

VOLUNTARY DISCLOSURE QUALITY, INSTITUTIONAL OWNERSHIP, AND STOCK PRICE VOLATILITY: EVIDENCE FROM A FRONTIER MARKET

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Abstract

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In this paper, we examine the impact of voluntary financial disclosure quality on the stock price volatility of non-financial firms quoted on the Tunis Stock Exchange. Empirically, we first test the impact of voluntary disclosure quality on stock price volatility. Then, we examine the combined effect of voluntary disclosure quality and institutional ownership on stock price volatility. We study a sample of 411 annual reports of non-financial companies listed on the Tunisian stock exchange observed over the 2010–2019 period. The results show that voluntary disclosure quality has a negative impact on stock price volatility. Our results also show that the impact of voluntary disclosure quality on stock price volatility is still significantly negative even after incorporating institutional ownership into our empirical model to test the robustness of our results. Moreover, the positive impact of institutional ownership on stock price volatility is lessened by its indirect relationship with voluntary financial disclosure quality.

Keywords: Voluntary Disclosure Quality, Stock Price Volatility, Signaling Theory, Institutional Ownership, Frontier Market, Tunisian Stock Market

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1. INTRODUCTION

After the financial crisis and scandals that have shaken the finance community during the last two decades, attention has particularly increased to information transparency. The demand for information quality has increased for good decision-making by investors. Tunisia is not immune

to these scandals and crises and needs transparency and information quality to make the right decisions.

As a result, *voluntary disclosure* seems to be an essential instrument for corporations to respond to the challenges of sustainability. Voluntary disclosure could reduce information asymmetry (Suharsono et al., 2020). In addition, voluntary financial disclosure has received particular attention in recent years because it is the main

communication tool between the company's management and external investors or market players in general. To be useful in decision-making, information must satisfy the qualities of completeness, relevance, and accuracy. Information issued by firms to the market is first interpreted and analyzed before being classified as a positive or a negative signal. In all cases, investors' reaction to disclosed information affects stock trading on the downside or upside and the price formation process, and consequently volatility of stock prices. The magnitude of price variation depends heavily on the quality of the information disclosed.

In this paper, we examine the impact of voluntary financial disclosure quality on the stock price volatility of non-financial firms quoted on the Tunis Stock Exchange.

Several previous studies (Hussainey & Walker, 2009; Coluccia et al., 2017; Azrak et al., 2021; Chen et al., 2022), examined the relationship between voluntary disclosure quality and stock price volatility. Moreover, disclosure quality can play a critical role in improving stock market decisions and providing better expectations about future earnings. This can be explained by the fact that volatility is an indicator of information asymmetry that managers try to reduce by publishing more financial information.

The study of voluntary disclosure in Tunisia is important for several reasons: The country was affected by the financial scandals around the world as well as the "Arab Spring" that was sparked at the beginning of 2011. This public uprising against the country's political system has affected economic development and, therefore, Tunisian businesses. In this regard, it was important to reassure investors and help them make the right decisions.

Therefore, after the revolution, new debates took place in Tunisia to strengthen information transparency and disclosure quality. Indeed, the purpose of this study is: 1) test the impact of voluntary disclosure quality on the volatility of the stock prices of non-financial firms listed on the Tunisian stock market; 2) explore the combined effect of voluntary disclosure quality and institutional ownership on stock price volatility.

Our study has several contributions. We examine disclosure quality in a frontier market, where investor confidence was significantly shaken by the 2011 revolution. Moreover, we focus on the Tunisian Stock Exchange, which is known for a culture of retaining information where Tunisian firms do not tend to volunteer this information. Furthermore, this paper adds to the present voluntary disclosure literature as it investigates the trilateral relationship between voluntary disclosure, institutional ownership, and price volatility in a frontier market.

