

Conservatism and its determinants for Portuguese small and medium entities



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ABSTRACT

In this study, we aim at analyzing whether Portuguese small and medium entities (SMEs) are accounting conservatively and what the determinants for conservatism are. While conservatism remains on accounting for a long time, both within the local accounting standards and IFRS firms may opt for a revaluation model to subsequently measure fixed assets. As the number of assets may be carried to higher values than firm becomes less conservative. Therefore, we propose that revaluations are a negative proxy for conservatism. We find that revaluations are not used in an often manner and they are higher for listed than for unlisted firms. Furthermore, our results suggest that debt and firm size are both positively associated with conservatism. Both associations are more significant for listed than non-listed firms. In addition, return on equity tends to increase conservatism, but only for the most indebted unlisted firms. These pieces of evidence are consistent with conservatism being a mechanism to regulate managers' activity and to capture the confidence of stakeholders.

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1. Introduction

The accounting systems' diversity at the international level makes it difficult to interpret and compare financial reporting, which may affect an efficient allocation of capital. Therefore, IASB assumes a fundamental role to enhance international accounting harmonization.

For a long time, conservatism has been present in accounting practice, leading accountants to disclose the financial reports of entities in a reliable and truthful manner. However, [Black et al. \(2018\)](#) argued that conservatism may limit the informative function of financial statements in stock markets.

In fact, conservatism consists of anticipating all losses, not anticipating any gains, but also in choosing the smallest values between the carrying amount and the market value ([Basu, 2009](#)). The approach to accounting conservatism becomes relevant, as it affects financial performance and it is likely to protect creditors' change to investors and

other interested parties as mentioned by [Neag and Pascan \(2018\)](#).

However, based on the 2010 IASB Conceptual Framework, accounting should not be conservative, as it may compromise the neutrality of financial information ([Barker and McGeachin, 2015](#)). Consistent with [Elsiefy and ElGammal \(2017\)](#), IASB uses fair value measurement for part of the assets and liabilities of a given entity. The change from the cost model to the revaluation model is present in the various standards issued by the IASB. [Elsiefy and ElGammal \(2017\)](#) referred that accounting using the revaluation model, namely fair value measurement, raises several debates and there are arguments for and against its use. [Ball \(2006\)](#) stated that the revaluation model provides clear and comprehensive information in the financial statements. [Dietrich et al. \(2000\)](#) added that this model reduces manipulation by managers, especially if evaluations are carried out by external evaluators.

Opposite to these arguments, [Abdel-Khalik \(2008\)](#) argued that this model increases information asymmetry since it combines achievable and unrealizable gains and losses. In 2018, IASB has published its new version of the Conceptual Framework for Financial Reporting. [Neag and Pascan \(2018\)](#) referred that the concept of prudence was reintroduced in this new Conceptual Framework by highlighting the importance of caution in

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exercising judgments under conditions of uncertainty.

Therefore, a vein in prior literature about conservatism investigates the costs and benefits for firms to revalue their assets. In this sense, the motivation for this work relies on the absence of empirical evidence related to the incentives for Portuguese SMEs to be conservative. This scarcity results from the difficulty of obtaining data for SMEs, with the majority of existing studies based on listed entities, as there is greater dissemination and accessibility of financial information. With the mandatory adoption of the International Accounting Standard from 2005 for the consolidated account of listed firms and under the Portuguese accounting standards in force from 2010, an opportunity arises to investigate accounting practices and factors that determine accounting choices.

In this study, we analyzed the evolution of the level of revaluations, as well as the determinants of conservatism based on the practice of revaluations over the period from 2010 to 2019, the first decade of applying the new Portuguese accounting standards. Furthermore, through the analysis of the determinants of revaluations, we will obtain the determinants of conservatism. For that purpose, we investigate the return on equity, financial leverage, and size of the firm. We use a quantitative methodology, based on financial reporting to analyze the behavior of entities regarding revaluations. The sample contains 44 Portuguese firms, 32 of which are unlisted firms and 12 listed firms. The analyzed data are collected through the Iberian Balance Sheet Analysis Systems database. We posit and test hypotheses by running regression estimations using panel data.

The remainder of this work is organized into four sections. In the second section, we provide a literature review and the development of hypotheses that are supported by previous studies. In the third section, we describe the research methodology, namely the procedures of sample selection, the empirical model for pursuing the objectives and variables definitions, and their expected signs. In the fourth section, we document and discuss the empirical results obtained through descriptive statistics and regression estimations. Finally, in the last section, we provide the concluding remarks.

