news relative to the situation of firms and their incorporation into the decision- making constitutes the underpinnings of the financial markets' management. In accordance with these works, we presume that:

**H2:** The disclosure of financial information decreases the extent of earnings' management.

### Data sources and sample

Our survey is conducted on a sample of 19 non financial firms that are listed on the Tunisian Stock market (BVMT) over the 10- year- period of (1999-2008). The selection of our sample has been achieved on a two -criteria basis:

1. The financial institutions are excluded because the nature of these firms' accruals differs from that of other firms.
2. A set of financial data such as the accounts of result and balance sheets, the leaflets, the annual reports of these firms are available in the data base that we collected. .

The data have been collected by BVMT, Financial Market Council and from the following website: [www.tustex.com](http://www.tustex.com).

### Model specification

The model used to examine the effect of information disclosure (PR) on earnings' management (AD), has been inspired by the survey of Jo and Kim (2007). We led a regression that puts in relation discretionary accruals with other explanatory variables and controls. The dependent variable in this regression is discretionary accruals calculated from the model of Kothari and al. (2005), as long as that the explanatory variable is the disclosure frequency (PR). And we kept the financial performance, the institutional investment, the external auditing, the size, the liabilities, the managerial ownership as well as the block ownership as control variables.

In a second stage, we further deepened our analysis to know what type of information (strategic information, financial information, and non -financial information) has an impact on earnings' management. That is why we measured the quality of disclosure by the score disclosure of Eng and Mak (2003) in a first step. Then, we proceeded to subdivision of the total score of disclosure between the three types of scores that are: the score relative to the financial information (FI), the score relative to the non financial information (NFI) and finally the score relative to the strategic information (SI).

To answer the objectives set and to test the formulated hypotheses, we use the two following panel models:

$$AD_{i,t} = a + b1 PR_{i,t} + b2 PPE_{i,t} + b3 ROA_{i,t} + b4 IINST_{i,t} + b5 AUD_{i,t} + b6 CF_{i,t} + b7 SIZE_{i,t} + b8 LEV_{i,t} + b9 INSD_{i,t} + b10 BLOCK_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$AD_{i,t} = a + b1 FI_{i,t} + b2 NFI_{i,t} + b3 SI_{i,t} + b4 PPE_{i,t} + b5 ROA_{i,t} + b6 IINST_{i,t} + b7 AUD_{i,t} + b8 CF_{i,t} + b9 SIZE_{i,t} + b10 LEV_{i,t} + b11 INSD_{i,t} + b12 BLOCK_{i,t} + \varepsilon_{i,t} \quad (2)$$

With:

- ✓  $AD_{i,t}$  : discretionary accruals for firm i in year t;
- ✓  $PR_{i,t}$  : press releases for firm i in year t;
- ✓  $FI_{i,t}$  : score relative to financial information for firm i in year t;
- ✓  $NFI_{i,t}$  :score relative to non financial information for firm i in year t;
- ✓  $SI_{i,t}$  :score relative to strategic information for firm i in year t;
- ✓  $PPE_{i,t}$  : net property, plant and equipment for firm i in year t;
- ✓  $ROA_{i,t}$  : return on assets for firm i in year t;
- ✓  $IINST_{i,t}$  : institutional ownership in firm i in year t;
- ✓  $AUD_{i,t}$  : quality of auditors for firm i in year t;
- ✓  $CF_{i,t}$  : operating cash flows for firm i in year t;
- ✓  $SIZE_{i,t}$  : size of firm i in year t;
- ✓  $Lev$  : level of debt for firm i in year t;
- ✓  $INSD_{i,t}$  : insider ownership for firm i in year t;
- ✓  $BLOCK_{i,t}$  : is the percent of equity held by those owning more than 5% of a class of the company's equity securities;

### Variables' measures

**Discretionary accruals (AD):** We adopt the definition of discretionary accruals of Kothari and al. (2005) to measure earnings management. So Kothari and al. (2005) add the variable ROA to Jones model (1991).

$$(TAcc_{i,t} / AT_{i,t-1}) = w_0 + w_1 (1 / AT_{i,t-1}) + w_2 (\Delta REV_{i,t} / AT_{i,t-1}) + w_3 (PPE_{i,t} / AT_{i,t-1}) + w_4 ROA_{i,t-1} + \varepsilon_{i,t} \quad (3)$$

Where:

- ✓  $TAcc_{i,t}$ : total accruals<sup>2</sup> for firm i in year t;
- ✓  $AT_{i,t-1}$ : total assets for firm i in year t-1;
- ✓  $\Delta REV_{i,t}$ : Revenues for firm i in year t less revenues for year t-1;
- ✓  $PPE_{i,t}$ : net property, plant and equipment for firm i in year t;
- ✓  $ROA_{i,t}$ : return on assets for firm i in year t;
- ✓  $\varepsilon_{i,t}$ : a residual term that captures discretionary accruals;

Thus, the parameters obtained for the estimation of regression (3) are used in determination of non discretionary accruals (AND) scaled by lagged total asset:

$$AND_{it} = \hat{w}_0 + \hat{w}_1 (1 / AT_{i,t-1}) + \hat{w}_2 (\Delta SA_{i,t} / AT_{i,t-1}) + \hat{w}_3 (PPE_{i,t} / AT_{i,t-1}) + \hat{w}_4 ROA_{i,t-1} \quad (4)$$

Thus, discretionary accruals ( $AD_{i,t}$ ) are determined by the difference between  $TAcc_{i,t} / AT_{i,t-1}$  and  $AND_{i,t}$ .

