2017 Southern African Accounting Association
Biennial International Conference Proceedings
Champagne Sports Resort
Drakensberg
SOUTH AFRICA
(ISBN 978-0-620-74762-2)
http://www.saaa.org.za/

FAC010 **Impairment losses as a tool for ultimately conservative financial statements: Brazilian Evidence**

AUTHOR(S): Davi Souza Simon, Universisdade do vale Rio dos Sinos, Brazil, davi.simon.cnh@gmail.com
Clea Beatriz Macagnan, cleabeatrizm@gmail.com

ABSTRACT:
In this paper, we analyze the determinants of the recognition of impairment losses by Brazilian firms. The Brazilian context is particularly interesting given that most (56%) of the observations in our sample between 2010 and 2015 presented firms with two years of market-to-book ratio lower than one, an indicator of market expectations of impairment losses. Despite this low market-to-book state, we observe the recognition of impairment losses in only 57 out of 1,118 firm-year observations, a puzzling result. The main hypothesis we test in our study, using Tobit regressions and fractional response models, is that firms presenting a market-to-book ratio below one for an extended period of time are more likely to recognize an impairment loss. Results found in our sample, comprised by 230 firms, indicate a positive statistical association between the presence of persistently low market-to-book ratios and the recognition of impairment losses. That statistical association, however, seems to fail to translate into impairment recognition at levels consistent with market expectations. We discuss and present suggestions of future research regarding possible explanations to the low frequency of recognition of impairment losses by Brazilian firms.

Key words: Impairment; IFRS; Conservatism; market-to-book ratio

1. INTRODUCTION

No asset should be reported in an entity's financial reports when its outstanding value is estimated to be unrecoverable through sale or usage (IFRS). Under the rules set by IAS 36 – Impairment of Assets, reporting entities must constantly monitor the recoverable value of their assets. While firms are required to disclose information on impairment tests, early evidence after the adoption of IFRS in 2010 shows that Brazilian firms fail to disclose complete information on impairment tests (Uliano et al. 2014; Mazzioni et al. 2014).

Due to the low level of impairment disclosure practiced by Brazilian publicly traded companies, market participants are not able to directly observe estimates made by firms on the recoverable value of their assets. Nonetheless, the market value of firms could provide an indirect aggregate estimate of their net recoverable amount. In this sense, we consider the market-to-book ratio as a potential impairment indicator, inspired by Ramanna and Watts' (2012) assertive that the market expects impairment losses on firms with book-to-market ratios higher than one for a period of at least two consecutive years.

The current Brazilian stock market provides a rich environment for testing how accounting information can absorb or ignore information available on high verifiability states. Some of the largest Brazilian publicly traded companies have been persistently showing market-to-book ratios lower than one. In contrast to the report from Oler (2015), according to whom 19% of the firm-quarter observations between 1990 and 2010 presented low market-to-book ratios, our sample from Brazilian firms from 2010 to 2015 has around 61% of firms with one year of market-to-book ratio lower than one. When our cutoff for persistency is increased to two, and three years, the percentage of firm-years with persistently low market-to-book ratios fluctuates respectively to 56%, 58%.

Our main hypothesis is that firms that present a market-to-book ratio below one for an extended period of time are more likely to recognize an impairment loss. Results found in a sample of 1,120 firm-years, comprised by 230 unique firms, are favorable to this hypothesis in terms of statistical significance. However, there are only 57 observations in which a given firm has recognized an impairment loss. Our analysis of the Brazilian context might contribute to the literature on the effects of IFRS adoption, as our results suggest that the learning curve for the adoption of impairment rules may be slow one.

Based on the premise that market prices aggregate investor's opinions on the company's future cash flows, we argue that a persistent market cap lower than the company's book value presents a verifiable and reliable estimate of fair value of the company's net assets. This logic is similar to that presented by Danielson and Press (2003) and Oler (2015), as both papers consider a book-to-market higher than one as a signal of lack of conservatism. Under accounting conservatism, impairment tests should follow persistently low market-to-book ratios, correcting net asset's reporting value to reflect negative information already assimilated by the markets.