2. Literature review and hypotheses development

2.1. Accounting conservatism

Accounting conservatism has been present for a long time and a common definition consists of the timely recognition of costs rather than gains reflecting “bad news” more quickly than “good news” (Basu, 1997). Conservatism underlies the history of accounting through the principle of prudence. This is related to “the inclusion of a degree of precaution in the exercise of necessary judgment (...) so that assets or income are not overstated and liabilities or

expenses are not undervalued” (Portuguese Conceptual Framework-§37, (MDF, 2015)). Conservatism is also known by the expression “do not anticipate profit, but anticipate all losses” (Bliss, 1924, cited by Watts (2003)). This conservatism is denominated by conditional. In this way, conservatism emerges as a means to make financial reporting more credible, by avoiding opportunistic earnings management (Barker and McGeachin, 2015). Therefore, this allows firms to create value given that the users of the financial statements believe in a system that is reliable by preventing the loss of information from the “delayed recognition of earnings” (Barker and McGeachin, 2015). Biddle et al. (2022) argued that conservatism is present for so long time in accounting because it helps to reduce bankruptcy risk.

Furthermore, conservatism can also be seen as the understatement of the carrying value of liquid assets relative to their market value (Beaver and Ryan, 2005). In the same sense, Ruch and Taylor (2015) referred that accounting conservatism implies the use of the asset's carrying value rather than its market value. This type of conservatism is denominated unconditionally. Several studies analyze unconditional conservatism, specifically the accounting of expenses for intangible assets internally built, and depreciation of tangible fixed assets, among others (Beaver and Ryan, 2005; André et al., 2015; Neag and Maşca, 2015; Penalva and Wagenhofer, 2019).

2.2. Cost and benefits of conservatism

Conservatism produces an impact on contracts and it may increase the firm's value, by mitigating the opportunistic behavior of managers. This allows to share of the firm's value with all its stakeholders, increasing everyone's comfort as mentioned by Watts (2003). In this context, we are facing a conservatism that is an “efficient hiring mechanism” (Watts, 2003). On the other hand, Guay and Verrecchia (2006) argued that in the absence of agency conflict between shareholders and managers, managers tend to have the incentive to distort financial reporting. As Mora and Walker (2015) argued, conservative accounting tends to make a positive contribution by providing efficiency in hiring and reducing agency costs. These agency costs can be seen through various links, such as between creditors and shareholders or shareholders and management, as well as other parties with corporate and administrative interests (Barker and McGeachin, 2015). Biddle et al. (2022) found empirical evidence that both unconditional and conditional accounting conservatism help lower bankruptcy risk.

Therefore, a conservative accounting system may be beneficial for both creditors and shareholders, as managers do not intend for entities to disclose all of the private information about the value of assets. Given that the main objective of firms is to increase their value, conservative accounting tends to make a positive contribution by providing hiring efficiency

and reducing agency costs as mentioned by [Mora and Walker \(2015\)](#). These agency costs arise from conflicting interests between creditors and shareholders or between shareholders and managers ([Barker and McGeachin, 2015](#)). In this way, [Goex and Wagenhofer \(2009\)](#) documented that a conservative ex-ante accounting emerges, which is seen as economically efficient, as it allows for less expensive contracts. More globally, conservative accounting makes it possible for management to respond in the best way to problems associated with boosting efforts and efficient investment, thus reducing hiring divergences. For [Laux and Ray \(2020\)](#) when a firm increases conservatism, it stimulates an increase in the firm's value. In the same vein, [LaFond and Watts \(2008\)](#) mentioned that "as information becomes less verifiable, it becomes easier for the manager to manipulate and less credible, making it less useful for investors." In this context, it is essential to emphasize that the function of conservative accounting in ex-ante contracting is to provide ex-post information that is, there is attention and importance not to the timely provision of recent information to prevent investment decision-making, but to the exercise of control ([Ball and Shivakumar, 2008](#); [Ball et al., 2012](#)). [Cerqueira and Pereira \(2020\)](#) found empirical evidence consistent with a conservative accounting practices in European countries.

By contrast, [Guay and Verrecchia \(2006\)](#) stated in an accounting system that aims to obtain information in a timely manner, conservatism can compromise the opportunity of financial information by appealing to the timely recognition of losses, but the delayed recognition of gains. Furthermore, conservatism also tends to compromise the qualitative characteristic of neutrality, leading the IASB not to refer to prudence in the Conceptual Framework. According to [Shimamoto and Takeda \(2020\)](#), IASB reinforced the use of fair value measurement, namely in financial instruments (IFRS 9), for biological assets (IAS 41), for the subsequent measurement of tangible fixed assets (IAS 16) and investment properties (IAS 40) and intangible assets (IAS 38) by allowing measurement at fair value to be optional. However, IFRS exhibits some features that are compatible with a conservative report as [André et al. \(2015\)](#) argued, namely, the use of fair value in measuring assets is mostly optional. [Barker and McGeachin \(2015\)](#), [Bonetti et al. \(2017\)](#), and [Shimamoto and Takeda \(2020\)](#) analyzed the international accounting standards and they concluded that conditional conservatism is evident when inventories must be measured by the lower value between cost and net realizable value (IAS 2). In the case of assets that are at amortized cost and are subject to an impairment test, we are faced with conditional conservatism, since losses are recognized and gains are not (IFRS 9). For non-current assets held for sale, they are measured at the lowest value between the carrying amount and the fair value minus the costs of sale, there is conditional conservatism, since losses are forecast in sales, but