**Press releases (PR):** press releases (it is the variable proxy of disclosure frequency) are the mandatory and voluntary publications communicated by the firm about a one year-business activity. We identify the number of press releases while looking into the information disclosure by firms on [www.tustex.com](http://www.tustex.com), [www.bvmt.com](http://www.bvmt.com) and [www.cmf.com](http://www.cmf.com). We expect a negative relationship between disclosure frequency and earnings management.

**The disclosure score:** at the time of development or adoption of a disclosure score, it is necessary to take account of the features of the market and firms operating on this market and also the specificities of the sectors. Indeed, the industrial sector doesn't have the same features as the financial sector. So, for the industrial sector we are compelled to foresee items that concern the effort provided concerning research and development and the protection of the environment. These types of communication are not indeed very applicable for the financial sector because the latter provides services. In our investigation, we opted for the same methodology of determining the disclosure score of Eng and Mak (2003) as it includes the different types of information disclosed by firms and it proved to be that this method is more adaptable to the Tunisian context.

The disclosure score is measured by the report between the total number of points assigned to the firm and the number of possible maximum points.

The two authors took into consideration three categories of information that appear in the annual reports:

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<sup>2</sup> Estimation of total accruals :

$$TAcc_{i,t} = \Delta CA_{i,t} - \Delta cash_{i,t} - \Delta CL_{i,t} - \Delta DEPN_{i,t} \quad \text{where:}$$

$\Delta CA_{i,t}$ : firm i's change in current assets;

$\Delta cash_{i,t}$ : firm i's change in cash;

$\Delta CL_{i,t}$ : firm i's change in current liabilities;

$\Delta DEPN_{i,t}$ : firm j's depreciation and amortization expense;

- Strategic information: brief history of company, organizational structure, general description of business, principal products, principal markets, current and future strategy and its future perspectives.

- Non financial information: number of employees, compensation per employee, value-added per employee and productivity indicator.

- Financial information: Performance indicators (not from financial statements), financial ratios and projected information useful.

A point is assigned to every firm for every information disclosed by category. A supplementary point is granted if the information disclosed includes a non recoverable quantitative data from the of the basis -financial statements. The firm that doesn't present any disclosure for these different categories will have 0.

Then we proceeded with the subdivision of the disclosure score between the three types of scores that are: the score relative to the financial information (FI), the score relative to the non financial information (NFI) and finally the score relative to the strategic information (SI).

**Net property, plant and equipment:** are net property, plant and equipment (scaled by lagged total asset). Firms use the amortization like a means to manage earnings, then firms that invest more in net property, plant and equipment have more flexibility to manage earnings. A positive relationship is considered between discretionary accruals and net property, plant and equipment

**Performance:** managers of profitable firms have several methods to manage earnings. So a positive relationship is anticipated between (ROA) and discretionary accruals. We measured performance by return on assets ratio (ROA):

$ROA = \text{earnings} / \text{total assets}$ .

**Institutional investment:** the role of institutional investor in control managers has been stated in the financial literature. Rajgopal and al. (1999) showed the efficiency of institutional investment to discipline managers and to avoid their manipulation for numbers accountants. According to this argument, we expect a negative relationship between the part of shares held by institutional and earnings management. The retained institutional investors are banks, societies of investments and the companies of insurances.

$IINST = \text{Number of shares detained by institutional investors} / \text{total number of shares}$ .

**Audit quality:** a better quality of audit services would be able to restrict the tendency of managers to manipulate their earnings (Kim and al. 2003). This quality of audit is feared by the adherence of external auditors to BIG<sup>3</sup>. In order to measure the control performed by auditors, we use an indicator variable that equals one if the firm's auditor which is one of the BIG accounting firms, and zero otherwise. Thus, we expect a negative relationship between earnings' management and the quality of external auditors.

**Cash flows:** cash flows can be defined as being the difference between returns of operation and operation expenses, scaled by lagged total asset. No prediction is considered between discretionary accruals and cash flows.

**Size:** in general, the big firms cause the public interest. They are followed minutely by financial analysts, as well as the economic and financial press. Indeed, the large -size firms are, by definition, committed in several activities rather than those of small size. Following this volume and this diversity of activities, firms of large size will have a need of credible information.

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<sup>3</sup> Evolution of the big international accounting firms passage of the "BIG8" in the "BIG4". End of the years 1970: BIG8; 1989: BIG6; 1998: BIG5; 2002: BIG4.

Then we expect a negative relationship between the size variable and discretionary accruals.

Size = logarithm (assets).

**Lev:** firms greatly indebted operate earnings' management in order to negotiate contracts of loans in more advantageous conditions. Proximity to contractual terms' limits that are generally based on accountants' figures incite managers to select accountants' procedures which increase profit (Watts and Zimmerman 1986). Then a positive relationship is anticipated between these two variables.

Lev = total Debt / Total equity.

**INSD:** the insider ownership is measured by the percentage of shares detained by insiders. These shareholders are those that detain some shares in the capital of firms while participating in decisions and management. In the setting of this survey we considered like insiders, administrators, the president general director and the general manager of the firm.

INSD = Number of shares detained by insiders / total number of shares of the firm.

