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Earnings Management, Accruals and Stock Liquidity

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Abstract

Accounting indicators published by firms remain a privileged source of information for the financial market. However, the margin of freedom granted by accounting rules allows managers to manipulate financial statements for discretionary ends, in order to mislead stakeholders on the firm's economic conditions. Our study aims at examining the Tunisian context and tries to determine the effect of earnings management on stocks liquidity. The relationship between liquidity and accruals was examined, using the modified earnings management measurement model of Jones (1995). Our sample consists of 299 observations of Tunisian companies listed on the stock exchange during the 2000-2012period. Using a panel data qualitative approach, the obtained results point to a positive relationship between discretionary accruals and Tunisian firms' stocks (as estimated by the two measurement models). This indicates that discretionary accruals allow Tunisian investors to optimally construct their stocks portfolios. The results also highlighted a negative and a significant impact of transaction size and volume on firms'ask-bid spread.

I. Introduction

Quality of financial information has been the topic of countless debates in the accounting and financial literature. Indeed, according to Levitt (2000), it is the driving force of a powerful and an efficient market. Without it, liquidity diminishes and market efficiency ceases to exist. The author adds that high quality accounting standards consist in improving liquidity and reducing capital cost. Accounting figures, as one of the financial indicators, reduce inefficiency of information and contributes to improving market outlook and liquidity. Stocks liquidity can thus be perceived as a measure of market efficiency and used as an effective tool of disseminating useful information (Chung 2009). Bachtiar (2008) argues that high returns disclosed through high quality accounting standards can eventually improve liquidity and reduce capital cost. Furthermore, Bachtiar checked the inherent hypothesis of a positive relationship between the quality of disclosed earnings of firms and the liquidity of their stocks through the ask-bid spread. By increasing the liquidity of stocks, transaction costs may decrease. Liquidity plays also an important role in the pricing process. It represents a key concept in emerging markets like Tunisia. Numerous studies have focused on the relationship between earnings management and disclosure (Allayannis et al., 2009;Iatridis et al., 2009), while others have examined the relationship between information disclosure and stocks liquidity(Matoussi, Karaa, and Maghraoui 2004; Bhattacharya, Desai, and Venkataraman,2013; Fizazi et al. 2009).

Nevertheless, studies of the relationship between earnings and liquidity management remain rare, especially in emerging markets (Beneish et al., 2012, Peterson et al., 2015, Sohn 2016). Thus, our study will aims inextending the debate on this issue by examining the impact of earnings management on market liquidity in the Tunisian context. In Tunisia, few researches have been focused on the relationship between the practice of earnings management and liquidity, while the issue of accounting manipulation was regularly addressed by researchers. In the United States, many researchers have explicitly addressed the practices of earnings management. Several recent studies, such as those of Mastumra (2003) and young (2005)have attempted to determine the impact of an earnings management policy on the financial market.

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Therefore, it seems appropriate to investigate this relationship in a sample of listed Tunisian companies. Indeed, studying emerging markets like the Tunis Stock Exchange (TSE), earnings management may be very revealing because it traces the specificity most pursued by stock market investors. Indeed, our study of the Tunisian stock market comes under this perspective. This emerging and recent market is known by a strong information asymmetry and very low information efficiency. These specificities may lead us to identify earnings management practices specific to the Tunisian market. Therefore, we can determine the degree of impact of these accounting practices on investor behavior via stocks liquidity. The aim of this paper is to determine whether earnings management has an impact on stocks liquidity for the case of Tunisian firms. This amounts to studying the relationship between liquidity (via the ask-bid spread) and accruals using the modified models of Jones (1995). Therefore, this paper is structured as follows: the first section reviews the relevant literature. The second section presents our research hypotheses and methodology, while the third section focus on the results obtained on the Tunisian stock market. In the last section, a discussion of the results and a conclusion will be proposed.

