The Impact of Information Disclosure on the Performance of Listed Tunisian Companies and Investor Behavior

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Abstract: Financial communication plays a significant role in creating a true and fair image of the company. It is an important source for investors who are always looking for reliable information for possible decision-making. A company's performance undoubtedly depends on its attractiveness to investors, especially in the current circumstances marked by increased competition. This article focuses on the impact of financial information disclosure on investor behavior and the performance of listed Tunisian firms. In this contribution, we presented an empirical study that addresses the effect of information disclosure, measured by the disclosure index, on the performance of listed Tunisian companies, measured by the ROA ratio, and on investor behavior, measured by the key investment behavior indicator "investment value I." Our sample was drawn from 30 Tunisian companies listed on the Tunis Stock Exchange over the period 2015-2019. The results of our study show the presence of a negative effect of disclosure on the performance of Tunisian companies. On the other hand, information disclosure positively affects investor behavior.

Keywords: Information disclosure, performance, investment behavior, financial information.

1. INTRODUCTION

Over the past few decades, financial markets have experienced significant upheavals following a succession of exceptional events such as the COVID-19 pandemic and the Russia-Ukraine war. The global financial situation is fragile and uncertain. This significantly affects the performance of firms and also the behavior of investors, given the uncertainty in the markets and, in particular, the lack of information, resulting in the emergence of illegal practices that further aggravate the financial situation on a global scale.

Moreover, in recent years we have witnessed the significant spread of financial scandals and fraud trafficking, this is due to the remarkable impact of the dissemination of financial information on investor behavior. As a result, the disclosure of financial information now occupies an important place in recent studies that address the impact of the latter on investor behavior. Libaert (2018), Souleymanou &Hikkerova (2018) Léger (2008).

Information disclosure in companies is a phenomenon studied from different theoretical perspectives. Agency theory is the main theory that has addressed the concept of information disclosure. Jensen and Meckling (1976) developed this agency theory which focuses on the conflict of interests between owners (principals) and managers (agents) of a company. Managers have access to information that owners do not have, which can lead to opportunistic behaviors that affect the performance of companies.

Similarly, the objective of information disclosure is to ensure a certain level of transparency to manage the relationship between the performance of the firm and the behavior of investors. Also, the stakeholder theory developed by R. Edward Freeman addresses the effect of detailed information disclosure on reducing information asymmetry and conflicts of interest to meet the expectations of stakeholders.

Information disclosure is of particular importance in the functioning of financial markets and in corporate management. Indeed, effective and transparent disclosure can improve corporate performance by facilitating access to capital, lowering the cost of capital, and strengthening investor confidence. In addition, it directly affects investor behavior by affecting their investment decisions and their assessment of companies. Overall, the quality and clarity of disclosed information are fundamental to the health of financial markets and corporate performance.

This research focuses on the impact of financial information disclosure on both investor behavior and the performance of companies listed on the Tunis Stock Exchange. In fact, our choice of the subject is justified by three points. The first point lies in the importance of the theme of financial communication, which is a topical issue and whose importance is highlighted following the occurrence of exceptional events, especially the Covid-19 health crisis, which has confirmed that financial communication can ensure balance in financial circles.

The second point is that the current policy of our country, Tunisia, pays particular attention to updating means of communication through the use of new technologies. Indeed,

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Tunisia is the first Arab and African country connected to the Internet since 1991.

In addition, the recent legislative framework on information disclosure has undergone significant changes in Tunisia, especially with Decree-Law No. 2022-54, the announced restrictions make Tunisia subject to strict control, with the possibility of legal action for those considered to be spreading "false" information, whether in journalism or in general communications. And the third point lies in the research of the impact of information disclosure on the performance and behavior of Tunisian investors. Indeed, we also aim to detect a possible interaction between performance, shareholder behavior and information disclosure,

We therefore seek answers to the following question:

What effect does the disclosure of financial information disseminated by the Tunis Stock Exchange have on investor behavior and the performance of listed Tunisian firms?

Information disclosure exposes one of the mirages of corporate strategy that affects investor choices and firm performance. In what follows, we present a literature review that focuses on the results of key previous research, and secondly, we focus on the Tunisian context given the announcement of Decree-Law No. 2022-54.