Considering a similar premise, Choi (2008) found that a significant portion of write-offs under US GAAP was not recorded in a timely manner. Hence, market prices over the years preceding a write-off takes into account any decline in asset value reflected later in the write-off amount. Ji (2013) presents evidence from the Australian context. Through examining the timing of goodwill impairment decisions of Australian companies during the period 2007 to 2009, the

author reports that a non-trivial number of firms did not impair goodwill as called for under the standard governing asset impairment.

Our results indicate a positive association between the presence of persistently low market-to-book ratios and the recognition of impairment losses, indicating that firms' behavior is responsive to market information. However, under a low market to book scenario, firms with a proportion of fixed assets higher than 30% of their total assets are less likely to recognize an impairment loss. The evidence on the role played by firms' leverage and payout levels on the recognition of impairment losses is not consistent under our different specifications, indicating that these recognitions may not be strongly affected by contracting and agency problems.

2. HYPOTHESES DEVELOPMENT

Under Basu's (1997) interpretation of conservatism, earnings reflects bad news more quickly than good news. Unrealized losses are typically recognized earlier than unrealized gains, resulting on systematic differences between bad news and good news periods in the timeliness and persistence of earnings. Watts (2003b) defines conservatism as the differential verifiability required for recognition of profits versus losses.

Following the work of Ball and Brown (1968), positive capital markets research has been using changes in security prices as tool to infer whether information in accounting reports is useful to market participants (Kothari, 2001). Kothari (2001) states that a temporal association between current financial performance and future cash flows, as well as a contemporaneous association between financial performance and security prices or price changes is expected. We argue that there is no strict causal relation implied in this expected temporal association. Thus, market prices could affect financial reporting as well as financial reporting can affect market prices. Market prices, specially under high efficiency settings (low concerns on illiquidity or asymmetric information) can provide a strong cue to managers when their assets are overvalued.

Ball, Kothari, and Nikolaev (2013a) provide a clear explanation of the Basu (1997) model. They state that in an efficient market, stock returns reflect all new public information, being then a valid proxy for economic shocks to value. A segmented regression of accounting income on fiscal-period stock return is fitted, and the incremental coefficient on negative return is taken as a valid measure of asymmetrically timely loss recognition. The primary result reported by (Ball et al. 2013a) is that the Basu regression provides valid estimates of conditional conservatism from a econometrics standpoint, identifying conditional conservatism when it is present.

Beaver and Ryan (2005) separate conservatism in two facets. Under unconditional conservatism, the book value of equity is persistently understated as a consequence of predetermined aspects of the accounting process. Basu's (1997) conservatism falls under Beaver and Ryan's (2005) conditional conservatism, according to which book value is written down under sufficiently adverse circumstances, such as bad news, but not up under favorable circumstances, such as good news. This concept of conditional conservatism establishes a relationship between financial reporting behavior and real economic income (measured through stock returns) (Ball et al. 2013b).

The timely recognition of asset write-offs, which are expected to be anticipated by markets, can be considered a form of conditional conservatism. Ins this sense, motivated by

anecdotal evidence showing that managers have plenty of discretion to manage the timing of write-offs to take action related to earnings management, Choi (2008) investigates and obtains results suggesting that write-offs are recorded in a less timely manner than other components of earnings.

Watts and Zuo's (2016) emphasize that conservatism in accounting does not suggest historical cost measurement over fair value measurement, since for market prices of Level 1 inputs, the recognition of both gains and losses into income statement in a timely manner is a desirable procedure. The forcing of timely asset write downs and the disallowing of unverifiable write-ups are still present under the IFRS Conceptual Framework. One should note, that although explicitly removed from the IFRS's Conceptual Framework for financial reporting, there are several reporting practices that are still fully consistent with accounting conservatism. Examples are the asymmetric treatment of contingent assets and liabilities (IAS 37), the need for impairment testing regarding PP&E (IAS 36) and the net recoverable amount rule applicable to the reporting of inventories (IAS 2).