II. Literature Review

1. Earnings Management Theories

The earnings management theories are based on two main hypotheses. The first hypothesis assumes that information asymmetry between informed and less informed shareholders is likely to be reduced by disseminating information (Glosten and Milgrom 1985). Such an accounting policy-based signaling leads to a reduction in the ask-bid spread and an increase in liquidity. The second hypothesis assumes that an information disclosure policy reduces information-searching costs. This results in lower transaction costs and a higher transaction volume. Kraft et al. (2014) show that reducing information asymmetry is a basic fundamental to the decision to publish manipulated earnings. Liquidity is considered as the facility to trade large volumes of stocks without causing a significant price shift during a narrow time span (Etemadi and Resayian 2010). This concept heavily depends on informational transparency. Indeed, information asymmetry between investors reduces transparency of market transactions and may lead to dysfunctions. Botosan and Plumlee (2002) argue that information inefficiency reduces market liquidity and increases capital cost. Earnings management also helps to moderate information asymmetry, since stocks become more liquid (Chung, 2009). At present, only few studies have explored the relationship between earnings management and stocks liquidity. Richardson (2000) found that managers tend to manipulate earnings when there is a strong information asymmetry.

2. Earnings and Liquidity Management Research

In the literature, there are several measures of market liquidity. Some of them are the transactions volume, the turnover ratio and the ask-bid spread. In this context, relevant empirical research can be classified into two main trends:

- The first trend included studies on measuring liquidity through the ask-bid spread (Ascioglu et al., 2012, Kan, 2013, Bafghi et al. (2014)). These studies consider the ask-bid spread as the best estimator of stocks liquidity, and they focused on the adverse selection dimension of the ask-bid spread. They concluded that companies that use earnings management as their performance measurement disclose higher adverse selection costs. As a direct result of these costs, liquidity providers widen their spreads, reducing thus liquidity.

In the Spanish context, Livnat et al. (2008) investigate on the relationship between disclosure and stocks liquidity over the 1994-2000period. The authors found a positive relationship between liquidity and financial disclosure. Lakhal (2008) examined the effect of quarterly earnings disclosure on market liquidity to show that they reduced information asymmetry between different market participants and improved stocks liquidity. In the German context, Grüning et al. (2010) found that information disclosure in annual reports improves liquidity by acting on investor forecasts who adjust their portfolios. In the Tunisian context, Triki and Omri (2008), examining a sample of 20 Tunisian firms over the 2000-2005period,found a negative relationship between earnings quality and the ask-bid spread

- The second trend included studies that examined liquidity through transaction volume. These studies found a positive correlation between the amount of IAS to US GAAP-recon ciliated earnings[3] and transaction volume (Peterson et al., 2015, Yuan and Cheng , 2016). Chen and Sami (2006) studied the reaction of the US financial market in terms of transaction volume when changing accounting tools. The studied sample consists of 38 non-US companies (ten countries) listed on the American market between 1995 and 2001. After running several statistical tests, positive correlation was found between the amount of readjusted earnings and transaction volume. Thus, it was concluded that US investors take into account earnings informational content in their investment decisions.

Most studies taking transaction volume as a liquidity measure expand in three main directions: its relationship to the ask-bid spread, price change and information. Subscribing to this perspective, several studies conducted on the US market examined the reaction of stock prices following a disclosure of manipulated earnings as information to investors. This methodology consisted of determining the abnormal volumes around the disclosure date of managed earnings.

III. Methodology

Focusing on the Tunisian context, the stocks liquidity will be investigated through the ask-bid spread and discretionary accruals according to the modified models of Jones.

1. Tunisian Context

In Tunisia, as soon as the New Market is created in 1996, new companies, small and with a high growth potential, can access equity markets in order to raise funds such as to ensure their growth (Matoussi 2004). These companies seemed to be highly motivated to manage their earnings. Tunisian accounting regulations are mainly legal in origin. In addition to the regulatory framework, companies should comply with the code of commercial rules, which contains few accounting rules or principles. In theory, such an absence of legal constraints offers companies a large number of accounting tools. This situation makes the Tunisian context as an interesting ground to study earnings management practice. First, Tunisian accounting standards offer managers considerable flexibility to choose accounting practices. Moreover, the Tunisian context is known by a concentration of corporate ownership and a relatively illiquid financial market. In Tunisia, unlike other countries like North America, earnings disclosure attracted particularly investors 'attention, motivating thus firms to engage in earnings management. Our assumption is that the Tunisian market is likely to represent a fertile ground in terms of an upward earnings management.