**Block:** Lennox (2005), indicate that block ownership could give some incentives to the main shareholders to direct decisions of managers and also to expropriate the minority shareholders while hiding the true performance of the firm. No prediction is considered between the discretionary accruals and block ownership. We measure this variable as follows:

BLOCK = the percentage of equity held by those owning more than 5% of a class of the company's equity securities.

<b>TABLE 1: DEFINITION AND MEASUREMENT OF VARIABLES</b>		
	Abbreviation	Measurement
<i><u>Dependent Variable</u></i>		
Discretionary accruals	AD	Discretionary accruals calculated from model Kothari and al. (2005).
<i><u>Independent Variables</u></i>		
Disclosure frequency	PR	Mandatory and voluntary publications communicated by firm about one year.
Quality of disclosure	FI	Score relative to financial information.
	NFI	Score relative to non financial information.
	SI	Score relative to strategic information.
<i><u>Control Variables</u></i>		
Net property, plant and equipment	PPE	Level of net property, plant and equipment in firm.
Performance	ROA	Earnings / total assets.
Institutional investment	IINST	Number of shares detained by institutional investors / total number of shares.
Audit quality	AUD	Indicator variable that equals one if the firm's auditor is one of the

Cash flows	CF	BIG accounting firms, and zero otherwise.
Size	Size	$CF = R - E$ logarithm (assets).
Debt	Leverage ratio	Total Debt /Total assets.
Managerial ownership	INSD	Number of shares detained by insiders / total number of shares of firm.
Block	Block ownership	The percent of equity held by those owning more than 5% of a class of the company's equity securities.

### Descriptive statistics

The following table provides the descriptive statistics (Mean, Standard deviation, Minimum and Maximum) of every variable used in our analysis.

**TABLE 2: DESCRIPTIVE STATISTICS**

Variables	Mean	Std dev	Min	Max
AD	0.0191	0.1137	-0.3877	0.5639
PR	8.1315	4.7093	1.0000	26.0000
FI	0.1626	0.0947	0.0234	0.9342
NFI	0.0885	0.0809	0.0134	0.2962
SI	0.1202	0.0575	0.0123	0.3498
PPE	0.3714	0.1768	0.0528	0.8412
ROA	0.0446	0.0682	-0.2160	0.2670
IINST	0.1345	0.1983	0.0000	0.8165
AUD	0.2631	0.4415	0.0000	1.0000
CF	0.0687	0.2605	-3.1282	0.6044
Size	7.6019	0.4670	6.4483	8.9190
Lev	0.4343	0.2346	0.013	0.951
INSD	0.0314	0.0560	0.0000	0.2000
Block	0.7272	0.1301	0.4621	0.9613

This table presents descriptive statistics of variable studied (dependent, independent and control). The sample covers 19 Tunisians firms during the period 1999-2008.

With:

Ad : Discretionary accruals calculated from model Kothari and al. (2005), PR = Mandatory and voluntary publications communicated by firm about one year, FI : Score relative to financial information, NFI : Score relative to non financial information, SI : Score relative to strategic information, PPE : Level of net property, plant and equipment in firm, ROA = Earnings / total assets, IINST = Number of shares detained by institutional investors / total number of shares, AUD : Indicator variable that equals one if the firm's auditor is one of the BIG accounting firms, and zero otherwise, CF = R-D, Size = logarithm (assets), Debt = Total Debt /Total assets, INSD = Number of shares detained by insiders / total number of shares of firm, Block = The percent of equity held by those owning more than 5% of a class of the company's equity securities .

According to the table above, the mean value of (AD) is 0.0191; it enables us to notice that the level of earnings' management in the firms which constitute our sample is not raised; otherwise, the managers of these firms show evidence of a weak intensity of earnings management. The positive sign indicates that on average the firms of the sample have tentative of earnings management to the rise.

The mean value of press releases is 8.1315 permits to conclude that firms of our sample don't disclose a lot of information. It can be accounted for on the one hand, by blockholder ownership, (investors who hold a high percentage of shares and who can get information directly from the firms) and on the other hand, by the weakness of institutional ownership, since according to the literature, the presence of institutional investors can urge managers to do frequent disclosures. Its standard deviation (4.7093) permits to notice that this indicator varies between the different firms that compose our sample.

The profitability of assets is vary between a negative performance 21, 6% and an extreme value positive of 26, 7%, with an average of 4, 4%.

The mean value of the variable net property, plant and equipment is 0. 3714, which allows us to notice that firms that constitute our sample dedicate a tremendous part of their funds to invest it in assets, plant and equipment.

Institutional investment is weak compared to the American firms, 13, 45% against a number of 35, 86% in the survey of Rajgopal and al. (1999), 53, 1% in the survey of Hartzell and Starks (2008). But, standard deviation 19, 83% permits to notice that this indicator varies in considerable manner between different the firms that compose our sample.

More than 50% of firms of our sample are not audited by BIG accounting firms, since the mean value is 0.2631.

The value of cash flows is on average positive 0.0687. This variable has a standard deviation 0.2605, which brings us to note that cash flows vary considerably for firms that constitute our sample.

The mean size of firms composing our sample is 7.6019; it varies between 6.4483 and 8.9190. It permits us to conclude that on average the Tunisian firms are of mean size. However, we notice that the volatility of this variable is not very elevated (0.4670). This value implies that the size of firms measured as logarithm of total assets, doesn't vary in a significant manner inside the sample.

