

NORMAL, ABNORMAL BOOK-TAX DIFFERENCES AND ACCOUNTING CONSERVATISM

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ABSTRACT

The present paper investigates the effect of book-tax differences on the accounting conservatism (as a proxy for financial reporting quality). The major objective of this study was to examine the extent to which regulatory and opportunistic information in book-tax differences influence accounting conservatism. We also aim to examine if book-tax differences are a signal of “bad news” for investors. Using publicly available financial statements from 2005 to 2012 for 28 Tunisian listed firms on the Tunis Stock Exchange and operating in the industrial and commercial sectors, we use a current measure for accounting conservatism and documents that observation with large book-tax differences are associated with low levels of accounting conservatism. Also, we find that firms with abnormal book-tax differences and normal book-tax differences exhibit less accounting conservatism. Overall, the results suggest that the total and differing components of book-tax differences have differential implications on accounting conservatism. Our research is valuable for researchers, shareholders as well as regulators. For researchers, it appears to an innovative area for future research. For shareholders, it shows the role of the information transmitted by book-tax differences into the analysis of earnings quality published by firms. This study also helps regulators to improve accounting rules and tax rule.

Keywords: book-tax differences, abnormal book-tax differences, normal book-tax differences, accounting conservatism

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INTRODUCTION

Famous accounting frauds, such as those witnessed to take place at Enron, Worldcom, Tyco and Xerox, have incited several researchers to investigate whether the book-tax differences (BTDs) could well serve as an indication of a potential “red flag” highlighting low earnings quality (Hanlon, 2005). Indeed, BTDs help in providing information concerning earnings quality level, while an increase in book-tax conformity helps improve information quality. Actually, this theme has constituted a subject of major concern for several scholars and drawn the interest of academic researchers, regulators and policymakers for almost a whole decade.

It is a well known fact that accounting information might affect taxable income, particularly in the presence of earnings management. Net income (profit / loss) is one of the most important products of accounting, but this result is sensitive to discretionary adjustments that have little or nothing to do with the reality of the firm. In fact, Revsine, Collins, Johnson and Mittelstaedt (2005) teach that “useful information for assessing the degree of conservatism in a firm’s portfolio of accounting choices can be extracted from the income tax footnote by comparing the ratio of pre-tax book income to taxable income”. In this regard, Mills and Newberry (2001) have discovered a positive relationship to persist between BTDs and financial reports, such as income smoothing, financial difficulties, and premium thresholds. In his conducted study concerning the U.S. context, Jackson (2015) has examined the association between BTDs and future earnings changes. He has discovered that earnings management appears to contribute greatly to the association between BTDs and future earnings changes.

One contemporary paper by Heltzer (2009) focuses on the relationship between BTDs and conservatism. She examines what information, if any, BTDs reveal about financial statement conservatism. She finds that firm-years with a large positive BTDs exhibit similar conditional and unconditional financial statement conservatism, relative to other sample firm-years, and greater conditional and unconditional taxable income conservatism, relative to other sample firm-years. Additionally, firm-years with large negative BTDs exhibit greater unconditional conservatism in book income, relative to other sample firm-years, and less conditional and unconditional conservatism in taxable income, relative to other sample firm-years. However, she does not test whether firms that engage in a high level of tax avoidance and earnings management exhibit less accounting conservatism.

In this study, we extend Heltzer (2009) by investigating whether firms with large book-tax differences driven by earnings management, tax avoidance

and their interaction are associated with low accounting conservatism. We examine whether regulatory and opportunistic sources of total BTDs differentially influence accounting conservatism in the Tunisian context. We focus our study on Tunisia because of its unique financial reporting setting. Tunisia is considered among the countries with the differences between the purposes of their accounting and tax rules and the purposes of their accounting and tax law, since each responds to a different standard-setting process. This context which is characterised, by an accounting system which offers several discretionary ways in the choice of accounting methods and a tax system that gives large latitude in tax management, gives rise tax and accounting manipulations and following the differences in accounting and tax results.

This study differs from Heltzer (2009) in several ways. First, we decompose BTDs into normal and abnormal components. According to Tang and Firth (2012), normal BTDs (NBTDs) refer to the differences likely to be derived from the different reporting rules for book and tax purposes. Abnormal BTDs (ABTDs) reflect the differences that are more likely to stem from earnings management and tax evasion practices as well as their interaction.

Second, we include just a conditional conservatism in our accounting conservatism measure. Our primary measure of conservatism is Khan and Watts' (2009) *C-score*, which is based on Basu's (1997) timeliness measure of conservatism. The *C-score* captures both the time series and the cross-sectional variations in measuring individual firms' conditional conservatism (Khan & Watts, 2009). Finally, we examine whether regulatory sources of total BTDs are also associated with low accounting conservatism, and how BTDs represent bad signal information for investors and stakeholders. The present paper will focus on investigating the role of book-tax differences in indicating the earnings quality and especially accounting conservatism.

The major objective of this study was to examine the extent to which regulatory and opportunistic information, as impounded in book-tax differences, proves to influence accounting conservatism. We also aim to analyse that the book-tax differences are a signal of "bad news" for investors.

Using publicly available financial statements from 2005 to 2012 for 28 Tunisian listed firms on the Tunis Stock Exchange and operating in the industrial and commercial sectors, we use a new measure of accounting conservatism and documents that firm-years with large book-tax differences are associated with low levels of accounting conservatism. Also, we find that firms with ABTDs and NBTDs exhibit less accounting conservatism.

Therefore, this study makes a major contribution to research on BTDs by demonstrating their informational value to investors. Our research is valuable for researchers, shareholders as well as regulators. For researchers, it appears to an innovative area for future research. For shareholders, it shows the role of the information transmitted by book-tax differences into the analysis of earnings quality published by firms. This study also helps regulators to improve accounting rules and tax rules.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Prior literature has documented that BTDs are an important area in examining earnings quality. On the one hand, and for report elaboration purposes, financial statements usually communicate information useful for investors, creditors and other users to help them in making the best and most effective decisions. On the other hand, and for the sake of a more efficient earnings quality assessment, several researchers have tended to apply the financial statements' contained tax information, mainly that reflected in BTDs (Hanlon, 2005; Lev & Nissim, 2004; Blaylock, Shevlin, & Wilson, 2011; Wahab & Holland, 2015). In fact, previous studies revealed that companies exhibiting large differences between the book income and the taxable one usually tend to show highly decreased persistent earnings, low earnings growth and remarkably high earnings management practices, as compared to companies with average BTDs levels. More specifically, Lev and Nissim (2004) exposed a significant relationship between total BTDs and earnings shifts. Hanlon (2005) found that firms with large temporary differences appear to have less persistent earnings and accruals. She showed that BTDs reflect a lower earnings quality of broadcast information. In addition, Blaylock et al. (2011) confirm well the Hanlon (2005) research finding, stating that firms with large positive temporary differences tend to have less persistent earnings. Similarly, Ayers, Laplante and McGuire (2010) have examined whether credit analysts use the BTDs' transmitted information to analyse company credit risk. Indeed, since the book income noticeably differs from the taxable income, credit analysts may well be led to interpret such divergence as being an information quality deterioration signal.