The paper is structured as follows. Section 2 presents the literature review and hypothesis development. Section 3 describes the research methodology. Section 4 reports the empirical results. Section 5 shows the discussion of the results. Finally, in Section 6, we conclude.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

The accounting literature has highlighted the importance of voluntary information disclosure. Many researchers have investigated disclosure practices (Ulfah et al., 2021; Rashid & Hossain, 2021). Most of them have focused on the content of disclosure in developed (Boubaker et al., 2022; Sahyoun & Magnan, 2022) and developing countries (Alnabsha et al., 2018; Lakshan et al., 2021). In Tunisia, Mekaoui et al. (2020) found that Tunisian companies divulged less voluntary information after the Tunisian revolution because of a general trend of retaining information about earnings, intangible assets, non-financial information, and management reports.

According to Jouirou and Chenguel (2014), company size, board independence, and size of the audit firm in Tunisia significantly and positively affect disclosure degree. Whereas company age has a significantly negative effect on disclosure degree. Furthermore, the authors pointed to the absence of a significant relationship between voluntary disclosure degree and leverage, as well as company ownership, leverage, and industry type.

In addition, several previous studies (Masum et al., 2020; Tran et al., 2021; Khanchel & Bentaleb, 2022) show a significant relationship between ownership structure and voluntary disclosure and in this paper, we have focused on institutional ownership. They have shown that companies with an organizational structure also tend to demand clear and accurate information. Therefore, an increase in the quality of voluntary disclosure because of high institutional ownership has a significant effect on stock price volatility (Lang & Lundholm, 1993; Bushee & Noe, 2000; Dumrongwong, 2020).

Few studies have focused on the quality of voluntary disclosures. Therefore, it is interesting to examine disclosure in both quantitative and qualitative dimensions. Research on disclosure quality is limited in Tunisia. Chakroun and Hussainey (2014) pointed to the positive and negative effects of board independence on disclosure quality. The findings indicated that there are various determinants of the quality and quantity of disclosure.

Studies focusing on the impact of voluntary disclosure quality on the volatility of stock prices are very limited. Our paper aims to fill this gap. First, we focus on its impact on stock price volatility in the Tunisian stock market and second, we focus on the trilateral relationship between voluntary disclosure, institutional ownership, and price volatility because of a lack of research on this relationship in Tunisia.

The negative relationship between financial disclosure quality and stock price volatility is explained by several reasons. Indeed, high voluntary disclosure quality reduces agency costs and information asymmetry in the market, thus allowing for a decrease in stock price volatility (Jensen & Meckling, 1976). In addition, if companies regularly disclose information to the market, the impact of new information on their performance may decrease and lead to less price variation as a result. Signaling theory emphasizes the importance of voluntary

disclosure of financial information in the decision-making of different stakeholders. A positive signal normally leads to a positive reaction from investors in the market at the time of its release. Investor reaction to disclosed information affects stock trading and the price formation process, and consequently, the volatility of stock prices. A good voluntary disclosure quality conveys transparency to the market, and, therefore, firm valuation will be more consensual for investors, which could lead to lower volatility. The idea that disclosure quality and transparency could decrease stock price volatility may encourage companies to disclose more information.

Azrak et al. (2021) note that the infusion of additional market information would only slightly increase stock price volatility and, therefore, have no economically significant impact on stock price volatility in the Gulf Cooperation Council (GCC) countries. Kanakriyah (2016) found a significant impact of voluntary disclosure on accounting practices in Jordan. Chen et al. (2022) found that the negative relationship between corporate social responsibility (CSR) disclosure and stock return volatility is more accentuated for companies with higher information asymmetry, polluting industries, and a high CSR score.

This leads us to propose the following research hypothesis:

H1: The quality of voluntary financial disclosure has a negative impact on price volatility.

3. RESEARCH METHODOLOGY

This section presents the sample and data, the regression model, and finally the variables' measurement.