gains are not (IFRS 5). Borrowing costs can be unconditionally conservative, as some of their costs are not recognized as part of an asset (IAS 23). With regard to employee benefits, this is also unconditionally conservative, as liabilities that do not yet exist are recognized (IAS 19). Leases and their measurement of assets represent a conditional conservatism, but the non-recognition of profit on sale represents an unconditional conservatism (IAS 17). Finally, construction contracts that on initial recognition show an unconditional conservatism, since the expected profits are not recognized, but also show a conditional conservatism in the subsequent measurement (IAS 11). Given the accounting standards' flexibility, [Cerqueira and Pereira \(2020\)](#) argued that it allows for adjusting the level of conservatism. In fact, [LaFond and Watts \(2008\)](#) referred that accounting conservatism has increased after the known financial statements manipulations in financial results from accounting flexibility.

Given that Portuguese accounting standards allow the adoption of the revaluation model alternatively to the historical cost model, as well as IFRS gives that option, then we aim at determining which factors may affect this choice.

2.3. Revaluations' determinants and hypotheses development

We investigate the incentives for Portuguese SMEs to engage in a conservative accounting practice. For that purpose, we focus on the determinants of revaluations. [Sellhorn and Stier \(2019\)](#) mentioned that the determinants to use fair value in property, plant, and equipment (PPE) is not clear, therefore more research is required.

The return on equity may affect the level of revaluations. According to [Baker \(2011\)](#) when the cost model is applied, the return on equity, the net return on assets, and asset turnover are higher. [Nijam \(2018\)](#) concluded in his study that return on equity does not influence the choice of cost and revaluation accounting models. [Cheng and Lin \(2009\)](#) developed a study that aimed to analyze the decision to revalue made by listed entities in the United Kingdom in a given period. The authors argued that many firms choose not to revalue their assets and list several reasons, one is that revaluations can reduce the net return on equity. However, [Aljinović Barać and Šodan \(2011\)](#) developed a study in which they analyze the reasons for choosing the revaluation model in the financial reports of Croatian entities and concluded that large entities that present a high ROE are the ones that tend to revalue. Given these studies, we expect that firms with a higher return on equity tend to exhibit fewer revaluation values. Thus, we formalize the first hypothesis:

H1: Firms with a higher return on equity exhibit lower revaluation values, then they are more conservative.

The decision-making by managers regarding the subsequent measurement model of assets may depend on obtaining more favorable conditions in the debt contract, such as terms, guarantees, and interest rates, among other clauses. [Watts and Zimmerman \(1978\)](#) reported that the level of indebtedness is influenced by the choice of accounting method for the revaluation model. [Whittred and Chan \(1992\)](#) stated that firms may use revaluation to increase their debt capacity and enable them to take advantage of new investment opportunities. Consistent with these studies, [Cotter and Zimmer \(1995\)](#) added that, although high leverage leads to reduced indebtedness, this is neither a necessary nor a sufficient clause in a debt contract.

[Astami and Tower \(2006\)](#) referred that debt contracts usually include clauses that limit financial ratios, such as leverage, liquidity, and profitability. Prior literature such as [Lin and Peasnell \(2000\)](#) and [Sellhorn and Stier \(2019\)](#) indicated that revaluations are related to clauses in credit contracts, arguing that entities with high financial leverage are more likely to opt for the revaluation model, which leads to a reduction in the debt ratio. Consistently, [Chadda and Vardia \(2020\)](#) found evidence that firms using the fair value on nonfinancial assets rely more on debt financing than companies that use historical cost. [Barlev et al. \(2007\)](#) conducted a study of entities from 35 countries and concluded that, in fact, the greater the financial leverage, the greater the likelihood that entities will choose to revalue. [Nijam \(2018\)](#) demonstrated that entities with greater financial leverage and lesser liquidity use the revaluation model more frequently. [Choi et al. \(2013\)](#) developed a study for listed entities in Korea where they analyze the determinants of revaluations and conclude that indebtedness has a positive relationship with revaluations. In agreement with these authors, [Wali \(2015\)](#) and [Lin and Peasnell \(2000\)](#) also mentioned that indebtedness is positively associated with revaluations, that is, the greater the indebtedness, the greater the probability of revaluation. They also add that revaluations may provide better conditions because current information regarding the money can be obtained through the sale of real estate assets and, in this way, lead to an increase in the debt capacity. [Lopes and Walker \(2012\)](#) used a sample of Brazilian firms and conclude that revaluations are positively associated with debt. In this way, we expect that entities with greater financial leverage tend to adopt the revaluation model in order to lower the ratio of debt to assets, therefore being less conservative. Then we posit the second hypothesis:

H2: Firms with a higher level of debt exhibit higher revaluation values, then they are less conservative.

