

## An Empirical Study of the Determinants of Profit Forecast by Tunisian Managers

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### Abstract

The aim of this paper is to empirically explain differences in levels of publication of forecast information observed in a sample of companies by a number of characteristics of these companies (such as the level of debt, age, size or level of profitability of companies observed). On the basis of a data relating to 50 Tunisian firms listed in the Tunisian Stock Exchange in 2010, our findings shows that profitable companies belonging to high-tech sectors and involve insiders in the decision provide more detailed and credible than other forward-looking statements.

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**Keywords:** Disclosure score, financial communication, stock exchange, managers, detailed information, Tunisian firms

### Introduction

In front of importance of the companies in economic growth, the study of the determinants of publication of forecast information by leaders remains a significant topic.

Many empirical studies were made on this topic. The purpose is to try to explain the differences in levels of publication observed

in a sample of firms with a number of features. The methodology consists in a first step, to measure the level of publication of each of the companies in our sample, depending on the objective. To this end, we can distinguish a large class of studies: Raffournier (1995), Depoers (2000), Percy (2000) and Stolowy and Ding (2003). In these studies, the publication level is measured as a score of publication relating to a pre-established list, either as a count of qualitative and quantitative data.

In a second step, the authors attempt to link different levels of publication obtained to

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the determinants that may explain the differences in the behavior of leaders. The choice of explanatory variables is usually induced by a supporting publication of information theory. The authors of this research use a single operational definition as regards the measurement of levels of publication.

During the last decade, conflicts of interest seem to exist between investors and analysts because the latter are frequently used by banks in business relationship with companies followed. The disciplinary role of analysts has been argued by Dubois and Dumontier (2006). Despite this, it seems that their announcing forecasts or recommendations impact the behavior of investors, judged in some cases, by the financial market.

In this context, the objective of this research is to analyze the level of detail of the publication of forecast information published by managers. Thus, the question is to know whether the information on the profit forecasts available to companies predict satisfactorily the evolution of stock prices and hence cause a reduction in information asymmetry between managers and shareholders.

Bughin *et al.* (2007) note that the use of information has an important effect on the value of the company, the interpretation of its financial statements by investors and the decision to buy, sell or hold securities of the

company. Indeed, companies must face this need for information from the majority of stakeholders in the financial market especially investors in order to make the best decisions as for economic growth and are grant more confidence to the security.

In addition, the forecast information should reduce the information asymmetry between the managers of the company and investors.

It is therefore important to know the determinants of the level of detail of the forecast information. To our knowledge, this work is the first to examine the relationship between the level of forecast information and the reliability of profit forecasts.

The first part continues with a review of literature on the impact of the publication of information about managers by exposing the methodology used as well as the empirical results obtained and presented in the second part of this article.

## **The information required as part of the profit forecast**

### **A literature review**

This study helps to understand the determinants of the level of detail in forecast information. This understanding is important since detailed forecast information is likely to reduce information asymmetry between managers and investors.

To ensure quality and data matching, accounting law sets the amount of accounting and financial information to disclose by financial analysts and companies. The set of publication requirements, which companies must comply is grouped under the term “financial reporting”. It is up to quoted companies to file annual accounts and management report to the court, and to publish the quarterly turnover achieved. The financial analyst completes the role of companies by providing additional reliable and forward looking statements.

This part aims to identify tools for classifying information and more specifically to test their direct or indirect impact on the forecast information. To the extent that these factors help explain the behavior of leaders in the dissemination of forecast information both financial and non-financial studied by Cheng and Courtenay (2006) and Cormier *et al.* (2006), they propose that these factors thus determined, enable in the same way to influence the control practices of forecasting information.

This work is in a slightly different prospect as it examines the level of detail in the forecast information published. The hypotheses tested in this study of the determinants of the level of detail of information publication (Score) are the following:

**H1:** The percentage of shares held by directors is positively associated with the level of detail of information.

**H1’:** The percentage of shares held by directors is negatively associated with the level of detail of information.

Faccio and Lang (2002) found that the leaders will work in the interests of shareholders as holders of control block. Haniffa and Cooke (2002) found a positive association in Malaysia justifying the non-need for the financial intermediaries.