3.1. Sample and data

Our empirical study is conducted on annual data collected from a sample of all non-financial firms listed on the Tunisian stock market observed during the 2010–2019 period. For the stocks that have been listed after January 2, 2010, the data period stretches from the date of their initial public offering (IPO) until December 31, 2019. The initial sample that we selected includes all the companies listed on the Tunisian Stock Exchange on December 31, 2019 (81 companies). However, financial companies and those for which some data are not available were eliminated. In the end, we kept a sample of 411 observations (48 companies). The data which our empirical study examines were collected from the annual reports and the financial statements of the selected companies, the annual reports of the Tunisian stock exchange, quoting history and guide of the shares, with an annual frequency during the 2010–2019 period.

3.2. Regression model

To test the impact of voluntary disclosure quality on the stock price volatility of firms listed on the Tunisian stock market, we estimate, in panel data, the following model:

$$VOL_{it} = \lambda_0 + \lambda_1 VDSCOR_{it} + \lambda_2 SIZE_{it} + \lambda_3 Q Tob_{it} + \lambda_4 LEV_{it} + \varepsilon_{it} \quad (1)$$

where, VOL_{it} is the volatility of stock price of firm i in year t ; $VDSCOR_{it}$ is a score measuring voluntary disclosure quality of firm i in year t ; $SIZE_{it}$ is the size of firm i in year t ; $Q Tob_{it}$ is Tobin's Q indicator of firm i in year t ; LEV_{it} is the debt ratio of firm i in year t ; ε_{it} is the error term of the model.

3.3. Variable measurement

This subsection presents the dependent variable, the independent variables, and the control variables.

3.3.1. Dependent variable: Stock price volatility

Our measure of stock price volatility (VOL) is the annualized standard deviation of returns, calculated using daily stock returns. We first calculated the standard deviation of daily returns as follows:

$$\sigma(x) = \sqrt{v(x)} = \sqrt{\frac{\sum_{t=0}^n (X_t - \bar{x})^2}{n}} \quad (2)$$

$$\bar{x} = \frac{\sum_{t=0}^n X_t}{n} \quad (3)$$

where, v is stock price variance; X_t is stock price variation at time t , and n is the total number of observations.

The calculated standard deviation is then multiplied by the square root of the number of trading days (252) to obtain an annualized standard deviation.

3.3.2. Independent variable: Voluntary disclosure quality

The score measuring voluntary disclosure quality is calculated following the same approach adopted by Katmon et al. (2019) and Boshnak (2022). Then, we calculate a score for each firm in our sample using the item method.

To this end, we first establish a preliminary list of 136 items as initial indicators of disclosure. Then, we select the relevant items from this list to determine the final disclosure index based on accounting standards. Finally, we eliminated 17 mandatory disclosure items from the initial list, and, therefore, the final list consisted of 119 items.

Assignment of scores to each of these 119 items and the calculation of the final voluntary disclosure score for each company in our sample is done according to the following procedure: on the one hand, we assign 1 if the company discloses an item of the list, otherwise 0; on the other hand, for the forecast items, we assign 2 for the punctual estimations; we attribute 1 for the estimations by interval, and finally 0 for the non-disclosure of the forecast information. Then, the raw score is equal to the total of the scores of the company for all the items. Then, the final score is calculated by the sum of the total relative score of the firm subdivided by the maximum score of the whole sample and then multiplied by 1/5 (20%), as follows:

$$VDSCOR_i = \frac{RSCOR_i}{MAXSCOR} * 20\% \quad (4)$$

where, $VDSCOR_i$ is the voluntary disclosure index of firm i , $RSCOR_i$ is the individual score of company i , and $MAXSCOR$ is the maximum score of the whole sample.

3.3.3. Control variables

We have three control variables: firm size, Tobin's Q and leverage. Table 1 presents the measurements of these variables.