Generally, in the majority of investor behavior models, the way in which information is disseminated has little effect on portfolio choice, but several laboratory experiments actually confirm that the display of information on portfolio risk-taking largely disappears. Khan et al. (2023) argue that better quality of disclosed financial information allows for the improvement of investment decisions through the reduction of information asymmetry problems and agency costs, and thus results in the reduction of under- and over-investment. The authors also show that increasing the reporting frequency can be beneficial since it lowers the cost of capital. Frydman and Rangel (2014), Beshears et al. (2017).

Previous studies have widely proven that financial information disclosure significantly affects investor behavior and firm performance. Firms that display transparent and reliable information generally benefit from better investor perception and higher valuation in financial markets. In this regard, Cheung et al (2000) point out that information disclosure has a positive and significant effect on firm performance.

However, other authors such as Dhaliwal et al (2012), show the existence of a negative effect. Based on stakeholder theory, the market value of a firm depends largely on its ability to meet the demands of the latter Shakil, (2021). As institutional investors are one of the main stakeholders of companies, they attach particular importance to political orientation and public needs, including product quality and humanitarian needs (Cao, Titman, Zhan and Zhang, 2020). The recent exceptional event of the COVID_19 pandemic may lead investors to reexamine the impact of this health crisis on the performance of firms. Garel and Petit-Romec, (2021).

In such circumstances, investors assess risks and expect returns based on the non-financial information provided by companies. JABRANE et al. (2024) examine the influence of the quality of financial communicationthe investment decisions of institutional investors, the results indicate that con-

firmed that the quality of financial communication indeed affects the investment decisions of institutional investors in Morocco.

Generally the behavior of the investor depends on the information displayed that is why we look at irrational practices, inexplicable since they are based in particular on the emotions of investors.

Indeed, we are talking about noisy traders (noise that attracts the most novice traders) who present the greatest sensitivity to the disclosure of information, also to the upward and downward trends of the financial markets) where decisions are impulsive and irrational which are influenced by emotions, fear and greed. Khan et al. (2023), Dimpfl (2018).

2. RESEARCH METHODOLOGY

2.1. Presentation of the sample

In this research, we are exclusively interested in Tunisian companies listed on the Tunis Stock Exchange. The data were collected through the DATASTREAM database over a period between 2015 and 2019. The main objective of this study is to determine whether the relationship between information disclosure, performance and investor behavior depends on each other.

We eliminated from our sample financial companies that are subject to very specific standards for which the techniques used differ from other non-financial companies.

2.2. Definition and Measurement of Variables

The advantages of panel data are multiple. This method allows to increase the number of observations, to reduce the problem of collinearity between the explanatory variables especially, when it is a small number of years (Sevestre, 2002). In addition, it allows to test more complete models. Panel data reduce the bias of estimation of the coefficients (Arouri and Rault, 2010)

On the other hand, the major drawback of panel data is that this method assumes homogeneous behavior of endogenous variables for all individuals in the sample.

We first present the variable to be explained (dependent/endogenous variable), then the explanatory variables (independent/exogenous variables and control variables), and finally the model used.

Dependent Variables

(i) Performance:

Performance, in its various measures, is the endogenous variable influenced by the other variables in our estimations. Referring to previous literature, performance has been captured by various measures such as ROA, ROE, ROI, and Tobin's Q. For the purposes of this research, we select a key performance indicator: return on assets (ROA).

Indeed, the ROA ratio is a financial ratio that measures the company's competitiveness and management effectiveness.

(ii) Disclosure:

Several studies have attempted to identify variables that explain variations in the level of corporate disclosure using association tests, mean comparisons, or linear or logistic regression. In our study, we focus on a key disclosure indicator: the disclosure index.

Indeed, the commonality relates to the methodology used to construct a disclosure index that allows each company to be assigned a score.

(iii) Investor:

Investor behavior is the endogenous variable influenced by the other variables in our estimations. Based on previous literature, investor behavior has been operationalized as overconfidence, group effect, and disposition.

As part of this research, we selected a key behavioral indicator: investment (I).