2. Research Hypotheses

Based on previously mentioned theoretical and empirical foundations, some hypotheses can be deduced such as:

- H1: there is a negative relationship between discretionary accruals and market liquidity Chung et al (2009) examined a sample of US companies, assuming that earnings management reduces stock liquidity. They measured earnings management through discretionary accruals over the October 2001 to December 2002period. The price range was also used as a liquidity indicator.

Dumontier et al. (2002), studying the French market found that investors admit manipulations as soon as they have the means to detect them. Accordingly, Ascioglu et al. (2011) used a triple measure to determine the impact of earnings management on stock market liquidity. The first measure consists of accounting data while the other two relate to real earnings management, which included operating cash flow and discretionary costs. The results point to a direct relationship between illiquidity measure and earnings management through discretionary accruals.

- H2: discretionary accruals explain liquidity better than non-discretionary accruals. A number of univariate regressions in which the dependent variable is liquidity should be run whereas the independent variable is one of earnings management components (discretionary, non-discretionary accruals) in each regression.
    - H3: structuring total accruals into discretionary and non-discretionary accruals better explains liquidity. By decomposing total accruals into discretionary and non-discretionary accruals, their explanatory power improves.
    - H4: investors react according to the direction of earnings management (upward or downward).

[3]Reconciliation of profits prepared according to international accounting standards and the US accounting standards US GAAP

3. Variables and Model

A panel data estimation technique was used in order to test the proposed hypothesis on the relation between earnings management and market liquidity. Specifically, we exploited the models of Chung et al. (2009) and Bafghi et al. (2014), based on the ask-bid spread as a measure of liquidity. The ask-bid spread is interesting in that it takes into account the notion information asymmetry. The market is all the more liquid because the difference between the best selling price and the best purchasing price is small (Ascioglu et al., 2012, kan 2013). It was proved to be the most appropriate measure for the Tunisian context and the most important determinant of liquidity of the Tunis stock exchange (Matoussi and Zemzem 2004). The proposed models are as follows (1-3):

$$LIQ_{it} = \beta_0 + \beta_1 TAC_{it} + \beta_2 SIZE_{it} + \beta_3 VOL_{it} + \beta_4 SP_{it} + \beta_5 R_{it} + \beta_6 VR_{it} + \varepsilon_{it} \quad (1)$$

$$LIQ_{it} = \beta_0 + \beta_1 DAC_{it} + \beta_2 SIZE_{it} + \beta_3 VOL_{it} + \beta_4 SP_{it} + \beta_5 R_{it} + \beta_6 VR_{it} + \varepsilon_{it} \quad (2)$$

$$LIQ_{it} = \beta_0 + \beta_1 NDAC_{it} + \beta_2 SIZE_{it} + \beta_3 VOL_{it} + \beta_4 SP_{it} + \beta_5 R_{it} + \beta_6 VR_{it} + \varepsilon_{it} \quad (3)$$

where :

LIQ_{it} :spread of firm i at moment t.
TAC :total accruals of firm i at moment t.
DAC_{it} :discretionary accruals of firm i at moment t.
$NDAC_{it}$:non-discretionary accruals of firm i at moment t.
$SIZE_{it}$:market value of firm i at moment t.
VOL_{it} :average trading volume of firm i at moment t.
SP_{it} :average stock price of firm i at moment t.
R_{it}: stock return of firm i at moment t.
VR_{it} :stock return volatility of firm i at moment t.

Opting for the decomposition method is almost motivated by the specificity of the Tunisian context, as a controlled market. Therefore, we have chosen the model of Chung, Sheu, and Wang (2009). Bafghi et al. (2014), considered to be among the most suitable models to estimate the ask-bid spread. Moreover, the authors believe that this model provides the best liquidity estimators. Our models relate total accruals, discretionary and non-discretionary accruals to firms' stocks liquidity after checking for the contribution of each. They also enable to estimate the effect of earnings management on liquidity. First, they distinguish between discretionary and non-discretionary accruals as well as the perception of their effect on firm liquidity. Second, they take into account the effect of other variables likely to affect stocks liquidity.