**H2:** The level of detail of the forecast information increases with the age of the firm quoted.

**H2’:** The level of detail of the forecast information decreases with firm age quoted. Clarkson, Dontoh, Richardson and Sefcik (1992) were based on the signal theory to explain the profit forecast. The older companies are encouraged to provide more detailed forecasts to distinguish themselves from other ones.

Debreceeny and Rahman (2005) note the oldest firms with better control over their market, are able by themselves, to collect detailed and reliable forecast information to construct an identical image which is specific to them.

**H3:** The longer the forecast horizon is, the less detailed the forecast information will be.

**H3'**: The longer the forecast horizon is, the more detailed the forecast information will be.

Dumontier (2003) suggests that the manager cannot provide earnings forecast over a long enough horizon, even if he knows his market quite well, he often meets obstacles and difficulties related to situations arising later.

Jog and McConomy (2003) postulate that if the company is able to produce profit forecasts over a long horizon, is that it knows the market and as a result, provide more detailed information.

**H4**: The capital structure (Indep) should present a positive association with the level of detail of information.

La Porta *et al.* (2000) note that external investors wishing to participate in the capital of the company require reliable and credible forecast information.

Dumontier and Raffournier (2002) specify a need for reducing the information asymmetry between managers and investors who demand a certain level of detail of this information, which meets the needs of the latter.

**H5**: The detail of the information is positively associated with membership of the company to an audit agency of good quality (Audit).

According to Chalmers and Godfrey (2004), the audit quality provided by auditors of large firms leads to an increase in the accuracy of financial information.

**H6**: The level of detail of information should be higher in large firms.

**H6'**: The level of detail of information should be higher in small firms.

In some studies, the association between firm size and level of detail of information is not significant. Prencipe (2004) explains that large companies already have a better understanding of their market. Other results, Eng and Mak (2003) and Cormier *et al.* (2005) show up the weakness of this hypothesis and explain that the demand for pertinent forecast information should to grow with large companies rather than with the small ones.

**H7**: The level of debt is positively associated with the level of detail of information.

**H7'**: The level of debt is negatively associated with the level of detail of information.

Ferguson *et al.* (2002) shows that highly indebted firms may have difficulty to raise new financing. These investigations show a negative association of debt on the level of detail of information published. However, Eng and Mak (2003) found a positive association between the level of debt and

the level of detail of the information published in Singapore.

**H8:** The higher the activity sector is sensitive to economic fluctuations, the detailed information is more important.

The forecasts are difficult to establish when it comes to high-growing sector. Indeed, Entwistle (1999) and Stolowy and Ding (2003) found that innovative firms are more likely to achieve higher results than firms operating in traditional sectors and should therefore publish more reliable information.

**H9:** The level of detail of information is positively correlated with levels of profitability.

**H9':** The level of detail of information is negatively correlated with levels of profitability.

Garcia (2002) shows a positive influence of the firm profitability on the level of information. This argument implies the importance of communication when the financial result of the company is high. The relationship between disclosure and the level of profitability has been studied unsuccessfully on a sample of UK companies by Williams (2001).

**H10:** The level of detail of information decrease with the share of insiders in the company.

Haw, Hu, Hwang and Wu (2004) argue that firms with high share of insiders are more

politically visible and use the information for strategic purposes to make transfers of wealth in favor of government.

**H11:** The level of detail of information increase with the level of executive control by majority shareholders.

**H11':** The level of detail of information decrease with the level of executive control by majority shareholders.

Clarkson *et al.* (2003) argue that the presence of shareholders increases the publication of information. However, Eng and Mak (2003) show that the presence of shareholders decreases the publication of forward-looking information by management.

## **Empirical results**

### **Data and model specification**

In order to analyze the level of detail of the publication of forecast information published by managers, we constituted a sample of 50 companies listed on the stock exchange of Tunis (Tunis Stock Exchange), we have included all companies listed on the stock market in 2010, and as this: Leventis and Weetman (2004) and Hassan *et al.* (2006).