Financial texts most often state well that BTDs can stand as means of information telling investors about the earnings quality. Weber (2009) has proved that investors and financial analysts use the BTDs' information when predicting future earnings and firm value. In turn, Phillips, Pincus and Rego (2003) have undertaken to evaluate the usefulness of the deferred tax expense in determining earnings management. Asgari and Behpouri (2014) assume that the discretionary

authority is more remarkable in accounting rules rather than into tax rules. Thus, managers usually tend to exploit this discretion to manage book income in an upward trend, leading to large BTDs and, subsequently, to increasing deferred tax expenses. Furthermore, Heltzer (2009) has noted that managerial discretion proves to be more involved in determining accounting earnings in respect of taxable income. She has also revealed the fact that whenever BTDs increase, book income would prove to deviate upwardly as compared to taxable income, allowing for a reduced accounting conservatism.

Several studies have proposed to measure the differences between the book income and the taxable one through deferred tax, dubbing their temporary differences. Yet, total differences include the entirety of components (temporary, permanent, normal and abnormal), involving vast information content regarding information quality. In this respect, Heltzer (2009) has examined, the usefulness of the BTDs' contained information to show the extent of conservatism prevailing in financial statements. In fact, she has shown that the relationship between BTDs and accounting conservatism depends highly on several factors. Indeed, she suggests that this relationship varies depending on the persistence of either large positive BTDs and/or negative ones. Firms with large positive BTDs tend to exhibit the same conditional and unconditional conservatism of financial statements and a higher level of conservatism in regard of taxable income as compared to other firms in the sample. In contrast, firms with large negative BTDs tend to display a higher conditional and unconditional conservatism on the book income and a lower conservatism level on taxable income in respect of other firms in the sample.

Based on the entirety of these cited findings, one may well predict that the BTDs' information content appears to help largely indicate the earnings quality (Jackson, 2015; Huang & Wang, 2013). These differences allow us to reveal their importance if they change investors' as well as financial analysts' expectations concerning the firms' future performance and its created value. Correspondingly, we predict that earnings are less conservative for firms with high total BTDs. Our first hypothesis is:

H1: Firms with high total BTDs exhibit low accounting conservatism.

To note, NBTDs indicate large differences persisting between accounting rules and tax ones. Tang and Firth (2011) noted that these differences have no connection with the firm managers' opportunistic intervention. In this regard, Bouaziz Daoud and Ali Omri (2011a) add that normal BTDs is constituted by temporary and permanent differences. These are caused by the differences

between the fiscal rules' objectives and those of the accounting rules. Jackson (2009) found that large permanent differences help reduce future net income as they relate to higher future tax expenses. The author adds that temporary BTDs are negatively associated with earnings quality. Hanlon (2005) demonstrates a negative association between earnings persistence and the large positive (negative) temporary differences. She considers that BTDs stand as "red flags" affecting the firm's potential performance forecasts. This finding was confirmed by Tang and Firth (2012) who found a negative relationship to predominate between the NBTDs and future earnings on the one hand, and even a negative relationship between these differences and stock prices, on the other.

Watts (2003) argues that as the link between financial and tax reporting increase, conservatism will also increase as departures from conservatism will have unfavorable tax consequences. Thus, Plesko (2004) found that, if the conservatism hypothesis is correct, the increase in book-tax differences suggests that the link between tax and financial reporting may have declined, leading to less financial conservatism and a relative increase in the net asset value of firms. In Romania context, Istrate (2011) investigated that intangible assets may be treated differently from the accounting and fiscal viewpoints, which also points out the differences between the fiscal and accounting prudence.

With respect to the Tunisian context, the subject of study, one may well assume that NBTDs can also inform users about poor information quality in a bid to help investors predict future performance and determine the accounting conservatism level.

Consistent with this insight, we predict that firms with high NBTDs are less conservative.

H2: Firms with high NBTDs exhibit low accounting conservatism.

According to Tang and Firth (2012), the discretionary component of the BTDs is due to discretionary practices of managers at the choice of accounting and tax practices. These practices are earnings management and tax management. Previous research has indicated that ABTDs have a negative effect on the earnings quality. Blaylock et al. (2011) found a negative relationship between ABTDs and earnings persistence. In addition, Ayers et al. (2010) question about the relative information in taxable income versus book income. The authors extend Hanlon, Laplante and Shevlin (2005) and document that taxable income has more incremental information relative to book when tax planning is less likely and earnings management is more likely. Contrary to Ayers et al. (2010), Chen,

Dhaliwal and Trombley (2012) discovered that the taxable income has less incremental information when earnings management is more likely. For this reason, Tang and Firth (2012) have considered that the information content of ABTDs is relevant. The authors have shown a significantly negative association between ABTDs and earnings persistence and earnings-returns. Heltzer (2009) examines that the variations in book-tax differences reveal information about variations in financial statement conservatism. In their additional test, Heltzer (2009) uses discretionary book-tax differences to provide insights into the causes of book-tax differences. Their findings suggest that large positive book-tax differences are not, on average, caused by aggressive book reporting, but may be caused by aggressive tax reporting. Their results also suggest that large negative book-tax differences may be the result of the smoothing of both book income and taxable income. Their additional tests involving discretionary book-tax differences support these notions.

The achieved results indicate that firms with large positive discretionary differences usually tend to exhibit a greater conditional and unconditional conservatism in taxable income as well as a similar conditional and unconditional conservatism in regard to book income. Heltzer (2009) means that the relation between tax and conservatism is stronger when firms' reported income is more conform to its taxable income.

Overall, there seems to be some evidence to indicate that ABTDs affect negatively accounting conservatism.

As discussed previously, ABTDs reflect a high level of opportunistic book and tax reporting. We predict that ABTDs deteriorate accounting conservatism. Our third hypothesis is as follows:

H3: Firms with high ABTDs exhibit low accounting conservatism.

METHODOLOGY

Sample Selection and Data

The initial obtained sample contains 77 Tunisian firms listed on the Tunisian's Stock Exchange (TSE) during eight years ranging from 2005 to 2012. This choice is justified by the need to provide a favourable framework to study the relation between BTDs and accounting conservatism and by the choice of study variables (including accounting conservatism). From the initial sample, we have eliminated firstly the financial firms. This exclusion is justified by the fact that they are

governed by a special legislation in the preparation of their financial statements and by specific sector accounting standards. Secondly, we have chosen to remove firms with missing necessary data to work on a balanced panel. Hence, 28 firms and 224 observations remain in our sample (Table 1).

The listed companies' relevant data are collected from published financial statements on the Tunisian stock exchange and Financial Market Council.