Comparing the coefficients of determination (R^2) of the models in (1) and (2) will allow us to check whether the variable "Discretionary Accruals (DAC)" explains liquidity and detects any additional information contained in the discretionary accruals likely to affect total accruals (TACs). To this end, the modified model of Jones's for earnings management was selected for this study. In summary, total accruals are decomposed in equations (2) and (3) into non-discretionary accruals (NDACs) and discretionary accruals (DACs). This will determine the additional explanatory power of the discretionary (non-discretionary) component of accruals in our liquidity measurement model.

a. The endogenous variables

Market liquidity

The theory provides a number of liquidity measures: the ask-bid spread of illiquidity ratio, transaction volume, etc. In our study, we measured this variable by the average annual spread (Attig and al. 2006 and Bafghi et al., 2014), as it had been shown that it was the most appropriate measure for the Tunisian context and most likely to determine liquidity of the Tunis stock exchange (Matoussi and al., 2004). The spread was calculated for each sample value and for each day, as the difference between the best purchasing price and the best selling price divided by the average of the two prices.

The spread of the Tunis stock exchange that corresponds to the indicated market costs was selected to measure liquidity (4).

$$SPRD_{it} = \frac{Ask_{it} - Bid_{it}}{\frac{Ask_{it} + Bid_{it}}{2}} \quad (4)$$

With:
Ask_{it} = the price ask of stocki on day t.
Bid_{it} = the price bid of stocki on day t.

Earnings Management Component

As indicated above, the modified models of Jones (1995) were adopted for the earnings management measurement (5).

$$TAC_{it} / A_{it-1} = \alpha\ (1/ A_{it-1}) + \beta_1(\Delta RE_{it} / A_{it-1}) + \beta_2(PPE_{it} / A_{it-1}) + e_{it} \quad (5)$$

with :

TAC_{it} :total accruals of firm i in year t.
A_{it-1} :total assets at the end of year t-1.
ΔRE_{it} :(CA) net total revenues between t and t-1 of firm i.

$$\Delta RE_{it} = \Delta Rev_{it} - \Delta Rec_{it}$$

ΔRev_{it} : total revenues variation between t and t-1 of firm i.
ΔRec_{it} : receiveables variation between t and t-1 of firm i.
PPE_{it} :gross provisions of firm i at moment t.
e_{it} :residuals of discretionary accruals model of firm i in year t (DAC_{it}).
β_i: Coefficients estimated for firm i.
α : Constant term

b. The Control Variables

According to the literature many determinants of the ask-bid spread, including transaction volume, price volatility, stock price and firm size (Amihud 2002, Brockman and Chung 2001) could be provided. A fortiori, Ascioglu et al. (2012) highlighted the positive relationship between transaction volume and liquidity level, while others found a negative relationship with size and price (Amihud 2002).

Transaction Volume

An increase in transaction volume involves a serious disequilibrium in the equity market. It implies additional costs that should be compensated by widening the spread. Atiase and Bamber(1994) considered transactions volume s a proxy of information asymmetry. Moreover, Stoll (1978) shown that transaction volume and risk affect the stock holding cost and that stock price was a proxy for the unobservable minimum cost. The authors argued that spreads negatively relate to transaction volume. Similarly, (Chen et al., 2007) found that liquidity is an increasing function of transaction volume.

Stock Price

The financial literature assumes that price significantly explains stock liquidity. Indeed, the studies of Attig et al., (2006), Brockman and Chung (2001), and Ajina et al., (2015) found that stock pricepositively correlates with liquidity.

Stock returns

Numerous models studying the relationship between returns and liquidity have been developed in the literature. Most of them indicate that the expected returns negatively correlate with liquidity (Amihud 2002). Indeed, this negative sign was explained by investors requiring a liquidity premium to compensate the high transaction costs. Thus, under equilibrium uninformed investors require compensation for holding stocks with high private information.