According to the mean value of leverage ratio (43.43%), we can say that the debt constitutes a very important financing source for Tunisians firms. This value, is nearly the duplicate of this as found by Kumar (2004), that returned a mean leverage ratio 24, 09% for the case of India.

The mean value of managerial ownership is 3, 14%, it is weaker than the institutional ownership (13, 45%), and weaker again the American managerial ownership (20% in survey of Dennis and Kruse 1999; 12, 2% in the study of Holderness and al. 1999 and 12, 4% in the survey of Cho 1998), of British and Australian firms (16, 7% reported in survey of Faccio and Lasfer 1999 and 10,65% in survey of Braisford and al. 1999) and even of Indian businesses (17,29% according to Kumar, 2004).

Finally, the ownership structure is very concentrated (since the mean value is of 72.72%).

### **Tests on panel data**

It is necessary however, to note that the estimations of our model are made on panel data since the regressions are about two dimensions: one temporal and the other individual, that enables to check some tests. These tests are essentially Pearson test and vifs of independent variables, to detect the multicollinearity between these variables, test of the presence of individual effect, Hausman test and heteroscedasticity test.

### **Test of the presence of the individual effect**

Since our data are penalized, it is worth identifying the effect associated to every individual, otherwise it would be an effect that doesn't vary in time, but that varies an

individual to the other. This effect can be within or random effect. The test of existence of the individual effect rejects the hypothesis of the individual effects absence<sup>4</sup>. We are going to test hypothesis H0 therefore against the hypothesis H1.

H0: absence of individual effect

H1: there is individual effect

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**TABLE 3: RESULT OF TEST PRESENCE INDIVIDUAL EFFORT**

28.97

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Chi test (2)	(0.0013)
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Results of test individual effect presence indicated in the table above show that the individual effects exist.

#### **Hausman test**

Since our model is of the effect, it is necessary to choose what modelling is the best suitable to our data: within or random modelling of these effects, i.e. these effects can be either within, or random. It is for it us resort to Hausman test.

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**TABLE 4: RESULT OF HAUSMAN TEST**

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Chi test (2)	7.67 (0.6610)
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The results of Hausman test indicate that we must turn towards a random modelling of effects, in other words the consideration of individual specificity of firms otherwise under the shape of an uncertain effect which provides significant statistically better results in comparison to a model that is within individual effect.

#### **Pearson correlation matrix and vifs**

Before moving to the regression, it is essential to establish the correlation matrix between the variables in order to test the possible relationship between the independent variables and to avoid the problems of multicollinearity.

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**TABLE 5: PEARSON CORRELATION MATRIX AND VIFS**

With:

Ad : Discretionary accruals calculated from model Kothari and al. (2005), PR = Mandatory and voluntary publications communicated by firm about one year, FI : Score relative to financial information, NFI : Score relative to non financial information, SI : Score relative to strategic information, PPE : Level of net property, plant and equipment in firm, ROA = Earnings / total assets, IINST = Number of shares detained by institutional investors / total number of shares, AUD : Indicator variable that equals one if the firm's auditor is one of the BIG accounting firms, and zero otherwise, CF = R-D, Size = logarithm (assets), Debt = Total Debt /Total assets, INSD = Number of shares detained

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<sup>4</sup> These individual effects can be represented by an intercepts to every individual,  $u_i$ . One tries therefore to test the hypothesis H0:  $u_i = 0$  in the regression  $Y_{it} = \beta_0 + \beta_1 X_{it} + u_{it} + \epsilon_{it}$ .

by insiders / total number of shares of firm, Block = The percent of equity held by those owning more than 5% of a class of the company's equity securities .

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	AD	PR	FI	NFI	SI	PP	ROA	IINST	AUD	CF	Siz	Lev	INSD
Block Vif													
AD	1.00												
PR	0.01	1.00											
1.07													
FI	-0.20	0.11	1.00										
1.67													
NFI	0.08	0.02	-0.34	1.00									
1.46													
SI	-0.01	0.07	0.40	0.21	1.00								
1.55													
PP	-0.05	-0.01	-0.07	-0.01	-0.04	1.00							
1.66													
ROA	0.19	0.05	-0.09	-0.07	-0.10	-0.30	1.00						
1.93													
IINST	-0.07	-0.05	-0.03	0.01	-0.12	0.32	-0.45	1.00					
1.49													
AUD	-0.17	0.03	0.02	0.03	0.03	0.21	0.07	0.02	1.00				
1.20													
CF	-0.10	0.09	0.03	0.03	-0.07	-0.09	0.27	-0.10	0.09	1.00			
1.17													
Siz	0.03	0.16	0.02	-0.17	-0.10	0.09	0.27	-0.11	0.31	0.08	1.00		
1.36													
Lev	-0.19	-0.04	0.08	-0.06	-0.07	0.43	-0.54	0.38	-0.03	-0.18	-0.02	1.00	
1.80													
INSD	0.10	0.05	-0.01	0.20	0.14	-0.46	0.09	-0.21	-0.09	0.10	-0.24	-0.29	1.00
1.52													
Block	-0.04	0.02	0.14	-0.15	-0.03	-0.02	-0.01	-0.15	-0.03	0.14	0.06	0.12	-0.15
1.00	1.18												

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The multivariate analysis helps to carry out the simultaneous treatment of a set of variables. In our survey, the linear regression requires the absence of multicollinearity problem between the independent variables introduced in a same model. We verify this condition while resorting to Pearson correlation matrix and vifs. Table 5 shows the results yielded by this test. The positive coefficients (negative) indicate positive relationships (negative) between the explanatory variables. According to these results and although Pearson's correlation coefficients are not raised<sup>5</sup>, we can put forward that a certain interdependence exists between the different independent variables kept in our survey and show the absence of autocorrelation between the explanatory variables. The absence of the multicollinearity problem between the variables is also justified by Vifs test in which all the variables have a value lower to 3 with a global mean equals to 1.49.