The firm's size is also investigated if it is a determinant of revaluations. [Watts and Zimmerman \(1986\)](#) found that larger firms tend to be more sensitive to political factors. However, [Nijam \(2018\)](#)

found evidence that the size of Sri Lankan entities does not explain their accounting choices, namely the option to adopt the revaluation or cost method. [Sellhorn and Stier \(2019\)](#) argued that political costs are also drivers of the revaluation decision. However, [Astami and Tower \(2006\)](#) found evidence that the dimension was not relevant in the accounting policy option by managers in Asian countries. [Gopalakrishnan \(1994\)](#) showed that the firm's size may be relevant, but only from a certain dimension, making accounting choices that lead to smaller earnings in order to reduce the tax burden. [Barlev et al. \(2007\)](#) also used size as one of the motivations to opt for revaluation and conclude that size, in most countries under study, is positively associated with revaluations. [Iatridis and Kilirgiotis \(2012\)](#) argued that, when firms intend to reduce political costs, the possibility of opting for revaluation will be positively associated with the size of the company. However, larger firms are under greater scrutiny and pressure because they have a greater number of stakeholders monitoring their activity. In this way, [Mulford and Comiskey \(2005\)](#) argued that larger firms have more incentives to engage in earnings management practices that allow them certain invisibility. Therefore, we follow this last vein and posit the following hypothesis:

H3: Larger firms exhibit lower revaluation values, then they are more conservative.

To further develop our investigation, we analyze the influence of being listed in the stock market for the level of revaluations. The effect of being a listed entity on conservatism is not clear. While [Mrad \(2022\)](#) mentioned that prior literature indicates that the mandatory adoption of IFRS standards in France has decreased the accounting conservatism of French-listed entities this author finds evidence that French cross-listed firms in the US tend to have a more conservative accounting practice. Furthermore, [Cerqueira and Pereira \(2020\)](#) found that European entities tend to be more conservative and their results suggest that it is higher in common-law countries as a response to investors' demand for conservatism in financial statements. In the same vein, the results of [Kimouche \(2021\)](#), showed that conservatism is higher in UK firms than in French firms. Therefore, we expect that listed firms are less willing to revalue in order to reduce hiring costs and information asymmetries. In turn, being more conservative it is expected that the determinants reduce in a stronger manner the revaluations level. Thus, we posit the following hypothesis:

H4: Listed firms are subject to a higher negative impact of revaluations' determinants because they are more conservative.

3. Empirical research design

In order to analyze the determinants of conservatism based on the accounting practice of

revaluations and to test the hypotheses developed in the previous section, we collected data from the financial statements of Portuguese firms available in the Iberian Balance Sheet Analysis Systems database.

3.1. Sample selection

The sample consists of SME Portuguese firms, both listed and unlisted, for a period of 10 years, from 2010 to 2019. The analysis period begins in 2010 because this year the new Portuguese Accounting Standards entered into force in Portugal. With the specific objective of presenting the evolution of revaluations over the first decade ends in 2019. We consider SMEs if the balance sheet varies between € 350,000 and € 4,000,000, based on [SNC \(2015\)](#) which transposes the Directive 2013/35/EU. The sample initially consisted of 492 firms, but we eliminate firms from the financial and insurance industries, as well as firms from the public administration because these firms prepare their financial statements following specific regulations. In addition, firms with missing values in any variable were also excluded from the sample, specifically, firms that have no values in the Revaluation Surpluses item. The total sample remaining has 44 firms and a total of 440 firm-year observations.

Afterward, we consider two subsamples. The first is represented by non-listed firms. Using the same criteria mentioned above, this sub-sample initially comprises a total of 434 Portuguese firms, after the selection procedures the sub-sample contains 32 firms and a total of 320 firm-year observations, representing about 73% of the sample. The second sub-sample under study concerns Portuguese firms listed on the Lisbon stock exchange, denominated by Euronext Lisbon. This sub-sample initially comprises 58 entities and applying the selection procedures mentioned above, the sub-sample contains 12 firms, with a total of 120 firm-year observations, representing about 27% of the sample. It should be noted that all listed firms that are part of this sub-sample are listed on the Lisbon stock exchange, designated Euronext Lisbon.

3.2. Empirical model

The decision made by managers to revalue the non-current assets affects the carried amount presented in the financial statements and changes the firm's financial profile. We propose to consider revaluations as a negative proxy of conservatism because we assume that firms are less conservative given that it is an opportunity to update the values of assets that become higher than those of their initial measurement, which does not happen with conservatism. Another argument in favor of using revaluations as an inverse variable of conservatism is that the estimates made by management are not observed values, which are higher than the reported accounting values.