Returns Volatility

Asymmetry of market information is measured by returns volatility. Accordingly, any change in price produced by a change in investor forecasts results in an increase in returns variance (or volatility). In this regard, Ascioglu et al. (2007) shown that volatility had an impact on inventory cost and stock risk management, and therefore widened the spread. Empirical studies in the US market such as those of Stoll (1978), Roulstone (2003) and Wang et al. (2009) revealed a positive relationship between volatility and ask-bid spread.

Firm Size

Firm size is considered to approximate the degree of information asymmetry and therefore adverse selection costs. Under the same perspective, Bhattacharya et al. (2013) shown that small firms presented a larger information asymmetry than large firms. On the other hand, stocks of small-capitalized firms were less liquid than stocks of large-capitalized firms (Brown and Hillegeist 2007). Indeed, stock liquidity depended on firm size for two reasons. First, a large firm attracts the interest of analysts and investors. Second, its size allows it to disseminate a large amount of information that leads to reducing information asymmetry and improving liquidity.

c. Sample and study period

With the aim of avoiding missing data problems that may result in biased estimations, stocks with a low number of trading days in our sample were disregarded, allowing us to retain the 23 most liquid stocks for our study. Then, only 299 observations were considered to represent 23 firms over the 2010-2012period.
As for the Tunisian data, firm liquidity data was collected from the Tunis stock exchange, and the accounting figures were extracted from the official bulletins published by the Financial Market Council (CMF).

IV. Results and discussion

The descriptive statistics of the studied variables will be detailed, with respect to various relevant tests. The models parameters will be estimated and the contribution of discretionary (non-discretionary) accruals to stock spreads will be determined.

1. Descriptive statistics

A descriptive analysis of the studied variables was carried out initially (Table 1). It resulted in the following observations:

- Accounting results disclosed by Tunisian firms seems to be lower than cash flow, which explains the negative sign of total accruals. This negative sign is mainly generated by non-discretionary accruals.
- Earnings management through discretionary accruals carries additional information that does not necessarily exist in non-discretionary accruals, which confirms our hypotheses formulated above.

Table 1. Descriptive Statistics

	VARIABLES	Average	Standard deviation	Min	Max
Dependent variable	LIQ	0.676	1.242	-2.207	7.821
Independent variables	TAC1	0.0576	0.130	-0.256	0.892
	TAC2	0.0576	0.130	-0.256	0.892
	NDAC1	0.0576	0.0341	-0.149	0.122
	NDAC2	0.0552	0.0225	0.0156	0.100
	DAC1	6.11e-09	0.125	-0.325	0.811
	DAC2	0.00240	0.127	-0.271	0.796
Control Variables	SIZE	16.37	1.707	12.13	19.83
	R	18.53	34.38	-40.46	380.7
	SP	31.00	39.70	1.370	203.4
	VOL	2.700	0.169	2.212	2.886

2. Tests specific to panel data

To investigate the components of earnings management that explain stock liquidity of Tunisian firms, econometric regressions on panel data covering the 2000-2012period was carried out in order to deduce the appropriate estimation methods. To this end, we proceed in two steps:

- First, the absence of any multi co linearity problem between the independent variables was checked, using the Pearson correlation test between the continuous variables and the Variance Inflation Factor (VIF) test. The VIF values were much lower than the generally required 5% or even 10% significance level. Therefore, correction can be avoided (Tables 1 and 2, Appendix I-1).

Table 2 illustrates the Pearson correlation matrix, reporting the relationships between the variables of the models (M1, M2 and M3)

The VIF (Variance Inflation Factor) and Pearson correlation tests indicate that the correlation between the variables is acceptable since the variance inflation factors (VIF) have values below 10. All Pearson correlation coefficients do not exceed 0.8(Tables 2).