#### **Heteroscedasticity test**

Besides, we took care to verify the hypotheses of homoscedasticity<sup>6</sup> while using Breush-Pagan test. The rationale behind these tests is to verify if the square of

<sup>5</sup> Kervin (1992) foresees an  $r = 0.7$  to be pronounced on a problem serious of colinearity between two independent variables included in a model of regression.

<sup>6</sup> The homoscedasticity qualifies a constant variance of the residues of data composing the sample. To the inverse, one says that there is homoscedasticity when the variance of the residues of the model is not constant, that is to say that the value predicted by the estimator doesn't converge toward the value in the population.

residues can be explained by explanatory variables of the model in other words the variance of residual term is bound then to the values of explanatory variable. If it is the case when we have a problem of heteroscedasticity.

H0: homoscedasticity

H1: heteroscedasticity

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**TABLE 6: RESULT OF BREUSH- PAGAN TEST**

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Chi test (2)	0.8 (0.3696)
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The results of Breush-Pagan test verify the absence of heteroscedasticity problem.

### RESULTS AND INTERPRETATIONS

After carrying out the econometrics tests: Pearson test and vifs of the independent variables test of individual effect presence, Hausman test and the heteroscedasticity test it would be discriminating to present the results of our models.

The following table presents the results of estimation of equation that test the relationship between the disclosure frequency and earnings management: the variables' coefficients, the expected sign as well as the associated probabilities.

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**TABLE 7 : RESULTS OF REGRESSION**

$$AD_{i,t} = a + b1 PR_{i,t} + b2 PPE_{i,t} + b3 ROA_{i,t} + b4 IINST_{i,t} + b5 AUD_{i,t} + b6 CF_{i,t} + b7 SIZE_{i,t} + b8 LEV_{i,t} + b9 INSD_{i,t} + b10 BLOCK_{i,t} + \varepsilon_{i,t}$$

With:

Ad : Discretionary accruals calculated from model Kothari and al. (2005), PR = Mandatory and voluntary publications communicated by firm about one year, PPE : Level of net property, plant and equipment in firm, ROA = Earnings / total assets, IINST = Number of shares detained by institutional investors / total number of shares, AUD : Indicator variable that equals one if the firm's auditor is one of the BIG accounting firms, and zero otherwise, CF = R-D, Size = logarithm (assets), Debt = Total Debt /Total assets, INSD = Number of shares detained by insiders / total number of shares of firm, Block = The percent of equity held by those owning more than 5% of a class of the company's equity securities .

---

Variables probability	Expected sign	coefficient
PR 0.052	-	-0.0035***
PPE 0.093	+	-0.18***
ROA 0.023	+	0.3877**
IINST 0.362	-	-.00436

---

AUD	-	-0.0502*
0.008		
CF	?	-0.0756**
0.020		
Size	-	0.0222***
0.065		
LEV	+	-0.0568***
0.071		
INSD	+	0.1558***
0.085		
BLOCK	?	-0.0002
0.997		

Wald chi (2) = 28.97; prob = 0.0013; within = 0.0581 ; between = 0.5943; overall = 0.1393

\*Significant at 1% level; \*\* Significant at 5% level; \*\*\* Significant at 10% level.

The findings show that the relationship between the disclosure frequency and earnings management is negative and significant. That permits to confirm our hypothesis to know that earnings management is a decreasing function for the disclosure level. Indeed, disclosure decreases asymmetry information and increases transparency, and thereafter firms have less incentive to manage their earnings. This result is coherent with the one of Jo and Kim (2007) that showed that a bigger disclosure frequency exposes earnings' management. This result is in favor of the signalling theory and the agency theory, because the signalling theory stipulates that the disclosure of voluntary information aims at the reduction of informational asymmetry between the managers of firms (insiders) and external investors (outsiders). The agency theory foresees the voluntary disclosure like not only as an important and efficient means to protect shareholders from managerial latitude but also minority shareholders from the risk of expropriations on behalf of the majority shareholders.

Unlike the positive theory and in the results of Iatridis and Kadorinises (2009), in our survey, the level of debt (LEV) influences negatively and significantly at 10% level discretionary accruals. This result shows that the level of debt constitutes a constraint to the managerial discretion and represents a means to fight against the growth of earnings' management. As advanced by Jensen and Meckling (1976), one can say then that the debt is a means that permits to alleviate agency conflicts between the shareholders and managers and to reduce the costs of asymmetry information.

As for the profitability of assets (ROA) that we find positive and statistically significant at a 5% level, this result is compliant with the predictions of several researchers that affirm that earnings' management is operated in the case where an extreme performance is achieved; in other words, profitable firms arrange several methods to manipulate earnings (Dechow and al. 1995).