Furthermore, we use the amount of revaluations reserve as a proxy of using the revaluation model

because when managers use this model, the amounts of revaluation become higher. Then we investigate the determinants for the decision to choose the revaluation through the level of revaluation.

In order to test the hypotheses, we use a linear regression model with panel data using random effects after performing the Hausman test. The panel model with random effects may be represented as follows:

$$y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \dots + \beta_k X_{kit} + b_i + \epsilon_{it} \quad (1)$$

where, b_i are values of a random variable with normal distribution and zero mean, being independent of the errors ϵ_{it} .

We use this linear regression to test the hypotheses:

$$Rev_{i,t} = \beta_0 + \beta_1 ROE_{i,t} + \beta_2 Debt_{i,t} + \beta_3 Size_{i,t} + e_{i,t}. \quad (2)$$

The variables included in the model for firm i , period t correspond to:

- Rev: Amount of revaluations, obtained by scaling the revaluation surplus item by total assets,
- ROE: Is given by the ratio between the period's net income and total equity,
- Debt: Amount of total liabilities scaled by total assets,
- Size: Is the firm's size, measured by the logarithm of total assets, given the substantial differences in the entities included in the sample,
- e: Residuals from the regression estimation.

In this regression, we expected that β_1 the coefficient is negative, because firms with a higher return on equity tend to do fewer revaluations and, therefore, are those with higher conservatism. Regarding the coefficient of debt, we expect a positive sign to the coefficient β_2 , given that higher levels of debt drive greater revaluations than less conservatism. For β_3 we expect a positive sign because larger firms carry out more revaluations, thus they are less conservative.

After running regressions, we adjust the model to focus the analysis on firms with high levels of debt relative to assets. This means firms with debt are higher than the mean value of the sample. Overall, based on the literature review we expect the sign for the coefficient of debt to be positive, for return on equity to be negative, and for size to be positive.

4. Results and discussion

4.1. Descriptive statistics

[Table 1](#) documents the descriptive statistics for the variables based on the main sample, specifically for the level of revaluations, return on equity, debt, and total assets. [Table 1](#) reports that, on average, revaluations represented almost 6% of assets and the return on equity is 3% while debt and size are on average 70% and € 709,288, respectively.

Table 1: Descriptive statistics

	Minimum	1 ^o Quartil	Median	Mean	3 ^o Quartil	Maximum	St. dev.
Rev	0.00	0.0008	0.0074	0.0575	0.0279	0.7040	0.1109
ROE	-21.0838	-0.0226	0.0609	0.0307	0.1476	34.3318	2.1277
Debt	0.0031	0.5150	0.6915	0.6911	0.82	3.6719	0.4077
Size	750	188,196	363,877	709,288	578,786	16,046,927	1,673,500

Rev: Amount of revaluations, obtained by scaling the revaluation surplus item by total assets; ROE: ratio between the period's net income and total equity; Debt: amount of total liabilities scaled by total assets; Size: firm's size, measured by the total of assets

Table 2 contains the correlation coefficients of the variables included. The correlation between revaluations and debt scaled by total assets is the highest and it is negative consistent with lower revaluations for higher in-debt firms. The following

higher correlation regarding revaluations is with size, also with a negative sign, showing lower revaluations for larger firms. The correlation between the independent variables is low therefore we have no econometric issues.

Table 2: Correlations matrix

	Rev	Debt	ROE	Size
Rev	1			
Debt	-0,1772	1		
ROE	-0.0320	-0.0049	1	
Size	-0.0516	0.0550	-0.0806	1

Rev: Amount of revaluations, obtained by scaling the revaluation surplus item by total assets; ROE: Ratio between the period's net income and total equity; Debt: Amount of total liabilities scaled by total assets; Size: Firm's size, measured by the logarithm of total assets

Table 3 documents the evolution of revaluations scaled by total assets over the ten years under study

for the complete sample and both for non-listed and listed firms' samples.

Table 3: Evolution of revaluations on assets

	Mean of all sample	Mean of non-listed firms	Mean of listed firms
2010	0.0884	0.0857	0.0944
2011	0.0756	0.0665	0.0907
2012	0.0684	0.0634	0.0870
2013	0.0618	0.0448	0.1278
2014	0.0576	0.0408	0.1206
2015	0.0613	0.0431	0.1272
2016	0.0525	0.0350	0.1181
2017	0.0506	0.0324	0.1207
2018	0.0362	0.0100	0.1183
2019	0.0188	0.0092	0.0553

As we can see, the revaluations exhibit a similar evolution in the sample and in the sub-sample of non-listed firms, both with decreasing revaluations in the period considered. However, in the sub-sample of unlisted firms, revaluations tend to decrease more sharply. Regarding listed entities, they even experienced an increase in revaluations between 2013 and 2015. This information allows us to state that Portuguese SMEs tend to exhibit conservative behavior, but the non-listed firms are more conservative than listed firms, consistent with [Kimouche \(2021\)](#).