Table 2: Results of the Pearson Correlation Test (Modified Models Of Jones)

	LIQ	TAC1	DAC1	NDAC1	SIZE	VOL	SP	R	VR
LIQ	1.0000								
TAC1	0.0117	1.0000							
DAC1	0.0231	0.9650	1.0000						
NDAC1	-0.0405	0.2608	-0.0015	1.0000					
SIZE	-0.0682	0.3658	0.1649	0.7878	1.0000				
VOL	0.2556	0.0391	0.0400	0.0017	0.0024	1.0000			
SP	0.3453	0.0505	0.0649	-0.0465	-0.0551	0.2247	1.0000		
R	0.0247	-0.0426	-0.0543	0.0375	-0.0525	-0.0379	0.0801	1.0000	
VR	-0.1295	-0.0135	-0.0052	-0.0321	-0.0459	0.0200	-0.1123	-0.0389	1.0000

As shown in Table 2 above, no significant correlation was found between the dependent and independent variables. In addition, the correlation coefficients are small (maximum of 0.3453 for prices and LIQ).This indicates a direct relationship between the dependent variables and the control variables.

The results conclude to a positive relationship between stock spreads and discretionary accruals (2). This result validates the considered hypothesizes. A second measure of multi co linearity was thus used basing on VIF values. VIF values were ranged within 1.02 and 2.69 when using the modified models of Jones. These values are perfectly below the accepted critical value of 10, which leads us to conclude that there is no multi co linearity problem.

- Second, before estimating our models it is necessary to run different preliminary tests in order to ensure an efficient use of data. Indeed, panel data requires adapted estimation methods. The results of these tests are presented in Table 4.

Table 4: Results of the Hausman Test and the Validity of Specific, Heteroscedasticity, Autocorrelation Effects

	(1)	(2)	(3)
Hausman test			
Chi-deux	40.30	41.51	61.09
P-value	0	0	0
Breuch-Pagan test			
LR2	53.34	53.44	52.40
P-value	0	0	0
Wooldridge test			
F	1.26	0.978	1.938
P-value	0.301	0.334	0.179

The linearization of the panel data was performed and included the dependent variable ask-bid spread (LIQ). Thus, the STATA software version 13.0 for Windows was used. At the beginning, the presence of specific effects was conducted and based on various homogeneity tests. The collected results led us reject the null hypothesis of homogeneity of all the parameters. The calculated Fisher statistics clearly exceed the tabulated threshold with zero probabilities (Prob> F = 0).Therefore, panel data estimation method is that with specific effects. Thus, fixed and random effects models were estimated in order to test whether the specific effects result from the heterogeneity of the constants or that of the coefficients. Accordingly, the Hausman test was applied. The probability of the Chi-square statistics shows zero values for the modified models of Jones (1), (2) and (3)leading us to select the fixed effects model.

Finally, the Breush-Pagan and Wooldridge tests were conducted to control for heteroscedasticity and errors autocorrelation. The probabilities of each LR2test point to an errors heteroscedasticity problem and an absence of autocorrelation. A re-estimation of the model after correction using the White method with the Robust command (Petersen, 2009), was finally done.

3. Results of the Regressions

The coefficients of determination (R^2) of the first three models were compared when running multiple regressions, with the aim of identifying the variables determining stock liquidity. These variables are total accruals, discretionary accruals and non-discretionary accruals. It aims at assessing the explanatory power of the three models (1), (2) and (3) in the Tunisian context. Multiple regressions were run by disaggregating total accruals into discretionary and non-discretionary components (DAC and NDAC) in order to test the suggested hypotheses H1 and H2. The results are presented in Table 5.

Table 5: Results of the Regressions: Liquidity and Acruals

Modified models of Jones			
Earnings management Measures	Total Accruals	Discretionary Accruals	Non-Discretionary Accruals
	(1)	(2)	(3)
VARIABLE	LIQ	LIQ	LIQ
Earnings management	1.287	1.243	01.411
	(2.32)**	(2.32)**	(0.12)
Size	-1.273	-1.293	-1.315
	(41.06)***	(47.11)***	(18.59)***
SP	0.002	0.002	0.002
	(1.09)	(1.08)	(1.19)
Vol	0.052	0.052	0.053
	(1.95)*	(1.96)*	(1.76)*
Return	-0.006	-0.006	-0.006
	(1.56)	(1.54)	(0.19)
VR	0.005	0.005	0.006
	(0.14)	(0.15)	(0.19)
Constant	-6.646	-6.918	-7.280
	(10.04)***	(11.01)***	(6.59)***
Observations	299	299	299
Number of firmes	23	23	23
R^2	(0.82)	(0.76)	(0.70)
Stat -F	4.93	4.86	6.54
F Prob	0	0	0

Notes: ***, ** and * denote significance levels of 1%, 5% and 10% respectively. Values in parentheses are "t-Student".