In fact, investment is a financial ratio that measures the effectiveness of an investor's

Summary Table of Variables

Variable	Definition
T	Log of total assets
END	Total debt / total assets
DRD	All intangible assets
Liquidity	Short-term assets/short-term liabilities
Beta	Market risk Sensitivity of a stock to market movements as a whole
S	Grouping of companies according to their nature of activity
Leverage	Rate of return on economic assets after tax / cost of debt

2.3. Presentation of the Empirical Study Model

We attempted to demonstrate the potential interaction between performance, investor behavior, and financial information. We used the Simultaneous Equation System (SES) estimation technique applied to a sample of companies listed on the Tunis Stock Exchange. The model is presented in the form of three equations.

The simultaneous equation model is developed for dynamic panels with different effects for each individual.

In the context of a simultaneous equation model, the focus is on justifying the equality between a variable and a set of variables, including an error term. The convergence of the solution is related to the progression of the variable to be explained by its exogenous variables. The better a variable describes its fluctuation through variance or combined dispersion indicators, the greater its significance based on the Student t test. The unknowns of the model are the

coefficients that determine the contribution shares along the path of the reduced endogenous variable. The estimable equation is a contradictory identity, requiring a resolution based on the diagnosis of the equality relationship between a variable and a set of associated variables, including an error term, which is obtained by estimating the parameters.

The accounting equation is fixed by an exact relationship and does not require estimation. In this sense, the more a relationship is not exact, the more it is estimable and therefore provided with an error term which degrades the perfect balance of the equation.

The simultaneous equation model is given by:

This section presents the econometric model, the data used, and the estimates obtained over the period 2015–2019. We ran a model that contains three equations.

Table descriptive statistics.

Variables	observation	Mean	Standard Deviation	Minimum	Maximum
ROA	150	0.0582346	0.1011108	-0.643885	0.3383228
I	150	4.73e+07	1.33e+08	-1.97e+08	8.33e+08
T	150	8.118468	0.5460453	6.23	9.565095
End	150	0.798237	3.203896	0.00987	39.69938
DRD	148	0.0052218	0.0081044	0	0.0582154
L(liquidité)	150	44.39233	113.2139	0.4295208	903.6048
L(levier)	150	-68.34394	319.6556	-3482.867	11.89199
Di	150	0.6173933	1.181988	0	9
S	150	2.466667	1.121281	0	4
Beta	150	.5984667	.4660483	-.35	1.88

Note: le ROA est le rendement des actifs (résultat net/ total des actifs), le I est l'investissement (ressources- emplois).

Table **2** presents the statistics relating to information disclosure, investor and performance, for the companies in our sample for the year 2015-2019. It also presents a summary of the descriptive statistics for the control variables namely: company size, debt, sector of activity and financial leverage.

The average performance of Saudi companies in our sample during the period 2015-2019 is statistically lower than that of investment and disclosure, equal to 0.0582346, 4.73, and 0.6173933, respectively.

We can see the same thing for the standard deviation, which is higher for investment than disclosure than performance, 1.33 compared to 1.181988 and 0.1011108, respectively.

The maximum for disclosure is high compared to that for investment and performance, reaching a maximum of 9 for disclosure, which is significantly higher than the maximum

for investment, which does not exceed 8.33. In contrast, performance amounts to 0.3383228. The same observation is made for the minimum performance, it is higher in comparison with that of the investment, this Min reaches respectively -0.643 and -1.97 during the sample period. This means that the more the company is open to disclosing information, the more it invests, and therefore has a positive performance.

To check for multicollinearity issues between independent variables, we calculate the correlation coefficients be-

tween the different variables. A correlation coefficient expresses the degree of the linear relationship between two variables. This coefficient varies between -1 and 1. The closer it is to 1, the more positive and strong the correlation between two variables is, that is, their relationship is strongly and positively linear. If this coefficient is close to -1, we conclude that the two variables are negatively and linearly dependent. The matrix below presents the different correlation coefficients between our study variables:

Année	ROA	I	DI
2015	0.0426415	3.93e+07	0.6466333
2016	0.0512715	3.97e+07	0.5161667
2017	0.0584967	3.79e+07	0.4628333
2018	0.0732428	5.75e+07	0.6658333
2019	0.0655204	6.22e+07	0.7955
Total	0.0582346	4.73e+07	0.6173933