4.2. Regression results and discussion

Table 4 documents the results for the estimation of the main regressions. Given that the p-values of the F statistic are extremely low, we conclude that at least one of the regression coefficients is statistically different from zero. We estimate the regressions for all samples, for non-listed firms and listed firms results are on panels A, B, and C, respectively. Regarding the adjusted R^2 , panel A, shows that 16.09% of the variance of the dependent variable is explained by the independent variables for this sample of 44 Portuguese SMEs.

The coefficient β_1 is related to ROE and is not statistically significant, therefore we do not have empirical evidence to confirm hypothesis 1. This

result is in line with those of [Nijam \(2018\)](#), which has no influence on revaluations.

In the case of β_2 , it is negative and statistically significant at 1%. According to [Lin and Peasnell \(2000\)](#), [Lopes and Walker \(2012\)](#), [Choi et al. \(2013\)](#), and [Wali \(2015\)](#), this variable presents a positive sign, which would indicate that firms with higher debt would revalue more. The results obtained through the regression lead to the conclusion that debt is negatively associated with revaluations, thus firms with higher debt exhibit fewer revaluations. Therefore, these results do not confirm hypothesis 2. One reason for this result may be the high level of debt which leads firms to be more conservative to capture creditors' confidence. While coefficient β_3 is statistically at the level of 1%, it has a negative estimated value, which is consistent with [Mulford and Comiskey \(2005\)](#). According to our results, company size is negatively related to revaluations, leading to larger entities being those that revalue less, therefore supporting our hypothesis 3. This evidence may result from the biggest firms having more social pressures and then they opt to be more conservative.

Panel B documents the estimation results for the subsample of unlisted firms. Regarding the adjusted R^2 , it exhibits a value of 0.0647, that is, 6.47%, which means that in the sub-sample of non-listed firms, the quality of the adjustment decreases.

Table 4: Revaluation's determinants

Expected sign	Coefficient	St. error	Z-value	P-value	Significance level	
Panel A: Total sample						
β_0	0.5200	0.0628	8.2812	0.0000	***	
β_1	-	-0.0030	0.0046	-0.6616	0.5082	
β_2	+	-0.1022	0.0233	-4.3894	0.0000	***
β_3	-	-0.0311	0.0050	-6.2446	0.000	***
F- statistic=70.5475; p-value=1.7394e ⁻¹⁴ ; R ² = 0.1609; No. obs.: 440						
Panel B: Non-listed firms						
β_0	0.3107	0.1092	2.8446	0.0048	**	
β_1	-	-0.0033	0.0047	-0.7158	0.4741	
β_2	+	-0.1171	0.0278	-4.2066	0.0000	***
β_3	-	-0.0141	0.0083	-1.7036	0.0885	*
F-statistic=22.3903; p-value=0.00017; R ² =0.0647; No. obs.: 320						
Panel C: Listed firms						
β_0	0.9602	0.1105	8.6900	0.0000	***	
β_1	-	-0.0719	0.0649	-1.1082	0.2678	
β_2	+	-0.1553	0.0503	-3.0886	0.0020	**
β_3	-	-0.0674	0.0088	-7.6818	0.0000	***
F- statistic = 62.5573; p-value=8.4094e ⁻¹³ ; R ² =0.4226; No. obs.: 120						

$$Rev_{i,t} = \beta_0 + \beta_1 ROE_{i,t} + \beta_2 Debt_{i,t} + \beta_3 Size_{i,t} + e_{i,t}$$

Level of significance: *** indicate at the 1%; ** at the 5% e * at the 10%; Rev: Amount of revaluations, obtained by scaling the revaluation surplus item by total assets; Lev: represents leverage, which is the ratio of return on equity and the return on assets; ROE: ratio between the period's net income and total equity; Debt: amount of total liabilities scaled by total assets; Size: firm's size, measured by the logarithm of total assets

The coefficient of debt (β_2) continues to present an opposite sign to the expected, as it remains negative, and also continues to present a significance level of 1%. Thus, in the sub-sample of non-listed firms, debt is also negatively associated with revaluations. The coefficient β_3 does not allow to support the third hypothesis at 5% of statistical significance (it is significant at a 10% level).

Panel C reports the estimation results for the subsample of listed firms. In this regression, the adjusted R² is 0.4226, therefore this model explains 42.26% of the variation of the dependent variable from the independent variables in a sample of 12 listed Portuguese firms. Comparing this R² with those obtained in previous regressions, allows us to conclude that this regression tends to explain better the variation in the level of revaluations. It is worth noting that debt and size still have statistical significance at 5% and 1% levels, respectively. Both coefficients remain with a negative sign. These results are consistent with the fourth hypothesis because the impact of the determinants is higher in listed firms when compared to non-listed firms.