Table 1. Control variables measurements

Variables	Measurements
Firm size (<i>SIZE</i>)	Natural logarithm of total assets
Tobin's Q (<i>Q Tob</i>)	Market capitalization divided by total assets
Leverage (<i>LEV</i>)	Total financial debt divided by total equity and liabilities

Table 2. Descriptive statistics

Variables	Mean	Median	Minimum	Maximum	SD	Kurtosis	Skewness
<i>VOL</i>	29.684%	27.7%	4.3%	137.5%	0.137	20.998	3.321
<i>SIZE</i>	18.226	18.171	15.359	22.840	1.057	3.422	0.278
<i>LEV</i>	57.419%	50.20%	0.08%	434.04%	0.538	23.669	3.9
<i>Q Tob</i>	1.284	0.867	0.011	18.031	1.421	51.794	5.149
<i>VDSCOR</i>	0.141	0.143	0.084	0.2	0.021	3.976	0.193

4.2. Regression results

In this section, we first present the regression results of the impact of voluntary disclosure quality on stock price volatility, followed by the regression results that test the trilateral relationship between voluntary disclosure quality, institutional ownership, and stock price volatility.

4.2.1. Impact of voluntary disclosure quality on stock price volatility

We empirically study the impact of voluntary financial disclosure quality on stock price volatility by estimating the coefficients of Model 1 in panel data. Table 3 below provides a summary of the estimation results obtained through a fixed-effects specification.

Table 3. Impact of voluntary disclosure quality on stock price volatility

Variables	Coefficients	p-value
<i>VDSCOR</i>	-1.22059	0.035**
<i>LEV</i>	-0.0739416	0.002***
<i>Q Tob</i>	0.0007887	0.891
<i>SIZE</i>	-0.0813449	0.001***
Constant	1.992618	0.000 ***
R-square	Within	0.0621
	Between	0.0040

Note: ** Significant at the 5% level, ***Significant at the 1% level.

The results of Model 1 (see Eq. (1)) show that the coefficient of the variable *VDSCOR* is negative (-1.22059) and statistically significant at the usual threshold of 5% (p-value = 0.035), which implies that financial voluntary disclosure quality has a significant negative impact on stock price volatility

4. RESEARCH RESULTS

This section presents both the descriptive statistics and the regression results.

4.1. Descriptive statistics

Table 2 below presents the descriptive statistics of the different annual series of the studied variables during the 2010–2019 period. We found that the volatility of prices of the firms quoted on the Tunisian stock market is between the two extreme values of 137.5% (*Maximum*) and 4.3% (*Minimum*), or a fluctuation of around an average value of 29.684%. We also found that the voluntary disclosure quality of Tunisian companies listed on the Tunis Stock Exchange fluctuates between 0.2 and 0.084, this variability is centered on the average of 0.141.

of non-financial companies listed on the Tunisian stock market.

4.2.2. Voluntary disclosure quality, institutional ownership, and stock price volatility

Previous studies (Healy et al., 1999; Dumrongwong, 2020) have argued that the link between voluntary disclosure quality and stock price volatility results from an indirect link between these two variables, through the attraction of institutional investors. This can be explained by the fact that institutional investors are attracted to companies with high-quality disclosure practices. An in-depth study of the behavior of institutional investors who tend to invest in companies with high disclosure quality reveals the presence of two categories of investors who value high-quality disclosure. The *first category* is made up of institutional investors with a long-term investment horizon and low portfolio turnover who are attracted to good disclosure practices. The involvement of these investors reduces the volatility of the company's stock price. However, high-quality disclosure also attracts the *second category* of short-term investors whose involvement seems to exacerbate stock price volatility due to their short investment horizons and aggressive trading strategies.

To deepen our empirical analysis of the impact of voluntary disclosure quality on the stock price volatility of firms listed on the Tunisian stock market, we added institutional ownership (*INTOWN*) as an independent variable of stock price volatility, given the strong relationship between voluntary disclosure quality and this type of ownership. Table 4 below provides a summary of the estimation results obtained through a fixed-effects specification.

Table 4. Impact of institutional ownership and voluntary disclosure quality on stock price volatility

Variables	Coefficients	P-value
VDSCOR	-1.292708	0.027**
INTOWN	0.0383555	0.480
LEV	-0.079059	0.001***
Q Tob	0.0009324	0.871
SIZE	-0.093526	0.000***
Constant	2.212211	0.000 ***
R-square	Within	0.0723
	Between	0.0003

Note: ** Significant at the 5% level, ***Significant at the 1% level.