	ROA	I	T	End	DRD	L	L	Di	S	Beta
ROA	1.0000									
I	0.1018	1.0000								
T	0.0596	0.4967	1.0000							
End	-0.5950	-0.0320	-0.2582	1.0000						
DRD	-0.0860	-0.0815	-0.0238	-0.0321	1.0000					
L	0.1576	0.0454	-0.1040	-0.0446	-0.0740	1.0000				
L	0.0459	0.1067	-0.1717	-0.0063	-0.1590	0.0753	1.0000			
Di	0.2215	0.0402	0.0053	-0.0555	-0.0196	0.0438	0.0182	1.0000		
S	-0.0259	0.0145	-0.1543	0.0235	-0.0456	0.0517	0.0837	0.2894	1.0000	
Beta	0.2596	0.2420	0.0666	-0.1222	0.0238	0.0076	0.1115	-0.1229	0.0657	1.0000

Before proceeding with the regression analysis, we performed a correlation analysis of the variables included in our model.

First, the correlation matrix presented in Table 3 (above) shows that there is no significant correlation between the independent variables, which limits the risk of multicollinearity in the regressions we will use to validate our research hypotheses. Second, we observe a positive but relatively weak correlation between the dependent variables representing the level of information disclosure, performance, and investment.

We can infer a positive relationship between disclosure, performance, and investment (DI, PERFO, and I). The higher the disclosure, the greater the increase in performance. This confirms the results of Jiao (2011), Botosan and Plumlee (2002), Patel et al. (2002), and Cheung et al. (2010), who conclude that the more information a company discloses, the greater the improvement in performance. Similarly, disclo-

sure and investment are positively related, confirming agency theory. Thus, a positive association between performance and investment is observed, hence a decrease in information asymmetry allows for better investment decisions, which in turn leads to better performance.

Similarly, a negative relationship exists between disclosure and performance (DI and PERFO), as shown in the studies of Barnett and Salmon (2006). Also, disclosure is negatively related with behavior (DI and I) from the studies of Stubben (2008). On the other hand, performance may be negatively related to investment (PERFO and I), according to what Mbaluka (2008) shows.

3. Empirical Results of the Analysis of the Impact of Disclosure on Performance, Investor Behavior, and Performance on Investor Behavior:

It should be recalled that our research objective is to verify the relationship between disclosure, investor behavior, and

the performance of Tunisian companies listed on the Tunis Stock Exchange.

First, we will consider the main model, which uses performance as the dependent variable. Subsequently, we will conduct analyses using investment as the explanatory variable, and then, disclosure of information.

According to the research hypotheses, we expect the level of financial performance and investment by Saudi companies to increase as a result of better disclosure.

The regression results between the level of disclosure, performance, investment, company size, sector of activity, debt, research and development, systematic risk, liquidity, and financial leverage are presented in the following tables.

ROA	Coef	P value	[95%Conf. Interval]	
I	3.42e-10	0.098*	-6.29e-11	7.46e-10
T	-.0642216	0.036**	-.1240931	-.0043502
Di	-.0301652	0.135	-.0697322	.0094018
End	-.0218104	0.000***	-.0271238	-.016497
Drd	-.958366	0.305	-2.788116	.8713836
cons	.6046247	0.012**	.13453	1.074719

I	Coef	P value	[95%Conf. Interval]	
Roa	-3.22e+08	0.045**	-6.36e+08	-7419039
Di	2.24e+07	0.384	-2.80e+07	7.28e+07
T	1.27e+08	0.000***	9.25e+07	1.62e+08
beta	8.27e+07	0.001***	3.59e+07	1.30e+08
L	63192.8	0.001***	3721.918	122663.7
Drd	-9.70e+08	0.370	-3.09e+09	1.15e+09
cons	-1.02e+09	0.000***	-1.30e+09	-7.38e+08

DI	Coef	P value	[95%Conf. Interval]	
Roa	-.7526105	0.665	-4.154715	2.649494
I	-7.31e-09	0.046**	-1.45e-08	-1.28e-10
T	1.109477	0.039**	.0570702	2.161884
L	.0007412	0.093*	-.0001247	.001607
S	.3682284	0.001***	.1579856	.5784711
cons	-8.855827	0.038**	-17.23207	-.479581

To assess the effects of the variables, we interpret the relative coefficients and their respective probabilities. Given that a significant coefficient for a variable must have a probability lower than a risk level of 5%, we can see that the value of investment "I" has a positive impact on ROA. In fact, the coefficient of investment "I" is slightly significant, with a value of 3.49 for a probability of 0.098, very close to 10%.