To further develop the analysis, we estimate the regression with the subsample of the most indebted firms. The results are presented in Table 5 which

panel A contains the results of the estimated coefficients for firms with a ratio debt to assets higher than the mean value that is 69%. Panel B contains the results for the most indebted non-listed firms and panel C documents the results for the most in-debt listed firms.

In the case of panel A, the p-values of F statistics documented in the three panels allow saying that, for any reasonable level of significance, at least one of the coefficients is statistically different from zero. In panel A, the adjusted R² value is 0.0399, which means that 3.99% of the dependent variable is explained by the independent variables. Regarding the coefficients β_2 , it gives the association between revaluations and debt burden but it is not statistically significant for the case of the most indebted firms. Coefficients β_1 and β_3 , which refers to the return on equity and firm size, are statistically significant at the 10% and 5% levels, respectively. The sign of the estimated coefficient of β_1 is consistent with the expected one, however, there is no statistical significance to support that firms with the highest return on equity exhibit lower revelations amounts. The coefficient β_3 has a negative sign, which allows to support our third hypothesis.

Table 5: Revaluations' determinants of the most indebted firms

Expected sign	Coefficient	St. error	Z-value	P-value	Significance level	
Panel A: Most debt firms						
β_0	0.1216	0.0394	3.0887	0.0020	**	
β_1	-	-0.0026	0.0014	-1.8998	0.0575	*
β_2	+	-0.0143	0.0185	-0.7751	0.4383	
β_3	-	-0.0069	0.0025	-2.6979	0.0067	**
F- statistic=10.5249; p-value=0.01459; R ² =0.0399 No. obs.: 300						
Panel B: Most debt non-listed firms						
β_0	0.1299	0.0503	2.5811	0.0098	**	
β_1	-	-0.0022	0.0012	-1.8852	0.0594	*
β_2	+	-0.0209	0.0180	-1.1585	0.2467	
β_3	-	-0.0071	0.0034	-2.1003	0.0357	*
F- statistic=8.47194; p-value=0.0372; R ² =0.0406; No. obs.: 220						
Panel C: Most debt-listed firms						
β_0	1.1424	0.2319	4.9258	0.0000	***	
β_1	-	-0.0109	0.0405	-0.2684	0.7884	
β_2	+	-0.4566	0.1195	-3.8198	0.0001	***
β_3	-	-0.0630	0.0166	-3.7883	0.0002	***
F- statistic=21.5016; p-value=8.2817e ⁻⁰⁵ ; R ² =0.3592; No. obs.: 80						

$$Rev_{i,t} = \beta_0 + \beta_1 ROE_{i,t} + \beta_2 Debt_{i,t} + \beta_3 Size_{i,t} + e_{i,t}$$

Level of significance: *** indicate at the 1%; ** at the 5% e * at the 10%; Rev: Amount of revaluations, obtained by scaling the revaluation surplus item by total assets; ROE: Ratio between the period's net income and total equity; Debt: Amount of total liabilities scaled by total assets; Size: firm's size, measured by the logarithm of total assets

Panel B shows the results for the most indebted non-listed firms. The adjusted R^2 is 4.06%, therefore the model explains just 4% of the dependent. This model presents a slight percentage increase of 0.07%, yet the explanation for the level of revaluations is still low. In this case, the coefficient β_2 remains without statistical significance. Regarding the coefficients β_1 and β_3 they are statistically significant at 10% which does not allow us to validate our hypotheses H1 and H3 for the most indebted non-listed firms.

Panel C of Table 5 reports the results for the most in-debt listed firms. Regarding the adjusted R^2 of 0.3592 means that the model explains 35.92% of the level of revaluations. Compared to the two previous regressions, this is the one that best explains the level of revaluations.

For these firms β_1 is not statistically significant, meaning that return on equity is not a determinant of revaluations. Coefficient β_2 is statistically significant, but it shows a sign opposite to the expected based on Lin and Peasnell (2000), Lopes and Walker (2012), Choi et al. (2013), and Wali (2015). Thus, the most indebted listed firms tend to have lower revaluations if debt increases more. This may be due to the relatively small size of the sample firms, which develop additional efforts to capture creditors' confidence and obtain even more financing. The coefficient β_3 is significant and has a negative sign, as expected. Given that this result for size is observable for the subsamples and for the entire sample it allows us to conclude that this determinant is robust in the sense that larger firms are more conservative.

In the case of more indebted firms, the statistical significance of the coefficients is always higher in the subsample of listed firms than in the non-listed firms which is consistent with our hypothesis 4. This may be due to the need of communicating a reasonable performance to interested parties by relying on the quality of earnings.