The investigated model has considerable explanatory powers. Indeed, the respective coefficients of determination R^2 are 82% for (1), 76% for (2) and 076% for (3). The Fisher test on the overall model significance shows that at the 1% level there is at least one independent variable whose impact on the dependent variable is significant. The respective Fisher's statistics for both models are F (6, 270) = 4.93 for (1), 4.86 for (2) and 6.54 for (3). The coefficients of determination of these regressions reveal the relevance of the different components of accruals in explaining the ask-bid spread. If the coefficients are all significant, then each accruals component carries information about the ask-bid spread.

The regressions in Tables N ° 5 estimate the effect of earnings management on stock liquidity. The results indicate a positive and a significant relationship between accruals (TAC, CAD) and the ask-bid spread. However, the relationship between non-discretionary accruals and the ask-bid is insignificant (3). In line with previous research, the results of the proposed study validate the hypothesis that market liquidity is a decreasing function of earnings management. These results are consistent with studies on the US market. This result corroborates those of Ascioglu et al. (2012); Bafghi et al. (2014); Peterson et al. (2015) and Sohn (2016). Similarly, Aharony, Lee, and Wong, (2000) indicated that Chinese firms do not have the same motivations for managing earnings like US firms. Worth noting is that the manager is not a shareholder in the Chinese sample.

These firms have no interest in managing earnings. In such a context, it is the state which encourages firms to manage earnings in order to increase profits earned in terms of foreign currencies through selling stocks to foreign investors. Moreover, Hepworth (1953) argued that investors show more confidence to firms that generate stable and regular profits. Similarly, Faez et al. (2014), using the modified models of Jones on a sample of 72 firms examined over the 2005-2013period found that earnings management enhances information asymmetry and reduces liquidity. Indeed, studying an American sample, Ascioglu et al. (2012) found the same result using two measures of liquidity: ask-bid spread and transaction volume.

The impact of the control variables on the ask-bid spread is assessed by the modified models of Jones (2). The t-Student test of the individual significance of the variables shows that firm size and volume significantly affect the ask-bid spread respective at the 1% and 5 % significance levels. This validates the hypothesis that firm size and transaction volume are complementary tools to the ask-bid spread. Consistent with our predictions, size of Tunisian firms negatively affects the ask-bid spread. This is consistent with several studies where size has a negative effect on the ask-bid spread. Many authors found similar results, like Durnev and Kim (2003). These studies in different contexts found a negative relationship between size and the ask-bid spread.

The obtained results also show that stock price, returns and volatility do not significantly affect the ask-bid spread. Moreover, we found that total accruals better explain the ask-bid spread than non-discretionary accruals. Furthermore the collected results reveal that earnings management increases agency costs and information asymmetry. Therefore, liquidity providers bear higher costs and therefore a higher ask-bid spread and a less liquid market. These results allowed us to conclude that liquidity providers are aware that earnings management of the Tunisian firms of our sample is not very high. Moreover, this result is in line with the thesis that investors prefer firms with more stable earnings. Such a finding encourages us to test in a second phase the type of relationship between the direction of earnings management and market liquidity.

Researchers like Easton, Harris and Ohlson (1992) argued that investors buy profits. Institutional investors are not attracted by firms with highly volatile earnings and are considered to be risky. Thus, institutional investors tend to favor firms that increase their profits. The finding on the study of the relationship between non-discretionary earnings and the ask-bid spread is that Tunisian investors do not give non-discretionary accruals its fair value. The explanatory power increases from 82% (R^2) for model (1) to 70% for model (3) (Table N ° 5).
However, the relationship between discretionary accruals and the ask-bid spread could be studied.