Our questionnaire to companies listed on the stock market for end to calculate the score they give useful forecast information published in annual reports. However, the variable to be explained based on research

data emerging from the questionnaires led to financiers who work in these companies. We have 50 questionnaires circulated directly to companies during the months of March and April 2012. We have prepared a response rate that is 100%.

Within the framework, we check the assumptions evoked before. With this intention, it is necessary to choose a suitable methodology which makes it possible to study the determinants of publication of financial documents and their justification. To assess the determinants of forecast information, we consider the following model:

$$Score\ I = 0 + 1(Age) + 2(Audit) + 3(Horiz) + 4(Indep) + 5(Insid) + 6(Part\ M) + 7(ROE) + 8(Det) + 9(Sect) + 10(Size) + 11(Indebt) + i \quad (1)$$

**Calculation of information publication overall score**

The variable of the study to explain corresponds to a score that measures the

level of detail of the information published by companies in the sample. For each company a score was calculated from a list of 49 items that companies are likely to spread. The approach is dichotomous: a list of information takes the value 1 if passed; otherwise it is set to 0.

For each of the 50 companies in the sample observed, a score of publication is calculated. This score is the sum of points obtained from the survey conducted among the quoted companies and after reading the annual report hence:

$$ST_i = \sum_{j=1}^n S_j$$

With:

- ST<sub>i</sub>: Total score of firm i
- n: number of items in the index
- S<sub>j</sub>: Score of item j = 1, if the item is published and 0 otherwise.

**The explanatory variables**

We classify the explanatory variables to improve the model specification.

**Table 1: Definition of the explanatory variables**

Hypotheses tested	Operational definition	Operational name	Sign	Data source
Property structure	% Detention of managers	Det	+/-	Annual report
Age	Ln(Age)	Age	+/-	Annual report
Horizon	Forecast horizon in years	Horiz	+/-	Annual report
Capital structure	<b>Equity</b> <hr/> <b>Total liabilities</b>	Indep	+	Annual report
The quality of the audit agency	0: bad practice 1: good practice (binary variable)	Audit	+	Annual report
Size	Ln (total assets)	Size	+/-	Annual report
Indebtedness		Indebt	+/-	Annual report

Sector of activity	dichotomous variable High technology: 1 Other: 0	Sect	+	Annual report
Level of profitability	<u>Net income</u> <u>Equity</u>	ROE	+/-	Annual report
Visibility of insidres	% of insiders	Ins	-	Annual report
Corporate governance	Share of majority shareholders	Maj share	+/-	Annual report

### Results and interpretation

Based on the various variables presented before, the sample of our study shows the

distribution characteristics summarized in the table 2.

**Table 2: Descriptive statistic**

Variables	Observations	Mean	St. Dev.	Minimum	Maximum
Score	43	26,209	14,676	2,000	49,000
Age	43	40,232	23,288	8,000	97,000
Audit	43	0,296	5,933	-36,871	9,462
Horiz	43	3,046	1,271	1,000	5,000
Indép	43	24,370	147,57	0,034	96,781
Insid	43	0,296	0,197	0,054	0,800
PartM	43	0,464	0,184	0,200	0,800
ROE	43	5,223	36,166	-236,77	6,842
Det	43	0,068	0,163	0,000	0,767
Sect	43	0,0434	0,206	0,000	1,000
Size	43	18,813	2,457	14,161	25,364
Indebt	43	16,035	2,777	9,168	20,190

This table presents the descriptive statistics, (mean, standard deviation, minimum and maximum) of the continuous variables.

The score mean level is about 26.209. It varies between 2 and 49. We notice that the average is between the minimal and the maximal value of the score, the same way, as for the part of the majority shareholders in the capital. This leads to conclude that leaders are still cautious about the publication of forecast information. Moreover, the standard deviation of the variable score measured by the level of detail of the forecast information makes it possible to conclude that this indicator is

volatile (14,676), while that from the majority shareholders is not.