Table 1
Sample selection

Sample	Number of firms
Initial sample	77
Financial firms	(47)
Firms with insufficient data	(2)
Final sample	28
Duration of study	8
Total observations	224

Sector	Firms (2005–2012)
Industrial sector	
Agro-food industry	32
Construction material	48
Chemicals	40
Various industry	16
Total industrial firms	136
Commercial sector	
Total commercial firms	32
Service sector	
Total service firms	56
Total firms-years	224

Variables Measurement

Accounting conservatism

In the present study, the dependent variable is accounting conservatism. There is no single accepted measure of accounting conservatism in the accounting literature. In order to measure the conservatism in each firm-year, we adopt the model of

Khan and Watts (2009), based on Basu (1997). Based on the model developed by Basu (1997), Khan and Watts (2009) have added that conservatism constitutes a linear function of the market-to-book ratio, size and leverage of the annual cross-sectional Basu (1997) regression, the *C-score* is able to take into account both firm and year variation in conservatism. The model of Basu (1997) can be written as:

$$\frac{X_{i,t}}{P_{i,t-1}} = \beta_0 + \beta_1 [D_{it}] + \beta_2 [R_{it}] + \beta_3 [R_{it}D_{it}] + \varepsilon_{i,t} \quad (1)$$

where $X_{i,t}$ is the earnings per share for firm i in fiscal year t , $P_{i,t-1}$ is the price per share at the beginning of the fiscal year, R_{it} is the return on the firm i over the period nine months before fiscal year-end t to three months after fiscal year-end t , D_{it} is a dummy variable equal to 1 when $R_{it} < 0$ and equal to 0 otherwise and $\varepsilon_{i,t}$ is the residual. The good news timeliness measure is β_2 . The measure of incremental timeliness for bad news over good news, or conservatism, is β_3 and the total bad news timeliness is $\beta_2 + \beta_3$.

Watts (2003) suggests that conservatism varies with four factors: contracts (including debt and compensation contracts), litigation, taxation and regulation. Previous research (eg, Watts, 2003; Guay, 2008; Zhang, 2008; Gao, 2013) has documented the role of debt covenants and conservative financial accounting in addressing agency conflicts between lenders and borrowers.

Khan and Watts (2009) introduced in the Basu model the following variables: the market-to-book ratio; firm size; and firm leverage in order to generate “*C-Score*”, which estimates the level of conservatism. Khan and Watts (2009) find that conservatism is a linear function of the Market-to-Book Ratio, size and leverage. The specifications of *C-Score* are:

$$C\text{-SCORE}_{it} = \beta_3 = \lambda_0 + \lambda_1 (SIZE)_{it} + \lambda_2 (M/B)_{it} + \lambda_3 (LEV)_{it} \quad (2)$$

where SIZE: stands for the natural log of equity market value; M/B: represents the market-to-book ratio and LEV: is leverage, defined as long-term and short term debt, deflated by equity market value.

Replacing β_3 in Equation (1) by Equation (2) yields the following empirical regression model:

$$\begin{aligned} \frac{X_{i,t}}{P_{i,t-1}} = & \beta_0 + \beta_0 D_{it} + R_{it}(\mu_1 + \mu_2 SIZE_{it} + \mu_3 MTB_{it} + \mu_4 LEV_{it}) \\ & + D_{it} R_{it}(\lambda_0 + \lambda_1 SIZE_{it} + \lambda_2 MTB_{it} + \lambda_3 LEV_{it}) + (\delta_1 SIZE_{it} + \\ & \delta_2 MTB_{it} + \delta_3 LEV_{it} + \delta_4 D_{it} SIZE_{it} + \delta_5 D_{it} MTB_{it} + \delta_6 D_{it} LEV_{it}) + \varepsilon_{i,t} \end{aligned} \quad (3)$$

To estimate the level of conservatism concerning each company, we adopt the following approach Gao (2013), Francis, Hasan and Wu (2013), and André, Filip and Marmousez (2014): We begin by estimating λ_i , $i = 0$ to 3 in Equation (3), then we introduce the estimated parameters in the Equation (2) of *C-Score*. We interpret a higher value of *C-Score*_{it} as accounting information with a higher level of conservatism.

Total book-tax differences

Following most of the conducted researches (e.g., Manzon & Plesko, 2002; Ayers et al., 2010; Frank, Lynch & Rego, 2009; Wilson, 2009; Dhaliwal, Huber, Lee, & Pincus, 2008; Desai & Dharmapala, 2006; Hanlon et al., 2005; Moore, 2012; Hanlon, Krishnan, & Mills, 2012; Tang, 2015), BTD is the spread between pre-tax book income and taxable income. Taxable income is estimated by the rapport between the current tax expense and the tax rate.

Estimating NBTDs and ABTDs

Manzon and Plesko (2002) conducted an investigation of the major differences noticeable between book income and the taxable one. Actually, they identify four activity types likely to affect book-tax income spread namely: 1) demand controls for tax favored investment and financing action, 2) direct investment sources' related timing differences, 3) permanent differences and 4) noise factors. Graham, Raedy and Shackelford (2012) found that the determinants of BTDs include tax planning, earnings management, general business conditions, changes in financial accounting rules, changes in firm-level sales and the level of property, plant and equipment in a given firm. In this study, we adopt the approach developed by Tang and Firth (2011) and isolate the BTD information related to regulatory differences and the BTD information related to opportunistic differences. They regress total BTDs on non discretionary items that are known to cause NBTDs but are less likely to reflect earnings or tax manipulations. These items are changes in sales, gross property, plant and equipment, non-goodwill intangible assets, net operating loss and tax rate differences.

In this study, we use factors related to differences in Tunisian tax and accounting rules to explain non discretionary differences. We regress total book-tax differences on factors of changes in sales, gross property plant and equipment, profitability and lagged BTDs.

The estimation equation is:

$$BTDS_{it} = \beta_0 + \beta_1 \Delta REV_{it} + \beta_2 PROF_{it} + \beta_3 \Delta INV_{it} + \beta_4 LagBTDS_{it} + \epsilon_{it} \quad (4)$$

where

$BTDS_{it}$ = total book-tax differences for the firm i in year t obtained from the difference between pretax book income and taxable income;

ΔREV_{it} = the change in revenue from year $t-1$ to year t ;

ΔINV_{it} = the change in investment in gross property, plant and equipment from year $t-1$ to year t ;

$PROF_{it}$ = a binary variable equal to one if the firm reports positive pre-tax income and zero otherwise;

$LagBTDS$ = reported book-tax differences in year $t-1$.

ΔREV is used to capture the effect of economic growth on NBTDS. In Tunisian context, sales growth may well lead to enormous credit losses. In financial reporting, these receivables are immediately recognised to stand as losses. Consequently, they lead to reducing the annual income and, subsequently, reducing the income tax expenses. Inversely, however, during tax reporting, these receivables are deductible from the taxable amount, providing certain conditions are met. Such treatment differences may likely will create remarkable non discretionary differences between the book-income and the taxable one.

ΔINV is used to capture of the growth in investment on NBTDS. According to the Tunisian accounting standard, the observation of tangible fixed assets' depreciation is mandatory. At tax level, however, no deduction is allowed, which involves negative differences between the accounting income and the taxable one. In this regard, Manzon and Plesko (2002) found a positive relationship to prevail between investment growth and BTDS. Tang and Firth (2011) apply this variable to capture the investment scale growth effect on BTDS relating to mechanical depreciation and amortisation. They claim that investment growth is likely to help increase the provision for fixed and intangible assets' impairment provisions in the income statement appear as required under existing accounting standards.

$PROF$: Manzon and Plesko (2002) found that profitable companies can effectively apply the tax deductions and tax credits to benefit from tax exemptions. Indeed, in beneficiary firms, managers usually appeal to these tax benefits in a bid to reduce the amount of taxable incomes; thus, increasing the differences between book income and tax income (Sodan, 2012).