The results presented above show that the amounts manipulated by Tunisian firms positively correlate with the ask-bid spread. Nevertheless, the importance given by Tunisian investors to these accruals remains lower than that given to non-discretionary accruals insofar as the coefficient of discretionary accruals is 1,243 in model (2)and significant at the 5% level, while the coefficient of non-discretionary accruals, which is 1.411(3), is not significant. It should be mentioned that our interpretations rely on the ability of the models of Jones (1995) to detect such accounting practices. Thus, we validate the suggested second and third hypotheses indicating that the discretionary accruals of Tunisian firms have an additional information content compared to the non-discretionary accruals and better explain stock liquidity. It should be noted that most of the studies, which used the ask-bid spread as a measure of liquidity, found a significant relationship with earnings management. However, using transaction volume as a measure of liquidity, some studies, such as those of Nowghabi et al. (2015) foundnon-significant results.

V. Conclusion

This paper is focused on empirically evaluation of the impact of discretionary accruals on liquidity through the ask-bid spread and the effect of discretionary accruals direction. To this end, a research modified model of Jones was selected to evaluate the linear relationship and the effect of earnings management direction on the relationship between the spread and accruals by integrating a dichotomous variable. An explanation of the value of questioning the classical framework treating the relationship between liquidity and earnings management was done, such as to validate the negative relationship between these two variables in an emerging country like Tunisia. Moreover, a study of various approaches was proposed, and motivated by a wide range of theoretical arguments. In addition to high risk and returns, liquidity is another factor that motivates investors to purchase a given stock or reduce their ownership of another. This is particularly important for investors insofar as it motivates them to compensate for their lack of liquidity. Referring to experts' opinions, managing earnings is one of the factors that best determines liquidity.

In the same vein, it is likely that upward earnings management will result in higher liquidity costs and lower stock liquidity. As a result, aggressive earnings management reflects low accounting information quality. As a first hypothesis, the relationship between earnings management (the various components of accruals) and the ask-bid spread was examined. We found that each of these earnings management components significantly informs about firm liquidity. In line with previous research, the obtained results reveal the positive relationship between the ask-bid spread and earnings management of Tunisian firms. An increase in discretionary accruals is perceived as an earnings management reflecting an unethical behavior or an unsatisfactory source of information.–Moreover, our results corroborate those of Ascioglu et al. (2012) kan (2013) and Bafghi et al. (2014), who used the ask-bid spread as a measure of liquidity. The authors found that earnings management increases agency costs and information asymmetry. According to this finding, liquidity providers bear higher costs and thus a wider spread and a less liquid market. These results allowed us to conclude that liquidity providers are aware of earnings management and they prefer firms which generate more stable profits. In particular, such a practice is not observed in the Tunisian firms of our sample.

To support this observation, the relationship between earnings management direction and liquidity through the ask-bid spread and the different control variables (size, returns and transaction volume) was examined. The results pointed to a significant relationship between earnings management and the ask-bid spread. Explicitly, investors react according to earnings management direction.–As for the control variables, the correlation analysis confirmed our conclusions as we found a negative and a significant correlation between the ask-bid spread and firm size in the two measurement models. This negative effect can be attributed to the substantial control practiced over large firms.

Appendix. Earnings Management and Liquidity

AppendixI-1.Vif Tests

Model (1)

Variable	VIF	1/VIF
Size	1.17	0.857231
TAC	1.16	0.859804
SP	1.09	0.920805
VOL	1.06	0.943766
VR	1.02	0.981432
R	1.01	0.986284
Mean VIF	1.08	-

Model (2)

Variable	VIF	1/VIF
Size	2.69	0.371893
TAC	2.68	0.373029
SP	1.08	0.925347
VOL	1.06	0.944182
VR	1.03	0.970599
R	1.02	0.981440
Mean VIF	1.59	-

Model (3)

Variable	VIF	1/VIF
Size	1.09	0.920669
TAC	1.06	0.943840
SP	1.04	0.963947
VOL	1.04	0.964137
VR	1.02	0.981468
R	1.02	0.984587
Mean VIF	1.04	-

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