Concordantly, Abdel-Khalik (2010), claims that the accounting debate is usually framed in terms of making a choice between fair value and historical cost, but this is not a correct framing of the issues, since knowledge of fair value alone is not sufficient to help investors to evaluate stewardship. Under extreme fair value accounting, Abdel-Khalik (2010) argues that investors would not know, how much resources the management had sacrificed to obtain that fair value, emphasizing the importance of an adequate reliance on both sources of measurement methods.

Banker, Basu, and Byzalov (2014) argue and report empirical confirmation to the notion that earnings exhibits asymmetric timeliness with respect to multiple signals, including stock return, sales change, and operating cash flow change. This signals differentially explain write-downs of current assets, long-lived tangible assets, and infinite-lived goodwill. The authors also find that impairment is triggered by extreme bad news, and the implicit cutoffs for recognizing bad news vary predictably across both signals and asset types.

The persistent empirical verification that some of the largest Brazilian publicly traded companies present book values of equity that are higher than their market capitalization seems to indicate that the level of unconditional conservatism is low in this companies. Alternatively, the untimely recognition of bad news in the form of impairment losses is a form of conditional conservatism.

Du, Li, and Xu (2014) state that US accounting rules given by FAS 157, FAS 157-3 and FAS 157-4, specify the circumstances where firms need to adjust valuation inputs to fair value measurements in response to changes in market conditions. The authors emphasize that such an adjustment is subject to a significant degree of management judgment and discretion. The same. We emphasize that a reasonably similar level of management discretion is also allowed under IFRS, through IAS 36 – Impairment of assets. In this sense, Knauer and Wöhrmann (2015) did not find significant differences between capital markets effects deriving from write-down announcements under SFAS 142 and IAS 36.

Watts and Zuo (2016) state that for difficult-to-verify information, such as fair value estimates based on Level 2 or Level 3 inputs, conservatism requires a higher verifiability threshold for gains than for losses, and hence a lower of amortized cost or fair value model (similar to the lower of cost or market model for inventories) seems more appropriate. If the market is efficient in valuing stocks of the Brazilian largest companies, market capitalization

could be taken as a proxy for level 1 inputs for the valuation of the company's assets. Considering that level 1 inputs are hierarchically referable, these companies market capitalization should imply an upper bound for the company book value of equity.

Oler (2015) considers that firms with persistently high book-to-market ratios, mathematically equivalent to low market-to-book ratios present an anomaly, probably due to aggressive accounting practices. Based on the above discussion, we start by formulating hypothesis on factors that are potential explanatory variables regarding the probability of a given company recognizing an impairment loss. Our first two hypotheses are presented as follows (in alternative form):

H1. Firms that have market-to-book ratios lower than one should be more likely to recognize an impairment loss than firms with market-to-book ratios higher than one, ceteris paribus.

H2. Changes of state from higher than one to lower than one market-to-book ratios should result in an increased probability of recognizing an impairment loss, ceteris paribus.

The existence of conservatism is explained by the extant literature mostly on contracting considerations, taxes, shareholder litigation risk, political process and regulatory forces (Basu, 1997; Watts, 2003b; Lu & Trabels, 2013). The evidence reported by Watts (2003a) suggests the contracting and shareholder litigation explanations are the most relevant, although effects of taxation and regulation play a smaller role. Due to that, a possible explanation for persisting lower than one market-to-book ratios could be managers' resistance to reduce asset values and consequently reducing their collateral. Accordingly, our second hypothesis is stated as follows (in alternative form):

H3. The leverage level of the firms that have market-to-book ratios lower than one should be negatively related to their probability of recognizing an impairment loss, ceteris paribus.

Herrmann, Saudagaran, and Thomas (2006) argue that fair value measures for property, plant, and equipment are superior to historical cost based on the characteristics of predictive value, feedback value, timeliness, neutrality, representational faithfulness, comparability, and consistency. The authors recognize that verifiability appears to be the sole qualitative characteristic favoring historical cost over fair value, but still, argue that the United States could learn from the practices already established in other countries and in International Financial Reporting Standards by reconsidering fair value measures for property, plant, and equipment.