LagBTDs: This variable stands as a noise factor with a positive effect on the level of differences between the book income and the taxable income Manzon and Plesko (2002).

To control for firm size, all variables are scaled by average total assets at year t except for *PROF*. NBTDs are the fitted values from Equation (4) and the residuals are ABTDs.

Control variables

We add other variables in regression to control for performance, size, sales growth, and growth opportunities. Previous researches suggest a negative association between performance and accounting conservatism. Ahmed, Billings, Morton and Stanford-Harris (2002) argue that the mechanical, negative association between accounting conservatism and ROA dominates the positive association between accounting conservatism and profitability. We expect a negative relationship between ROA and accounting conservatism. Khan and Watts (2009) suggest that small firms exhibit high accounting conservatism level than large firms. Watts and Zimmerman (1986) propose that large firms have high political costs, resulting in high accounting conservatism. We include also leverage to control for the effect of bondholder-shareholder conflicts over dividend policy on accounting conservatism (Ahmed et al., 2002).

Table 2
Statutory variables definitions and measurements

Variables	Symbols	Measures	Authors
Dependent variable			
Accounting conservatism	C-Score	The level of conservatism of firm i in year t measured by the model of Khan and Watts (2009).	Khan and Watts (2009), Gao (2013), Francis et al. (2013), Jarboui (2013), André et al. (2014).
Independent variables			
Book-tax differences	BTDs	The difference between pretax book income and taxable income.	Manzon and Plesko (2002) , Ayers et al. (2010), Dhaliwal et al. (2008), Desai and Dharmapala, (2006) Hanlon et al. (2005) Moore, (2012), Hanlon et al. (2012)
Normal book-tax differences	NBTDs	Represent the estimated values, in cross sections, of the BTDs' corresponding equation (4)	Tang and Firth (2012)

(continued on next page)

Table 2: (continued)

Variables	Symbols	Measures	Authors
Abnormal book-tax differences	ABTDs	The residual estimated from equation (4) (The difference between BTDs and ABTDs).	Tang and Firth (2012)
Control variables			
Returns on asset	ROA	The ratio of earnings per share to total assets	Khan and Watts (2009)
Size	SIZE	Ln (total assets)	Khan and Watts (2009) Watts and Zimmerman (1986)
Leverage	LEV	Total debts/total assets	Ahmed et al. (2002), Dichev and Skinner (2002), DeFond and Jiambalvo (1994), Zmijewski and Hagerman (1981)
Growth opportunities	ΔREV	Calculated in terms of current year net sales, as reported on the income statement, minus the previous year net sales.	Ahmed et al. (2002)

EMPIRICAL RESULTS

We examine how different sources of BTDs affect the level of accounting conservatism. We estimate the following models:

$$C\text{-score}_{it} = \alpha_0 + \alpha_1 BTDs_{it} + \alpha_2 ROA_{it} + \alpha_3 SIZE_{it} + \alpha_4 LEV_{it} + \alpha_5 \Delta REV_{it} + \varepsilon_{it} \quad (5)$$

$$C\text{-score}_{it} = \alpha_0 + \alpha_1 NBTDs_{it} + \alpha_2 ROA_{it} + \alpha_3 SIZE_{it} + \alpha_4 LEV_{it} + \alpha_5 \Delta REV_{it} + \varepsilon_{it} \quad (6)$$

$$C\text{-score}_{it} = \alpha_0 + \alpha_1 ABTDs_{it} + \alpha_2 ROA_{it} + \alpha_3 SIZE_{it} + \alpha_4 LEV_{it} + \alpha_5 \Delta REV_{it} + \varepsilon_{it} \quad (7)$$

where $C\text{-score}_{it}$ designates the conservatism level of the firm i in year t ; BTD reported book-tax differences in year t ; $NBTDs$ represent the estimated values, in cross sections, of the BTDs' corresponding equation; $ABTDs$ are calculated by determining the difference between total $BTDs$ and $NBTDs$; ROA is the ratio of earnings per share to total assets; $SIZE$ is calculated as a logarithm of total assets; LEV is calculated as the ratio of total debt to total assets; ΔREV changes in revenues from year $t-1$ to year t , which is a proxy for growth opportunities.

Results of Estimated BTDs

We estimate ABTDs and NBTDs by using panel data. As shown in Table 3 (Panel A), all coefficients are significantly different from zero except for ΔINV . The adjusted R^2 is 0.54, consistent with the notion that a large proportion of the BTDs is caused by mechanical or economic differences. These results differ from some published studies (Tang & Firth, 2011). In the Chinese context, they find that adjusted R^2 is 0.79. This can be explained by the difference between accounting and tax system of the two contexts.

Table 3

Panel A: Estimated coefficient from BTDs

$$BTD_{sit} = \beta_0 + \beta_1 \Delta REV_{it} + \beta_2 PROF_{it} + \beta_3 \Delta INV_{it} + \beta_4 LagBTD_{it} + \varepsilon_{it} \quad (4)$$

	Coefficients	P-value
ΔREV	0.030	0.080*
PROF	0.098	0.000***
ΔINV	0.004	0.892
LagBTDS	0.364	0.000***
Adjusted R^2	0.54	
Sample	224	

Note: In Panel A, ***, **, * denotes the significance of one-tailed test at the level of 0.01, 0.05 and 0.10.

Variable definitions:

BTD = reported book-tax differences in year t ;

ΔINV = changes in investment in the sum of gross property, plant and equipment in year t , which is a proxy for investment growth;

ΔREV = changes in revenues from year $t-1$ to year t , which is a proxy for economic growth;

PROF = is a binary variable equal to one if the firm reports positive pre-tax income and zero otherwise;

LagBTDS = reported book-tax differences in year $t-1$;

All variables are scaled by average total assets except for PROF.

Analysis of Conservatism, BTDS and ABTDs Evolution Over the Period of 2005–2012

Figure 1 reports the evolution of accounting conservatism in Tunisia financial statements over the period 2005–2012. Figure 1 reveals that there has been a decrease in the accounting conservatism in Tunisia since 2006 and 2010. Bad news is reflected rapidly in earnings. This variation is due to financial instability in the period of 2010/2011 Tunisian revolution.

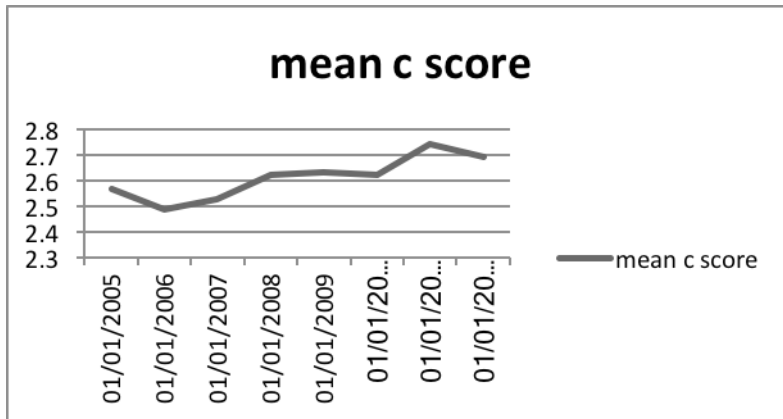


Figure 1. Evolution of accounting conservatism 2005–2012

Figure 2 reports the evolution of BTDS in Tunisia financial statements over the period 2005–2012. We show a volatile variation, the overall trend is on the increase and declining. Figure 2 reveals that there has been an increase in the BTDS since 2006 then by a decrease since 2008. Indeed, in 2009 average BTDS is equal to 0.025 and 0.014 in 2012. This variation in BTDS could be explained by the mechanical differences between the accounting system and the tax system, or from earnings management activities.