Taking into account these results, we proposed that revaluations are a negative proxy of conservatism, after estimating these models, the firm's size and its level of debt are suggested as determinants of the conservative accounting practice on Portuguese SMEs. Thus, when size and debt increase, firms tend to reduce revaluations and therefore be more conservative. These may be due to the preference of the users of financial statements for a more conservative accounting. Regarding size, larger entities are the ones that revalue the least. Thus, the results suggest that larger entities are the ones that present their most conservative financial reports. The explanation for this event is that accounting conservatism responds to investors' interests (Penman, 2016). Debt becomes a significant determinant of revaluation for listed firms with a strong level of debt (mean debt represents 69% of assets). In addition, we also find evidence that firms with the highest return on equity exhibit lower revaluation values, being consistent with more conservative financial reporting. Besides

these variables are likely to produce a more significant impact on listed firms.

5. Conclusions

This study analyses the conservative accounting practice of Portuguese SMEs during the first decade of the new local accounting standards adoption, through the observation of the evolution of revaluations and analysis of its determinants. The empirical study included 44 Portuguese entities, 32 being unlisted SMEs and 12 listed SMEs.

We assume that firms that revalue the most tend to increase asset values and therefore to be less conservative, we analyze whether Portuguese SMEs are conservative and determine their incentives. In fact, accounting conservatism is demanded by investors and creditors, since through conservatism it is possible to increase the firm's value by making its financial reports more feasible (Barker and McGeachin, 2015). Our evidence allows concluding that Portuguese entities remain resistant to change, namely when analyzing the evolution of revaluations, we see a decreasing trend. In addition, in data collection, we eliminate from the sample most Portuguese entities because they have no values in the Revaluation Surplus balance sheet, which allows us to conclude that most Portuguese entities do not opt for the revaluation model.

Regarding revaluations' determinants, we find empirical evidence that return on equity is not significant for the level of revaluations. By contrast, debt tends to be significant for the level of revaluations, but with an opposite effect to that shown in the literature. According to Lin and Peasnell (2000), Lopes and Walker (2012), Choi et al. (2013), and Wali (2015), debt is positively associated with revaluations. Our results suggest that debt is negatively associated with revaluations. Therefore, this allows us to say that when debt increase, the Portuguese SMEs tend to present more conservative financial reporting. This conclusion may result from these firms having a high level of debt (on average debt represents 69% of assets) leading creditors to prefer more conservative accounting reports. Furthermore, the size of the company is also significant at the level of revaluations, the results diverge from those of Barlev et al. (2007) and Iatridis and Kilirgiotis (2012). Our results reveal that size tends to be negatively associated with revaluations as Mulford and Comiskey (2005).

Therefore, larger SMEs tend to have lower revaluation amounts which in turn means that they tend to be more conservative. This result may be due to these firms being under the scrutiny of a greater number of economic agents and then they have to be more conservative to capture their confidence. Being listed in a stock market, according to Wali (2015), implies that firms tend to carry out more revaluations, since these firms have benefits in presenting more feasible information to the market, with the objective of not only showing the real value

of the assets but also reporting a good performance. The descriptive statistics show that revaluations are more significant in listed entities than in unlisted entities. Analyzing the most indebted SMEs, our empirical evidence for firms' size is in line with that mentioned above, larger firms are more conservative even when they have extreme levels of debt. In the case of return on equity, this tends to decrease the level of revaluations for high-debt SMEs, both for the main sample and for unlisted firms, although only at 10% significance. These results are in line with those shown in the literature, namely Aljinović Barać and Šodan (2011) which reported that return on equity is negatively associated with revaluations. Furthermore, the level of debt in over-debt firms only affects the revaluations of the listed ones. This may result from the importance to converge the stakeholders' expectations by conservatism. Furthermore, the determinants produce a higher impact on the listed firms rather than on the non-listed firms.

Overall, both analysis of the revaluations' evolution and its determinants is fundamental because these activities affect the content of financial reporting which provides useful information to investors. The results suggest that Portuguese SMEs tend to engage in a conservative accounting practice. While this may result from an underlying prudent culture it is likely to be related to the extreme level of debt in these firms. Therefore, this study is relevant to a wide range of stakeholders, such as creditors, investors, managers, regulators, and academics, among others which are willing to demand conservatism in particular when the risk of non-compliance with contractual clauses is high.

To identify which forms of conservatism to encourage (allow, or not), regulators need to focus on the specific types of benefits and information costs that will be affected. This is important from a perspective of policy, theoretical, and practical implications.

A limitation of this study is the small sample size, which may be a cause for the low adjusted coefficient of determination obtained by the regression models in the case of non-listed firms. In fact, Portuguese SMEs tend to opt for the cost model, which reduces the sample of this study that is based on firms that opt for the revaluation model. Portuguese SMEs resist adopting in practice the revaluation model. Therefore, in future studies, we aim to expand the sample, either by including micro-entities and entities of the general regime or by covering firms from other countries that allow capturing more entities with revaluation reserves.

Compliance with ethical standards

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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