The average age of the companies of our sample is 40,232. It varies between 8 and 97. This lead to conclude that on average, the Tunisian companies of our sample are older. In addition, we find that the volatility of this indicator is high (23,288). It is possible to note that this indicator is not significant.

The average membership of the company to a firm of good quality is equal to 0.296. It varies from -36.871 and 9.462. This leads to conclude that this indicator reduces the level of detail of the forecast information. In addition, it has a very high volatility (5.933), this implies that the audit is not significant for the whole sample.

The average forecast horizon is equal to 3.046. It varies between 1 and 5. We can conclude that the average Tunisian listed companies display their forecast for a short period to provide detailed forecasts. In addition, we note that the volatility of this variable is low (1.271).

The capital structure mean level is about 24,370. It varies between 0.034 and 96.781. We notice that the average is closer to the minimal value of the capital. It's enabling to conclude that the Tunisian companies are still reticent as for publishing their capital structure. However, we find that the volatility of this variable is very high (147.57). This variable implies that the capital structure is not significant for the entire sample. As for the part of insiders, the average of their holdings in the capital is about 0,296. It varies between 0.05 and 0.8 and it is closer to the minimum value, where we find that the level of detail of the information decreases with the share of insiders in the company. In addition, the volatility of this variable is low (0.197), this means that it is significant for all companies.

The average return on capital is 5.22. It varies between 6,848 and -236.77. We note that the average is closer to the maximal value of profitability. This leads to conclude that the Tunisian profitable companies are not reticent about the publication of forecast information.

The average number of shares held by directors is about 0,068. It varies between 0 and 0,767. We note that the average is closer to the maximum value. This result leads us to admit that there is an additional offer of forward-looking statements by the leaders. Also, its standard deviation makes it possible to notice that this indicator is not too volatile for the entire companies (0.163).

The average level of belonging to a high-tech sector is about 0.043. This level is framed by 0 and 1. In addition, we find that this indicator is not volatile for entire societies (0.206). We conclude that companies operating in high-tech sectors emit the best results.

The average size of the companies of our sample is 18.813. It varies between 14,161 and 25,364. This implies that on average, the companies of our sample are of big size. However, we notice that the volatility of this indicator is high (2.457), this value implies that the size varies in a non-significant sense for the entire companies. The same way, as for the level of debt, the

companies have a high level of debt, find more difficult to raise new funds.

In order to determine the correlations between the various variables, we present

the correlation matrix in Table 3. It concludes that there is not a problem of colinearity. Therefore, we are not obliged to take corrective action. In fact, the highest correlation is about (0,515).

**Table 3: Correlation matrix**

Variables	Age	Audit	Horiz	Indep	Insid	Partm	ROE	Det	Sect	Size	Indebt
Age	1										
Audit	0,053	1									
Horiz	0,252	0,023	1								
Indep	0,076	0,242	0,238	1							
Insid	0,239	0,014	0,139	0,009	1						
Partm	0,100	0,220	0,036	0,199	0,514	1					
ROE	0,123	0,065	0,215	0,064	0,076	0,082	1				
Det	0,067	0,049	0,105	0,068	0,038	0,288	0,100	1			
Sect	0,260	0,033	0,135	0,044	0,106	0,046	0,019	0,279	1		
Size	0,147	0,260	0,177	0,136	0,204	0,230	0,023	0,169	0,201	1	
Indebt	0,003	0,198	0,177	0,024	0,133	0,222	0,002	0,229	0,245	0,515	1

The result of the model presented in Table 4 shows, that the proposed model is explained 74.10% of the Durbin-Watson statistics are

almost equal to 2, hence no problem of autocorrelation.