Regarding the quality of auditor, the relation with (AD) is negative and statistically significant at a 1% level, in other words the level of earnings management is bigger in firms not audited by BIG accounting firms. This result is compatible with the results of another study as those of Chtourou and al. (2001), Francis and al. (1999), Becker and al. (1998), that found that firms audited by BIG accounting firms, Big6<sup>7</sup> type (or Big5 according to the time) have relatively less elevated discretionary accruals than

<sup>7</sup> These are very well-known accounting firms to USA: Ernst & Young, Arthur Andersen, Deloitte Touch, Price Waterhouse, KPMG and Coopers & Lybrand.

firms audited by non Big accounting firms. This shows that for the Tunisian firms as otherwise, while providing services of better quality, the BIG reduce the discretionary latitude of managers.

The relative coefficient to managerial ownership (INSD) for its part is positive and significant at a 10% level. Such a result is in favor of the thesis of managerial entrenchment, suggesting that the more the managerial ownership is raised, the more it has divergence of interests and the more the managers will be driven to manage earnings in order to generate private advantages. We corroborate by this result the studies of Jo and Kim (2007); Bowmen and al. (2005); Klein (2000); Peasnell and al. (1998).

The estimation of the coefficient relative to the variable size of (Size) gives a positive and significant relation at a 10% level. This result is also coherent with the idea of Watts and Zimmerman (1990) according to which the biggest firms are incited to exercise practices of earnings management<sup>8</sup> in order to reduce their political visibility. The relationship between discretionary accruals and cash flows is negative and significant at a 5% level. This result corroborates with the results of Jo and Kim (2007); Becker and al. (1998); Burgstahler and Dichev (1997) and permits us to conclude that results are managed to avoid losses and negative changes in the results.

As far as the variable net property, plant and equipment in firm are concerned, the -outcomes show that it has a positive and significant impact at a 10% level on the level of earnings management. In other words, firms that invest more in net property, plant and equipment better manage their earnings, since firms that constitute our sample are on average profitable, We can say that these firms use amortization to inflate loads and thereafter minimize political costs. In fact, public authorities can interpret the results raised of firms as an indicator of performance and of the existence of monopolistic practice. Hence, they are going to implement regimentation under the shape of price control or increased taxes.

We found that institutional investment doesn't have an effect on earnings' management in the firms that constitute our sample, since the relationship between these two variables is non significant. This result is compatible with the survey of Dey (2004) that found a non significant relationship between artificial smoothing and institutional investment.

Eventually, the results show that a non significant relationship exists between block ownership and earnings' management. This result is compatible with the result of Park and Shin (2004) that found that block ownership doesn't affect earnings management. In fact, our survey highlights that block ownership in Tunisia doesn't have an effect on the practices of earnings' management.

After, we found that the biggest disclosure exposes earnings' management and helps the investors to detect this phenomenon, we tested accurately in a second stage what type of information has an impact on earnings' management.

The following table presents the results of estimation of equation that test the relationship between earnings management and the scores of disclosure: coefficients of variables, the expected sign as well as the probabilities associated.

---

**TABLE 8 : RESULTS OF REGRESSION**

$$AD_{i,t} = a + b1 FI_{i,t} + b2 NFI_{i,t} + b3 SI_{i,t} + b4 PPE_{i,t} + b5 ROA_{i,t} + b6 IINST_{i,t} + b7 AUD_{i,t} + b8 CF_{i,t}$$

---

<sup>8</sup> Enron that was classified recently among the ten big American firms, made bankruptcy December 2, 2001, being a matter for an extreme practice of earnings management.

$$+ b9 \text{ SIZE}_{i,t} + b10 \text{ LEV}_{i,t} + b11 \text{ INSD}_{i,t} + b12 \text{ BLOCK}_{i,t} + \varepsilon_{i,t}$$

With:

Ad : Discretionary accruals calculated from model Kothari and al. (2005), FI : Score relative to financial information, NFI : Score relative to non financial information, SI : Score relative to strategic information, PPE : Level of net property, plant and equipment in firm, ROA = Earnings / total assets, IINST = Number of shares detained by institutional investors / total number of shares, AUD : Indicator variable that equals one if the firm's auditor is one of the BIG accounting firms, and zero otherwise, CF = R-D, Size = logarithm (assets), Debt = Total Debt / Total assets, INSD = Number of shares detained by insiders / total number of shares of firm, Block = The percent of equity held by those owning more than 5% of a class of the company's equity securities .

---

Variables	Expected sign	coefficient
probability		
FI	-	-0.2146**
0.043		
NFI	?	0.0461
0.692		
SI	?	0.1314
0.437		
PPE	+	0.7957***
0.083		
ROA	+	0.3195**
0.045		
IINST	-	0.0413
0.390		
AUD	-	-0.0595*
0.002		
CF	?	-0.0712**
0.028		
Size	-	0.9248***
0.096		
LEV	+	-0.0746***
0.094		
INSD	+	0.2381***
0.065		
BLOCK	?	0.0470
0.471		

---

Wald chi (2) = 34.94; prob = 0.0005; within = 0.0757 ; between 0.6645 =; overall = 0.1649

\*Significant at 1% level; \*\* Significant at 5% level; \*\*\* Significant at 10% level.

The results found permit us to note that the score relative to the financial information affects negatively the level of discretionary accruals considering a negative and statistically significant coefficient at a 5% level. In other words, the disclosure of financial information exposes the practices of earnings' management by firms but the other information that is either strategic or has a non financial characteristic don't have an effect on earnings management since their coefficients are non significant. Our results are consistent with the theoretical predictions and empirical findings of preceding research. They provide evidence on how management may use the flexibility provided to exercise discretion in reporting earnings. This has implications

for the interpretation of the information conveyed by reported accounting earnings. Our result is consistent with the results of Arthur Levitt (1998) that found that financial analysts and investors use better financial information in their decisions.