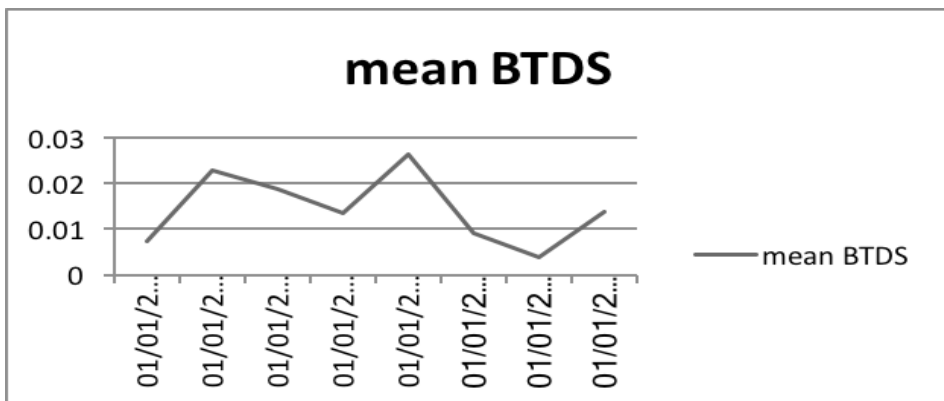


Figure 2. Evolution of total book-tax differences 2005–2012

Figure 3 reports the evolution of ABTDs in Tunisia financial statements over the period 2005–2012. The general trend in this figure is an increase in the ABTDs from the early 2008 and 2011 followed by a sharp decrease in 2012. This variation is explained by the extent of opportunistic practices made in order to lessen the maximum income tax expense.

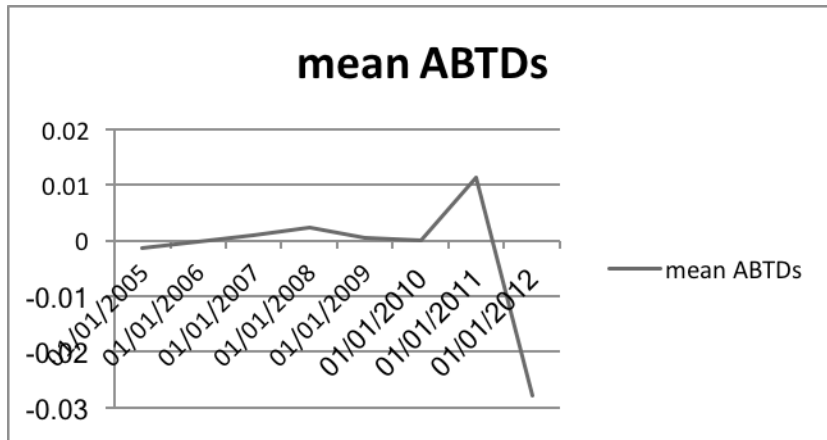


Figure 3. Evolution of abnormal book-tax differences 2005–2012

Descriptive Statistics And Univariate Analysis

Table 4 provides summary statistics for accounting conservatism, BTDs, NBTDs and ABTDs. With regard to our main conservatism measure, *C-score*, we find that the mean value is 2.610 and the median value is 2.481. Our results are higher than those of Khan and Watts (2009) (mean = 0.105 and median = 0.097). Two reasons are possible. The first is relative to difference between contexts. Second, our *C-score* is only for 2005–2012 but Khan and Watts measure *C-score* from 1963 to 2005. Francis et al. (2013) found also that results of the *C-score* are higher than those of Khan and Watts (2009) and the value is much closer to that of Khan and Watts (2009).

The average book-tax difference level is 1.4% with minimum BTDs of -30.7% and a maximum of 16.30%. The discrepancy between the minimum and maximum values is considerably high, denoting large heterogeneity in the firms' reporting gap.

The analysis of control variables shows that leverage (LEV) owns on average 50.2% in the capital of Tunisian firms. It reveals that most Tunisian listed companies have a high level of debt. Sales growths (Δ REV) attain an average rate of 8.14%, while performance (ROA) is of an order of 5.6% of total assets.

Table 4
Descriptive statistics

Variables	Mean	Min	Max	SD	Median
C-score	2.610	2.134	5.283	0.483	2.481
BTDs	0.014	-0.307	0.163	0.061	0.019
ABTDs	.0004	-0.130	0.116	0.041	-0.002
NBTDs	0.013	-0.177	0.098	0.045	0.030
SIZE	18.112	15.489	21.197	1.008	17.959
LEV	0.502	0.081	0.977	0.200	0.524
ROA	0.056	-0.316	0.179	0.067	0.055
ΔREV	0.081	-0.420	1.464	0.175	0.065

Note: $C\text{-score}_{it}$ (dependent variable) designates the conservatism level of firm i in year t ; BTD is computed by determining the difference recorded between the pre-tax book income and the taxable income; $NBTDs$ represent the estimated values, in cross sections, of the $BTDs$ ' corresponding Equation (4); $ABTDs$ abnormal $BTDs$ residual estimated from Equation (4); ROA is the ratio of earnings per share to total assets; $SIZE$ is calculated as a natural logarithm of total assets; LEV is calculated as the ratio of total debt to total assets; ΔREV is calculated in terms of current year net sales, as reported on the income statement, minus the previous year net sales.

Correlation Analysis

Table 5 shows Spearman correlations between main variables used in our analysis. As expected, we find that $BTDs$ and $NBTDs$ are negatively, but insignificantly correlated with the $C\text{-score}$. Only $ABTDs$ are significantly negatively correlated with the $C\text{-score}$.

We test for multicollinearity in the regressions by calculating variance inflation factors and condition indices. All of the VIFs are under 2, suggesting that multicollinearity does not appear to be a potential problem.

Panel Data Tests

Fixed effects test

To test the presence of individual effects in three models, check whether the specification of the generating process data is homogeneous or heterogeneous. The result of this test is a statistical Fisher presented in Table 6.

According to this table, the Fisher test proves to be significant at the 1% threshold with respect to both regressions, thus confirming the individual fixed effects.