**Table 4: Estimation of model**

Variables	Coefficients	Prob.
C	10.91384	0.4604
AGE	-0.048968	0.3993
AUDITEUR	-0.720105	0.8674
HORIZ	-1.073365	0.4296
INDEP	-0.004130	0.2735
INSIDER	* -28.73049	0.0021
PartM	6.178852	0.5507
ROE	** 0.042528	0.0289
DET	13.25140	0.2234
SECT	** -14.52086	0.0491
SIZE	0.386810	0.6006
INDEBT	-0.073763	0.9106
R <sup>2</sup>		0.740802
R <sup>2</sup> adjusted		0.637122
Stat Durbin-Watson		1.671281

\*\*\* Significant at 1%; \*\* significant at 5%; \* significant at 10%

**-Age:** The estimation results show that the coefficient associated to this variable ( $\alpha = -0.048$ ) is negative, implying that the age of the society negatively affects the level of detail in forecast information. However, this coefficient is not significant; therefore, the age of the company is not an explaining factor of the level of detail of information. This conclusion enables us to reject the second hypothesis ( $H_2$ ).

**-Audit:** The results show that the coefficient on this variable is negative ( $\alpha = -0.720$ ), this means that belonging of the society to an agency of good quality reduces the level of detail in forecast information, which is contrary to the theory. Similarly, the results show that this coefficient is not significant. Therefore, we reject the fifth hypothesis ( $H_5$ ).

**-Horizon:** The coefficient related to this variable ( $\alpha = -1.073$ ) is negative, this means that the forecast has a negative impact on the level of detail of information. Also, the coefficient is not significant, leading to confirm that the forecast is not a determinant of the level of detail of information. This result leads to reject the third hypothesis ( $H_3$ ).

**-Independence:** The estimated coefficient for this variable ( $\alpha = -0.004$ ) is negative, this supports that the capital structure reduces the level of detail of information; moreover, this coefficient is not significant,

which leads to reject the fourth hypothesis ( $H_4$ ).

**-Share insider:** The results show that the coefficient on this variable is negative ( $\alpha = -28.730$ ), this implies that the share of insiders reduces the level of detail of information. Moreover, the coefficient on this variable is statistically significant at a risk threshold of 1%. The share of insiders in society is a determining factor in the level of detail of information. These results allow accepting the tenth hypothesis ( $H_{10}$ ).

Indeed, the leader is willing to adapt its financial reporting, conflicts of interest arise, and consequently, the insiders cannot judge the actions of rulers against them.

**-Majority shareholders:** The results show that the coefficient on this variable ( $\alpha = 6.178$ ) is positive. Furthermore, the coefficient associated to this variable is not statistically significant. This leads to reject the eleventh hypothesis ( $H_{11}$ ) which states that the level of detail should increase with the percentage of majority shareholders.

**-ROE:** As for the variable representing the return on equity, the results show that the coefficient ( $\alpha = 0.042$ ) is positive, implying that the return on equity has a positive impact on the level of detail of information, especially this coefficient is significant at a threshold risk equal to 5%. This conclusion can accept the ninth hypothesis ( $H_9$ ) assuming that the level of detail of

information is positively correlated with the level of profitability.

Therefore, the most successful companies are those that provide more detailed forecast information to justify the long-term forecasts and to distinguish themselves from the other ones.

**-Sect:** The results show that the coefficient for this variable is negative ( $\alpha = -14.520$ ), which implies that the belonging to a high-tech sector has a negative impact on the level of detail of information. However, this coefficient is significant at a threshold risk equal to 5%. This conclusion may accept the eighth hypothesis ( $H_8$ ) which the companies that belong to a high-tech sector provide more reliable information than other ones.

We conclude that innovative and high technology companies are more likely to achieve greater results than the companies operating in traditional sectors.

**-Size.** The results show that the coefficient for this variable is positive ( $\alpha = 0.386$ ). On the contrary, this coefficient is not significant. Therefore, size is not a factor explaining the level of detail in forecast information. This conclusion may reject the sixth hypothesis ( $H_6$ ).