### CONCLUSION

In this article we studied on the one hand the type of relation that exist between the disclosure frequency and earnings management, and on the other hand the relationship between the different scores of disclosures and earnings' management and we presented a literature review on disclosure information, transparency and earnings management.

This literature allowed us to validate empirically in the Tunisian context, on 19 firms quoted in the B.V.M.T, and earnings management in the setting of disclosure information. The findings of our survey show that earnings' management is a decreasing function of the disclosure level, in other words if the level of disclosure increases, earnings' management decreases. Our survey shows that disclosure of information about the financial decisions and performances constitute a constraint to the proliferation of earnings' management. In conclusion, the results of our survey suggest that information disclosure reduces incentives of earnings' management since it increases transparency and helps investors to detect this phenomenon.

### REFERENCES

- Allayannis, G., Simko, P. J. (2009), " Earnings Smoothing, Analyst Following, and Firm Value ", [www.ssrn.com](http://www.ssrn.com).
- Baber, W., Chen, S., Kang, S. H. (2006), "Stock Price Reaction To Evidence Of Earnings Management: Implications For Supplementary Financial Disclosure" *Review of Accounting Studies* Studies, vol. 11, no.2, . 5-9.
- Bergstresser, D., Philippon, T. (2006), " CEO Incentives And Earnings Management", *Journal of Financial Economics*, vol. 80, no 3, . 511–529.
- Beyer, A. (2008), " Financial Analysts' Forecast Revisions And Managers' Reporting Behavior", *Journal of Accounting and Economics*, vol. 46, no. 2-3, . 334–348.
- Burgstahler, D., Dichev, I. (1997), " Earnings Management To Avoid Earnings Decreases And Losses", *Journal of Accounting and Economics*, vol. 24, no.1, .99–126.
- Chevis, G. M., Das, S., Sivaramakrishnan, K.. (2007), " Does It Pay To Consistently Meet Analysts' Earnings Expectations"., [www.ssrn.com](http://www.ssrn.com).
- Chtourou, S. M., Bédard, J., Courteau, L. (2001), " Corporate Governance And Earning Management", [www.ssrn.com](http://www.ssrn.com).
- Cormier, D., Martinez, I. (2006) , " The Association Between Management Earnings Forecasts, Earnings Management, And Stock Market Valuation: Evidence From French IPOs", *The International Journal of Accounting*, vol. 41, no.3, . 209-236.
- Dechow, P. M., Sloan, R. G., Sweeney, A. P. (1995), " Detecting Earnings Management", *The Accounting Review*, vol. 70, no.3, .193-226.
- Degeorge, F., Patel, J., Zeckhauser, R. J. (1999) , " Earnings Management To Exceed Thresholds", *Journal of Business*, vol. 72, 1–33.

- Degeorge, F., Ding, Y., Jeanjean, T., Stolowy, H. (2005), "Does Analyst Following Curb Earnings Management? International Evidence", [www.ssrn.com](http://www.ssrn.com).
- Dey A. (2004), "Income Smoothing and Sophisticated Investor Preferences", [www.ssrn.com](http://www.ssrn.com).
- Faccio, M., Lazfer, M. A. (1999), "Managerial Ownership, Board Structure And Firm Value: The UK Evidence", [www.ssrn.com](http://www.ssrn.com).
- Eng, L.L., Mak, Y.T. (2003), "Corporate governance and voluntary disclosure", *Journal Of Accounting and Public Policy*, vol. 22, . 325–345.
- Francis, J., LaFond, R., Olson, P., Schipper, K. (2005), "The Market Pricing Of Accruals Quality", *Journal of accounting and Economics*, vol. 39, no.3, 295-327.
- Graham, J.R., Harvey, C.R., Rajgopal, S. (2005), "The Economic Implications Of Corporate Financial Reporting", *Journal of Accounting and Economics*, vol. 40, nos.1-3, .3-73.
- Hartzel, J. C., Starks, L. T. (2008), "Institutional Investors And Executive Compensation", [www.ssrn.com](http://www.ssrn.com).
- Hunton, J. E., Libby, R., Mazza, C.R. (2006), "Financial Reporting Transparency And Earnings Management", *The Accounting Review*, vol. 8, .135–158.
- Iatridis, G., Kadorinis, G. (2009), "Earnings Management And Firm Financial Motives: A Financial Investigation Of UK Listed Firms", *International Review of Financial Analysts*", vol. 18, no.4, 164–173.
- Jensen, M. C., Meckling, W.H. (1976), "Theory Of The Firm: Managerial Behaviour Agency costs And Ownerships Structure", *Journal of Financial Economics*, vol. 3, no.4, 305-360.
- Jo, H., Kim Y. (2007), "Disclosure Frequency And Earnings Management", *Journal of Financial Economics*, vol. 84, no.2, 561-590.
- Jones, J. (1991), "Earnings Management During Import Relief Investigations", *Journal Of accounting Research*, vol. 29, 193–228.
- Kim, J-B., Chung, R., Firth, M. (2003), "Auditor Conservatism, Asymmetric Monitoring And Earnings Management", *Contemporary Accounting Research*, vol. 20, 323–359.
- Klein, A. (2000), "CEO power, board independence and CEO compensation: an empirical investigation", [www.ssrn.com](http://www.ssrn.com).
- Kothari, S. P., Leone, A. J., Wasley, C. E. (2005), "Performance Matched Discretionary Accrual Measures", *Journal of accounting and Economics*, vol. 39, no.1, 163–197.
- Lennox, C. S. (2005), "Management Ownership And Audit Firm Size", [www.ssrn.com](http://www.ssrn.com).
- Lin, S., Radhakrishnan, S., Su, L. (2006), "Earnings Management And Guidance For Meeting Or Beating Analysts' Earnings Forecasts", [www.ssrn.com](http://www.ssrn.com).
- Lobo, G. J., Zhou, J. (2001), "Disclosure Quality And Earnings Management", *Asia-Pacific Journal of Accounting and Economics*", vol. 8, no.1, 1-20.
- Park, Y. W., Shin, H. H. (2004), "Board Composition And Earnings Management In Canada", *Journal Of Corporate Finance*, vol. 10, no.3, 431-451.
- Peasnell, K.V., Pope, P.F., Young, S. (1998), "Outside Directors, Board Effectiveness, And Earnings Management", [www.ssrn.com](http://www.ssrn.com).
- Rahman, A. R., Tay, T. M., Ong, B. T., Cai, S. (2007), "Quarterly Reporting In A Voluntary Disclosure Environment: Its Benefits, Drawbacks And Determinants", *The International Journal of Accounting*, vol. 42, no.4, 416–442.