Table 5
Correlation matrix

Panel B (Equation 5)

	<i>C-score</i>	BTDs	SIZE	LEV	ROA	ΔREV	VIF
<i>C-score</i>	1						
BTDs	-0.094 (0.160)	1					2.50
ROA	-0.028 (0.673)	0.771 (0.000***)	1				2.69
ΔREV	0.042 (0.525)	0.195 (0.003***)	0.205 (0.002***)	1			1.14
LEV	0.520 (0.000***)	-0.337 (0.000***)	-0.407 (0.000***)	0.214 (0.001***)	1		1.67
SIZE	0.734 (0.000***)	-0.070 (0.296)	-0.046 (0.493)	0.084 (0.208)	0.442 (0.000***)	1	1.28

Notes: *C-Score_{it}* designates the conservatism level of the firm *i* in year *t*; **BTD** is computed by determining the difference recorded between the pre-tax book income and the taxable income; **ROA** is the ratio of earnings per share to total assets; **SIZE** is calculated as a natural logarithm of total assets; **LEV** is calculated as the ratio of total debt to total assets; **ΔREV** is calculated in terms of current year net sales, as reported on the income statement, minus the previous year net sales. *, **, *** denote significant differences from zero at 0.10, 0.05 and 0.01 levels, respectively.

Panel C (Equation 6)

	<i>C-score</i>	NBTDs	SIZE	LEV	ROA	ΔREV	VIF
<i>C-score</i>	1						
NBTDs	-0.104 (0.119)	1					1.84
ROA	-0.028 (0.673)	0.516 (0.000***)	1				2.04
ΔREV	0.042 (0.525)	0.322 (0.000***)	0.205 (0.002***)	1			1.15
LEV	0.520 (0.000***)	-0.170 (0.010***)	-0.407 (0.000***)	0.214 (0.001***)	1		1.67
SIZE	0.743 (0.000***)	-0.087 (0.194)	-0.046 (0.493)	0.084 (0.208)	0.442 (0.000***)	1	1.27

Notes: *C-Score_{it}* designates the conservatism level of the firm *i* in year *t*; **NBTDs** represent the estimated values, in cross sections, of the BTDs' corresponding equation (4); **ROA** is the ratio of earnings per share to total assets; **SIZE** is calculated as a natural logarithm of total assets; **LEV** is calculated as the ratio of total debt to total assets; **ΔREV** is calculated in terms of current year net sales, as reported on the income statement, minus the previous year net sales. *, **, *** denote significant differences from zero at 0.10, 0.05 and 0.01 levels, respectively.

Hausman specification test

The results of the Hausman test are shown in Table 6.

The probability of the chi-squared test is less than 10% for both models (5) and (6) which allows us to reject the null hypothesis and to promote our regression fixed effect models. Against by, for the model (7), there is a probability of chi square, which is greater than 10%. This allows us to accept a random effects model.

Heteroscedastic test

To check if the error variance is not constant in our data, we use the Breusch-Pagan test. The result of this test is a statistical Fisher. Thus, the null hypotheses of this test indicate the absence of heteroscedasticity problem.

Table 6 reveals that the Breusch Pagan test appears to be noticeably significant at the 1%, which means the heteroscedasticity of these models.

Autocorrelation test

For three models, the auto correlation error test is conducted through the Wooldridge test. We can conclude that the residual is auto-correlated. We correct this problem through the Generalised Least Squares method.

Table 6
Results of tests on panel data

Tests	Fixed Effects test	Specification test	Heteroscedastic test	Autocorrelation test
	Fisher test	Hausman test	Breusch Pagan test	Wooldridge test
Equation 5	9.42 (0.000)***	24.20 (0.000)***	308.92 (0.000)***	13.115 (0.001)***
Equation 6	12.10 (0.000)***	14.45 (0.000)***	274.94 (0.000)***	16.523 (0.000)***
Equation 7	11.21 (0.000)***	8.57 (0.127)	332.40 (0.000)***	10.170 (0.003)***

Notes: *** denotes significant differences from zero at 0.01 level.

$$C\text{-score}_{it} = \alpha_0 + \alpha_1 BTDS_{it} + \alpha_2 ROA_{it} + \alpha_3 SIZE_{it} + \alpha_4 LEV_{it} + \alpha_5 \Delta REV_{it} + \varepsilon_{it} \quad (5)$$

$$C\text{-score}_{it} = \alpha_0 + \alpha_1 NBTDS_{it} + \alpha_2 ROA_{it} + \alpha_3 SIZE_{it} + \alpha_4 LEV_{it} + \alpha_5 \Delta REV_{it} + \varepsilon_{it} \quad (6)$$

$$C\text{-score}_{it} = \alpha_0 + \alpha_1 ABTDS_{it} + \alpha_2 ROA_{it} + \alpha_3 SIZE_{it} + \alpha_4 LEV_{it} + \alpha_5 \Delta REV_{it} + \varepsilon_{it} \quad (7)$$

C-Score_{it} (dependent variable) designates the conservatism level of firm *i* in year *t*; **BTD** is computed by determining the difference recorded between the pre-tax book income and the taxable income; **NBTDs** represent the estimated values, in cross sections, of the BTDs' corresponding equation (4); **ABTDs** abnormal BTDs residual estimated from equation (4); **ROA** is the ratio of earnings per share to total assets; **SIZE** is calculated as a natural logarithm of total assets; **LEV** is calculated as the ratio of total debt to total assets; **ΔREV** is calculated in terms of current year net sales, as reported on the income statement, minus the previous year net sales. *, **, *** denote significant differences from zero at 0.10, 0.05 and 0.01 levels, respectively.

Regression Analysis

We first test how BTDs affects accounting conservatism as measured by *C-score*. The results of our regressions are shown in Table 7.

Table 7
Linear regression results

Variables	Panel B (Equation 5)		Panel C (Equation 6)		Panel D (Equation 7)	
	Coefficient	<i>p</i> -value	Coefficient	<i>p</i> -value	Coefficient	<i>p</i> -value
BTDs	-1.37	0.001***	–	–	–	–
NBTDs	–	–	-0.071	0.116	–	–
ABTDs	–	–	–	–	-0.835	0.014**
ROA	0.875	0.010***	0.088	0.741	0.203	0.404
SIZE	0.159	0.000***	0.170	0.000***	0.161	0.000***
LEV	0.386	0.000***	0.316	0.000***	0.371	0.000***
ΔREV	-0.036	0.503	-0.029	0.503	-0.076	0.262
Wald	285.58		368.76		205.73	
Prob > chi2	(0.000)***		(0.000)***		(0.000)***	

Notes: *C-Score_{it}* (dependent variable) designates the conservatism level of firm *i* in year *t*; **BTD** is computed by determining the difference recorded between the pre-tax book income and the taxable income; **NBTDs** represent the estimated values, in cross sections, of the BTDs' corresponding equation (4); **ABTDs** abnormal BTDs residual estimated from equation (4); **ROA** is the ratio of earnings per share to total assets; **SIZE** is calculated as a natural logarithm of total assets; **LEV** is calculated as the ratio of total debt to total assets; **ΔREV** is calculated in terms of current year net sales, as reported on the income statement, minus the previous year net sales. *, **, *** denote significant differences from zero at 0.10, 0.05 and 0.01 levels, respectively.