Table 4 shows that the impact of voluntary disclosure quality on stock price volatility remains significantly negative even after adding the variable of institutional ownership (*INTOWN*) to Model 1.

5. DISCUSSION OF THE RESULTS

The results show that financial voluntary disclosure quality has a significant negative impact on the stock price volatility of non-financial companies listed on the Tunisian stock market. This impact could be explained by several reasons. High quality voluntary disclosure reduces the level of information asymmetry in the market and negatively affects stock price volatility. Moreover, the regular disclosure of information to the market positively affects company performance and thus reduces price volatility. Moreover, voluntary disclosure quality leads to transparency in the market and consequently, firm valuation will be more consensual for investors, which could lead to a decrease in stock price volatility.

Furthermore, increasing the level and quality of voluntary disclosure leads to a decrease in expected risks to which companies are exposed and, consequently, to a stabilization of stock price volatility. Moreover, in line with signaling theory, better disclosure would give the market a good signal and eliminate the uncertainty caused by non-disclosure of information, and lead to a reduction in stock price volatility.

The results also show a positive, but not significant, relationship between institutional ownership and stock price volatility, which implies that increasing institutional ownership in firms listed on the Tunisian stock market could increase stock price volatility. However, such an effect of institutional ownership on volatility seems to be lessened by its indirect link with voluntary disclosure quality.

Consistent with agency theory, voluntary disclosure quality has the potential to serve as an instrument for reducing information asymmetry or agency costs, thus potentially playing a significant role in impacting stakeholder perception. Our results are consistent with those of Sahore and Verma (2017) who proposed that higher information disclosure enhances investors' ability to make trustful investment decisions and prevent them from being confused. Poor information or a paucity of disclosure frequently leads to incorrect decisions.

Therefore, the managers of Tunisian non-financial companies must raise awareness of the responsibility of information providers towards

transparent information will ensure reliability for stakeholders, especially investors. In addition, they should have a strategic orientation to broaden the ownership structure in order to increase institutional holdings. This facilitates the transparency of the information and guarantees the equity of the information between the stakeholders and consequently decreases the volatility on the Tunisian stock market.

6. CONCLUSION

In this paper, we theoretically and empirically examined the impact of voluntary disclosure quality on stock price volatility. Theory-wise, we found no consensus among previous studies on the significance and especially the sign of the relationship between volatility and voluntary disclosure quality.

Empirically, we first tested the impact of voluntary disclosure quality on stock price volatility in the Tunisian context. Then, we examined the combined effect of voluntary disclosure quality and institutional ownership on stock price volatility. We used a sample of 411 annual reports of non-financial companies listed on the Tunisian stock exchange over the 2010–2019 period.

Our results, obtained through panel data model estimates, show that voluntary disclosure quality has a significant negative impact on stock price volatility. The negative sign of this impact is mainly explained by the fact that an increase in the level and quality of voluntary disclosure reduces information asymmetry in the market and the expected risks to which firms are exposed and leads, therefore, to the stabilization of stock prices and a decrease in volatility.

Our results also show that the impact of voluntary disclosure quality on stock price volatility remains significantly negative even after incorporating institutional ownership into our empirical model to test the robustness of our results and that the positive impact of institutional ownership on stock price volatility is lessened by its indirect relationship with voluntary disclosure quality.

This paper adds to the current voluntary disclosure literature as it investigates the trilateral relationship between voluntary disclosure, institutional ownership, and price volatility in the Tunisian stock market. The implications of our study are important for managers, investors, and researchers. In this regard, these results can guide managers in their decision-making. In addition, investors are attracted to firms with a high percentage of institutional ownership, as this type of ownership improves voluntary disclosure quality and thus decreases stock price volatility.

The limitation of this study is that we used only non-financial firms listed on the Tunisian stock market as a sample which may limit the generalization of the results. Accordingly, this study may offer researchers new research avenues. For example, future research may study the effect of corporate social responsibility disclosure specifically on volatility, and may highlight the importance of the role of institutional investors.

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