Thus, we can see that performance (ROA) is influenced by disclosure (DI), in fact, the value of DI is negative. This shows that it has a negative impact on the latter, with a value of -0.30 and an estimated probability of 0.135. In fact, disclosure is insignificant.

Similarly, if we check the impact of the three variables: size, debt, and research and development, they have the same impact on ROA; they are all negative, so they negatively influence performance. Also, size is significant at the 5% level with a coefficient of -0.0642 and a p-value of 0.036. Whereas, debt is highly significant with a value of -0.021 and a p-value of 0 (<1%).

Company performance is affected by investor behavior more than disclosure.

In the second part of the table, we note that ROA has a negative impact on investment. The performance coefficient is -3.22, which corresponds to a probability of 0.045, which is, in turn, significant at the 5% level.

Regarding the value of disclosure, it positively influences this variable I. We also observe a positive and insignificant correlation between disclosure and investment (coefficient of 2.24 with a probability of 0.384 (>10%)).

For other variables such as company size, systematic risk, and liquidity, they positively influence the investment variable. All are statistically highly significant, with respective coefficients of 1.27, 8.27, and 63192.8 and a probability equal to 0, 0.001, and 0.001 (<1%). For research and development, it has a negative and insignificant coefficient for investment.

Investor behavior, hence investment, is affected by company performance more than information disclosure.

However, for the third part of the table, regarding disclosure, it is weakly influenced by ROA, which has a negative coefficient of -0.752, corresponding to a probability of 0.665 (>10%). Consequently, performance is negative and statistically insignificant.

Looking at investment, disclosure is strongly influenced by the latter. Its coefficient is negative and statistically significant at the 5% level (coefficient of -7.31 with a p-value of 0.046).

Regarding other variables such as size, financial leverage, and sector of activity, we observe a positive and statistically significant effect on the level of disclosure. For size, we have a positive coefficient of 1.10 with a p-value of 0.039, significant at the 5% level. For leverage, it reaches a coefficient of 0.00074 with a p-value of 0.093. And for the sector of activity, it is very significant with a coefficient of a value of 0.368 with a probability of 0.001 (<1%).

For information disclosure, it is affected by investment more than by company performance.

In conclusion, we can say that the results of the application of the multiple regression model suggest that the level of disclosure, performance, and investment display a significant relationship with the so-called "explanatory" control variables.

The results of our study show that there is either a positive or negative relationship between financial information disclosure, company performance, and investor behavior through investment.

CONCLUSION

We present new evidence on the relationship between financial information disclosure, firm performance, and investor behavior, using data from listed Tunisian companies for the period 2015–2019.

To test the hypotheses of this research, we divided our article into three parts. Each of these parts is based on information collected from the Tunis Stock Exchange.

In our research, we attempted to understand the basic concepts of our topic, discussing the main theories and also discussing determinants and measures.

We used the disclosure index to measure the percentage of information disclosure for each firm. This method generally involves a single process that includes four steps: defining the variables to be measured, selecting and validating the items, choosing the information collection source and the study period, and finally calculating the index.

We also used ROA for corporate performance, which is a measure of the company's accounting performance, while investment represents a measure of investor behavior.

We also identified the relationship between the three components of our study.

We found that the negative effect of disclosure on performance is greater when performance increases and improves.

The results of our study highlighted that in the presence of positive investment, performance varies in the same direction.

The results also showed that information disclosure has a positive effect on investor behavior and vice versa on performance.

Furthermore, we found a negative relationship between disclosure and both performance and investment, hence better disclosure generated by the latter two.

Finally, the study we conducted should be considered as preliminary to a more comprehensive study on a sample of Tunisian companies to generalize our results. These hypotheses can be used in other empirical studies with greater explanatory power to see its degree of application in the Tunisian context.

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