The results, as shown in Table 7, indicate that a negative and significant association between BTDs and accounting conservatism. This result is significant at the $p = 0.001$ levels. This finding is in agreement with (Tang & Firth, 2011; Hanlon, 2005; Lev & Nissim, 2002; Blaylock et al., 2011) findings which showed a negative association between BTDs and earnings quality. Furthermore, Revsine et al. (2005) state that BTDs represent a potential danger signal that should be investigated, because it might be an indication of deteriorating earnings quality. These results prove the critical usefulness of accounting information and tax information for shareholders and stakeholders. In addition, accounting conservatism has been manifested at various levels of verification, for the purpose of recognising and deciphering the 'good' news from the 'bad' ones in financial statements (Basu, 1997). Indeed, one could well testify and document a negative impact of BTDs on this proxy of earnings quality. Watts (2003) argues that as the links between financial and tax reporting increase, conservatism will also increase as departures from conservatism will have unfavorable tax consequences.

Concerning panels B and C, and on using the Tunisian context related data, we consider it useful to separate BTDs into normal BTDs (NBTDs) and abnormal BTDs (ABTDs) components. Thus, based on Table 7 (panel B), the regression results prove to reveal that the normal differences (NBTDs) do appear to negatively affect accounting conservatism ($\alpha = -0.071$, $p = 0.116$). However, the findings of the current study do not support the previous research by Tang and Firth (2012). They found that these mechanical differences could as well include low earnings persistence. Besides, this negative connection between the NBTDs and the accounting conservatism might as well lead investors to be confronted with book income that could appear to be less conservative and little informative on the firm's potential profitability prospects. In a Tunisian context, Bouaziz Daoud and Ali Omri (2011b) shown that NBTDs have a negative impact on earnings persistence.

With respect to panel C, Table 7 shows that ABTDs affect negatively and significantly ($\alpha = -0.835$, $p = 0.014$) accounting conservatism. This result indicates that firms with large ABTDs are associated with lower accounting conservatism.

This finding supports previous research into this brain area which links ABTDs and earnings quality (Huang & Wang, 2013; Tang & Firth, 2012; Blaylock et al., 2011; Hanlon, 2005). Huang and Wang (2013) found that firms with large temporary differences are associated with lower earnings persistence. In fact, whenever ABTDs increase, accounting conservatism tends to decrease and, subsequently, information asymmetry and earnings management would seem to increase. The findings of the current study are consistent with those of Tang and Firth (2012) who found that firms with large positive and negative ABTDs exhibit less earnings persistence compared to firms with small ABTDs.

This result may be explained by the fact that firms that engage in more earnings management and tax management exhibit less accounting conservatism level. There are, however, other possible explanations. Our context is characterised by an accounting system which offers maneuver for managers in the choice of accounting policies and a tax system that gives wide latitude in tax management. So, this negative correlation is explained by the existence of accounting manipulations which result lower accounting conservatism.

As for the control variables, Table 7 shows that (SIZE) has a positive and significant effect on accounting conservatism. In fact, the large firms are assumed to be more conservative than small firms. The findings of the current study are consistent with those of (Lafond & Watts, 2008; Khan & Watts, 2009) who, affirming that according to the political costs hypothesis; large firms usually tend

to implement accounting conservatism to a higher level than small firms. Table 7 indicates that (LEV) has a positive and significant effect on accounting conservatism. This result corroborates with Khan and Watts (2009) who established the existence of a positive association between leverage and accounting conservatism.

The results, as shown in Table 7, indicate that (ROA) has a positive effect on accounting conservatism. This result is significant at the $p = 0.01$ levels. There was a negative correlation between growth (ΔREV) and accounting conservatism. The results of this study indicate that growth firms are more susceptible having less informative accounting information. Similarly, Ahmed et al. (2002) found that growth opportunities affects negatively accounting conservatism because sales growth may positively affect either accruals or the market's expectation of future growth reflected in accounting conservatism (Sun & Liu, 2011).

Additional Test

The effect of Tunisian revolution on the relationship between book-tax differences and accounting conservatism

The Tunisian revolution period was characterised by some economic troubles which may affect financial institutions' behaviours with respect to the cost of debt. This period was also characterised by the weakness of the economic and financial systems and more critically the problem of trust between the different economic agents: managers, investors, and banks (Achek & Gallali, 2015). In this sub-section, we provide supplemental tests on how *BTDs* affects accounting conservatism before Tunisian revolution.

To ensure that the results are not affected by this event, we first construct dummy variable "*Revolution*" which equals 1 if the study period is after 2010 and 0 otherwise. We then interact *Revolution* with *BTDs*. The results are summarised in Table 8.

We find that the coefficient of *BTDs*, which captures the effect of book-tax differences on accounting conservatism for firms, is -3.507 and is significant at the 1% level. The interaction term between *Revolution* and *BTDs*, which captures the incremental effect of *BTDs* on accounting conservatism for firms post revolution, is -3.890 and is significant at the 1% level. Hence, the impact of *BTDs* on accounting conservatism is much more pronounced for firms after the revolution.

Table 8

The effect of revolution on the relationship between book-tax differences and accounting conservatism

$$C\text{-score}_{it} = \alpha_0 + \alpha_1 BTDs_{it} + \alpha_2 Revolution_{it} + \alpha_3 BTDs_{it} * Revolution_{it} + \alpha_4 ROA_{it} + \alpha_5 SIZE_{it} + \alpha_6 LEV_{it} + \alpha_7 \Delta REV_{it} + \varepsilon_{it} \quad (8)$$

$$C\text{-score}_{it} = \alpha_0 + \alpha_1 NBTDs_{it} + \alpha_2 Revolution_{it} + \alpha_3 NBTDs_{it} * Revolution_{it} + \alpha_4 ROA_{it} + \alpha_5 SIZE_{it} + \alpha_6 LEV_{it} + \alpha_7 \Delta REV_{it} + \varepsilon_{it} \quad (9)$$

$$C\text{-score}_{it} = \alpha_0 + \alpha_1 ABTDs_{it} + \alpha_2 Revolution_{it} + \alpha_3 ABTDs_{it} * Revolution_{it} + \alpha_4 ROA_{it} + \alpha_5 SIZE_{it} + \alpha_6 LEV_{it} + \alpha_7 \Delta REV_{it} + \varepsilon_{it} \quad (10)$$

Variables	Equation (8)		Equation (9)		Equation (10)	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
BTDs	-3.507	0.000***				
NBTDs			-1.775	0.038**		
ABTDs					-1.931	0.010**
Revolution	0.114	0.039**	0.056	0.365	0.065	0.261
BTDs*Revolution	-3.890	0.000***				
NBTDs*Revolution			-0.861	0.503		
ABTDs*Revolution					-4.462	0.002***
ROA	1.546	0.005***	-0.646	0.234	0.753	0.094*
SIZE	0.163	0.000***	0.183	0.000***	0.180	0.000***
LEV	0.418	0.005***	0.435	0.009***	0.462	0.004***
ΔREV	-0.027	0.849	-0.039	0.804	-0.126	0.406
Wald	211.11		123.25		156.54	
Prob>Chi ²	(0.000)***		(0.000)***		(0.000)***	

Notes: $C\text{-Score}_{it}$ (dependent variable) designates the conservatism level of the firm i in year t ; **BTD** is computed by determining the difference recorded between the pre-tax book income and the taxable income; **NBTDs** represent the estimated values, in cross sections, of the BTDs' corresponding equation (4); **ABTDs** abnormal BTDs residual estimated from equation (4); **Revolution** equals 1 if the study period is after 2010 and 0 otherwise; **ROA** is the ratio of earnings per share to total assets; **SIZE** is calculated as a natural logarithm of total assets; **LEV** is calculated as the ratio of total debt to total assets; **ΔREV** is calculated in terms of current year net sales, as reported on the income statement, minus the previous year net sales. *, **, *** denote significant differences from zero at 0.10, 0.05 and 0.01 levels, respectively.