**-Indebt.** The coefficient for this variable ( $\alpha = -0.073$ ) is negative, moreover, this coefficient is not significant, confirming

that the debt is not a determinant of statements communication strategy. This result allows us to reject the seventh hypothesis ( $H_7$ ). We find that the most leveraged companies find it more difficult to raise new funds, and therefore, will disseminate false information about their situation

## Conclusion

The aim of this paper is to identify the determinants of forecast profits growing Tunisian firms to voluntarily disseminate reliable and detailed information. To identify the characteristics of the Tunisian context, we used a qualitative and quantitative study based on interviews as well as the financial statements with annual reports review.

From this qualitative and quantitative study, we have deduced that the most successful companies are able to provide earnings forecast detailed and reliable than others in order to maximize their financial value. The study also shows that companies which involve insiders in decision making belonging to sectors of high technology provide more detailed and credible than other companies. The importance of financial forecasting, their contribution to economic growth, the inability of financial accounting to reflect the true forecast values and the emergence of the concept of social responsibility have developed among

investors and other agents growing need for detailed and credible information.

However, until now, there is no consensus model to impose the direction of future events evolutions steering. Hence, this work could have implications for stock market regulators since they suggest an obligation to publish very detailed forecast information that improve the efficiency of the Tunisian market.

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**ANNEXES**

**Question to company manager**

Please indicate the degree of importance you attach to each of the following information items that may be disclosed in annual reports of companies listed on the BVMT.

1. Important, 0. Not important.

<b>Pieces of information of the analysis grid Botosan (1997)</b>		
<b>1 - Information on the goals and strategies of the company</b>		
Presentation of company goals	0	1
Presentation of the general strategy of the company	0	1
Discussion of actions taken during the year to achieve the objectives	0	1
Discussion of actions to be undertaken in future years	0	1
Presentation of a timetable for reaching the targets set	0	1
<b>2 - non-financial information</b>		
Publication of information on the number of employees	0	1
Publication of information on the backlog	0	1
Publication of information on the percentage of orders to be delivered next year	0	1
Publication of the percentage of sales for products in the past five years	0	1
Publication of information on market share	0	1
Publication of information on the amount of new orders placed this year	0	1
Publication of information on sales growth in key regions for which no segment information is produced	0	1
<b>3 - Forward-looking information</b>		
Discussion of the impact of the opportunities the company on future sales or profits	0	1
Discussion of the impact of risks facing the company sales and future profits	0	1
Comparison of profit forecasts with actual earnings of the year	0	1
Comparison of sales forecasts with actual sales of the year	0	1
Presentation of cash flow forecasts	0	1
Presentation of forecast capital expenditure or R & D costs	0	1
Presentation of forecast market share	0	1
Presentation of cash flow forecasts	0	1
Presentation of forecasts of future profits	0	1
Presentation of forecasts of future sales	0	1

<b>4 - Information on analysis of management</b>		
Change in operating profits	0	1
Change in net income	0	1
Change in capital expenditures or costs of R & D	0	1
Change in inventories	0	1
Change in sales	0	1
Change in receivables	0	1
Change in market share	0	1
<b>Items of information added to the analysis grid Botosan (1997)</b>		
<b>5 - Financial Information</b>		
Publication of information on the capital structure	0	1
Publication of information on the variation in turnover	0	1
Publication of information on the history of the stock price	0	1
Market perception about the value of the company	0	1
Publication of information and amounts on advertising expenses	0	1
Publication of information on the financial value	0	1
Publication of information on capital employed	0	1
Publication Information on the liquidity ratio	0	1
Publication of information on the PER	0	1
Publication of information on other financial ratios	0	1
<b>6 - Information on earnings forecast</b>		
Publication of information on the evolution of stock price	0	1
Publication of information on the profitability of the securities of shareholders	0	1
Presentation of operating income forecast future	0	1
Existence of a summary table of key figures	0	1
Explanation of variations between previous forecasts and realizations	0	1
Future cash horizon from 2 to 5 years	0	1
<b>7 - Information published in annual reports</b>		
Publication of annual report	0	1
Publication of Financial Statements	0	1
Publication of reports of the auditor	0	1
Presentation of EBE, VA and operating income	0	1