Rajgopal, S., Venkatachalam, M., Jiambalvo, J. (1999), “ Is Institutional Ownership Associated With Earnings Management And The Extent To Which Stock Prices Reflect Future Earnings”, [www.ssrn.com](http://www.ssrn.com).

Rees, L., Sivaramakrishnan, K.. (2007), “The Effect Of Meeting Or Beating Revenue Forecasts On The Association Between Quarterly Returns And Earnings Forecast Errors”. *Contemporary Accounting Research*, vol. 24, 259–290.

Schipper, K. (1989) , “Commentary On Earnings Management”, *Accounting Horizons*, vol. 3, 91–102.

Watts, R. L., Zimmerman, J. L. (1990), “ Positive Accounting Theory: A Ten Year Perspective”, *The Accounting Review*, vol. 65, .131-156.

Yu, F. (2008), “ Analyst Coverage And Earnings Management”, *Journal of Financial Economics*, vol. 88, no.2, 245–271.

### **Appendix: Disclosure index**

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#### **(SS) Score relative to strategic information**

<u>(S-1) General corporate information:</u>	<u>Score</u>
Brief history of company	1
Organizational structure/chart	1
General description of business/activities	1
Principal products	1
Principal markets	1
<u>(S-2) Corporate strategy:</u>	<u>Score</u>
Statement of corporate goals or objectives	1
Current strategy	1
2	
Impact of strategy on current results	1
2	
Future strategy	1
2	
Impact of strategy on future results	1
2	
<u>(S-3) Management discussion and analysis:</u>	<u>Score</u>
Review of operations	1
2	
Competitive environment	1
2	
Significant events of the year	1
2	
Change in sales/profits	1
2	
Change in cost of goods sold	1
2	

Change in expenses	1
2	
Change in inventory level	1
2	
Change in market share	1
2	
<b>(S-4) Future prospects:</b>	<b>Score</b>
New developments	1
2	
Forecast of sales/profit	1
2	
Assumptions underlying the forecast	1
2	
Order book or backlog information	1
<b>(S-5) Other useful strategic information:</b>	<b>Score</b>
-----	1
2	
-----	1
2	
-----	1
2	
<b>Sub total (A)</b>	<b>43</b>

**(SNF) Score relative to non financial information**

<b>(N-1) Employee information:</b>	<b>Score</b>
Number of employees	1
Compensation per employee	2
Value-added per employee	2
Productivity indicator	2
<b>(N-2) Other useful non-financial disclosure :</b>	<b>Score</b>
-----	1
2	
-----	1
2	
-----	1
2	
<b>Sub total (B)</b>	<b>13</b>

**(SF) Score relative to financial information**

<b>(F-1) Performance indicators (not from financial Statements):</b>	<b>Score</b>
Historical figures for last five years or more	2
Turnover	1
Profit	1
Shareholders funds	1
Total assets	1
Earnings per share	1
<b>(F-2) Financial ratios:</b>	<b>Score</b>
ROE	1
ROA	1
Gearing ratio	1

Liquidity ratio	1
<u>Other useful ratios:</u>	<u>Score</u>
-----	1
-----	1
-----	1
 <u>(F-3) Projected information:</u>	 <u>Score</u>
Cash flow forecast	2
Capital expenditures and/or R&D expenditures forecast	2
Earnings forecast	2
<u>(F-4) Foreign currency information:</u>	<u>Score</u>
Impact of foreign exchange fluctuations on current results	1
2	
Foreign currency exposure management description	1
2	
Major exchange rates used in the accounts	1
<u>(F-5) Other useful financial information :</u>	<u>Score</u>
-----	1
2	
-----	1
2	
-----	1
2	
<b><u>Sub total (C)</u></b>	<b><u>31</u></b>
<b><u>Total (Company DScore)</u></b>	<b><u>87</u></b>

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