We also interact Revolution with NBTDs and ABTDs. The result, as shown in table 8, indicate that the coefficient of NBTDs, which captures the effect of normal BTDs on accounting conservatism for firms after the revolution, is -1.775 and is significant at the 5% level. The interaction term between Revolution and NBTDs, which captures the incremental effect of normal BTDs on accounting conservatism, is negative -0.861 but insignificant.

Consistent with our expectation, we find in Table 8 that the interaction term between ABTDs and Revolution is negative -4.462 and significant at the 1% level. This result may be explained by the fact that firms continued in engaging in more earnings management and exhibit less conservative earnings after the revolution. Aчек and Gallali (2015) found that economic and political troubles in Tunisia have reduced creditors' confidence in audit quality and in earnings quality.

Our results could provide a possible explanation for why some firms after the revolution are less conservative in their financial reporting.

Overall, it seems that legal and political changes in Tunisia have slightly influenced the negative association between BTDs and accounting conservatism.

Other measures of accounting conservatism

In this section, we use another alternative measure of accounting conservatism to show the robustness of the documented relationship between BTDs and accounting conservatism.

We use the accruals-based model in Ball and Shivakumar (2005) builds on the decomposition of earnings into cash flows and accruals. The Ball/Shivakumar (2005) model¹ is considered to be useful for robustness tests and when return data is not available.

Results are reported in Table 9. As shown the table, the coefficient of $BTDs*CF*D$ is negative and significant (-2.214 with p-value of 0.025). This result is consistent with that found for other accounting conservatism measure, especially Khan and Watts (2009). There was also no increase of accounting conservatism associated with NBTDs and ABTDs. The coefficient of $NBTDs*CF*D$ is -5.478 and is significant at the 1% level. This coefficient becomes significant for this measurement than for a measure of Khan and Watts (2009). This result can be explained by the large differences between accounting rules and tax rules.

We find also that the coefficient of $ABTDs*CF*D$ is -7.173 and is significant at the 1% level, indicating our result is robust to an alternative measure of accounting conservatism.

Overall, the results in this table are consistent with the findings of prior studies that firms with a high BTDs level set will be less conservative.

Table 9

Other measures of accounting conservatism

$$ACC_{it} = \beta_0 + \beta_1 CF_{it} + \beta_2 D_{it} + \beta_3 D_{it} CF_{it} + \beta_4 BTDS_{it} + \beta_5 D_{it} BTDS_{it} + \beta_6 CF_{it} BTDS_{it} + \beta_7 D_{it} CF_{it} BTDS_{it} + \varepsilon_{it}$$

Variables	Equation (11)		Equation (12)		Equation (13)	
	Coefficient	<i>p</i> -value	Coefficient	<i>p</i> -value	Coefficient	<i>p</i> -value
D	0.001	0.865	0.004	0.710	-0.013	0.337
CF	-0.930	0.000***	-0.939	0.000***	-0.839	0.000***
D*CF	-0.005	0.935	0.045	0.627	-0.149	0.176
BTDs	1.066	0.000***				
D*BTDs	-0.346	0.014**				
CF*BTDs	0.542	0.405				
D*CF*BTDs	-2.214	0.025**				
NBTDs			0.722	0.000***		
D*NBTDs			0.397	0.095*		
CF*NBTDs			4.441	0.004***		
D*CF*NBTDs			-5.478	0.006***		
ABTDs					0.415	0.050**
D*ABTDs					0.186	0.586
CF*ABTDs					2.657	0.053*
D*CF*ABTDs					-7.173	0.005***
Wald	1896.04		1117.63		696.36	
Prob>Chi ²	(0.000)***		(0.000)***		(0.000)***	

Notes: ACC_{it} is the total accruals scaled by average total assets (net income minus operating cash flows); CF_{it} : Cash flows from operations in t scaled by average total assets; D_{it} : indicator variable equals one if CF_{it} is negative and zero otherwise; BTD is computed by determining the difference recorded between the pre-tax book income and the taxable income; $NBTDs$ represent the estimated values, in cross sections, of the BTDs' corresponding Equation (4); $ABTDs$ abnormal BTDs residual estimated from Equation (4); *, **, *** denote significant differences from zero at 0.10, 0.05 and 0.01 levels, respectively.

CONCLUSION

The purpose of the current study was to determine the nature of the relationship associating BTDs and accounting conservatism. Previous studies revealed that BTDs are associated with poor earnings quality (Tang & Firth, 2012; Blaylock et al., 2011; Heltzer, 2009; Hanlon, 2005; Lev & Nissim, 2004; Joos, Pratt, & Young, 2002). We provide an alternative method for partitioning total book-tax differences, into NBTDs and ABTDs using a residual model, to provide additional meaningful information about accounting conservatism.

This study has shown that firm-years with large BTDs have lower accounting conservatism. Our evidence also indicates that in the case where accounting conservatism is measured by Khan and Watts' (2009) model; only opportunistic sources of BTDs are responsible for low accounting conservatism. But, in an additional test, when we use Ball and Shivakumar's (2005) measure of conservatism both regulatory and opportunistic sources of BTDs are responsible for low accounting conservatism. This finding provides an important caveat to researchers and investors when they interpret large BTDs as a surrogate for low earnings quality that is due only to management opportunism Tang and Firth (2012). This confirms the assertion of Plesko (2004) who indicates that the increase in BTDs suggests that the link between tax and financial reporting may have declined, leading to less financial conservatism.

The evidence from this study suggests that both of the regulatory and opportunistic BTDs sources are revealed to help market participants better understand and assess the earnings quality from different dimensions.

This work contributes to existing knowledge BTDs by providing importance and quality of information transmitted by those differences. BTDs are a signal of "bad news" for investors because they show a poor earnings quality.

This study helps also the regulators to improve accounting rules and tax rules. The empirical results of this study provide an answer to the question that has always been asked about maintaining connectivity or the option for the disconnection between accounting and taxation. The regulators may know the bad consequence of the disconnection between accounting and taxation. For this they tend to improve the accounting rules and tax rules to achieve the connection between accounting and taxation.

Several limitations to this pilot study need to be acknowledged. The sample size is small for generalising the results. We can use other measures of accounting conservatism (e.g. Basu, 1997; Givoly & Hayn, 2000) then compare with measurements of Khan and Watts (2009) used in this study.

Further research might explore the relationship between BTDs and earnings quality taking into account the quality of the external auditor.

NOTES

1. The model is expressed by the following piecewise-linear regression equation:

$$ACC_{it} + \beta_0 + \beta_1 CF_{it} + \beta_2 D_{it} + \beta_3 D_{it} CF_{it} + \varepsilon_{it}$$

where ACC_{it} is the total accruals scaled by average total assets (net income minus operating cash flows); CF_{it} : Cash flows from operations in t scaled by average total assets; D_{it} : indicator variable equals one if CF_{it} is negative and zero otherwise.

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