Considering the superiority of fair value measures when it comes to reporting outstanding values of long term assets, we propose the following hypothesis (in alternate form):

H4. When their market-to-book ratio is lower than one, firms with a higher portion of non-current assets, such as fixed and intangible assets, should be more likely to recognize an impairment loss, ceteris paribus.

Lev and Gu (2016) claim that both the "fair" values assets and liabilities, and the consequent impairment expenses are often based on estimates that are hard to audit and easy

to manipulate. The authors claim that information disclosed on an incomplete fashion, without providing investors with information about the reliability of the estimates (confidence intervals), and their impact on sales and earnings, only results on increased information noise.

Lev and Gu's (2016) argument, impairment estimates on companies with less volatile earnings are expected to be more likely to reflect economic impairment losses, due to their higher level of verifiability. Thus, we present the following hypotheses (in alternate form):

H5. Firms with a lower level of earnings volatility and persistently lower than one market-to-book ratio should present an increased probability of recognizing an impairment loss, ceteris paribus.

Szczesny and Valentincic (2013) analyzed private firms, and reported evidence that such firms make the decision to write off, and write off more in terms of total amount, when they are: (i) more profitable, (ii) have more financial debt, and (iii) pay dividends. In their opinion, asset write-offs as viewed as corrections of departures of book values from their underlying economic values, resulting on a potential adjustment on the stream of dividends to shareholders. Even though their study is based on private firms, we understand that firms that pay more dividends would be economically better by reporting asset write-offs, reducing current levels of dividends and smoothing future dividends (due to effects such as reduced depreciation expense). Hence, we state the following hypothesis (in alternate form):

H6. Firms with a higher level of payout are more likely to report an impairment loss, ceteris paribus.

Trottier (2013) asserts that, since IAS No. 36 permits an impairment loss on a long-lived asset to be reversed if the economic value of the asset recovers, permitting reversals significantly increases the likelihood that a manager will record the impairment, especially if the manager has a bonus plan, due to his disutility from a bonus forgone should the value of the asset recovers but accounting rules prohibit him from reversing the loss. That would be the case of goodwill-related impairment losses.

Based on this effect, we make an additional prediction, that firms with significant goodwill amounts will be less likely to recognize an impairment loss when they have variable compensation schemes, regardless of the existence of a persistently low market-to-book ratio. This hypothesis is defined in the following alternate form:

H7. When their market-to-book ratio is lower than one, firms with a larger amount of goodwill in their assets will be less likely to recognize an impairment loss, ceteris paribus.

3. RESEARCH DESIGN

To test our hypotheses, we use a sample of firm-years with available data between 2010 (the first year of full IFRS adoption in Brazil) and 2015, We require financial data from Standardized Financial Statements available at CVM (Brazilian Securities and Exchange Commission) and at Economática System. We exclude firms in the financial services industries because of their different operating, financial and wealth generating structures. We also exclude

companies with negative shareholders' equity on the previous year (for which market-to-book ratios are negative), companies with return on assets below -100% and above 100%, and companies with assets lower than one hundred thousand Brazilian Real. With these exclusion criteria, we exclude both firms that are likely to be in near-bankruptcy state and firms that experienced significant changes on their return on assets' generating processes. In our final sample, there are 1118 firm-years, with 230 unique Brazilian firms with stocks traded at the BM&FBOVESPA.

Generally, our hypotheses concern the existence of a persistently low market-to-book ratio. Hence, we test our hypotheses through a dummy variables approach. In our main specification, the dummy variable of interest takes the value 1 when the company has a market-to-book ratio lower than one for the two calendar years, and zero otherwise, following Ramanna and Watts (2012). For robustness, we run our models and report results with one and three calendar years as a cutoff for a persistent impairment indicator. On untabulated results, the algorithm for maximum likelihood estimation did not converge when we experimentally tested a four-year cutoff period, resulting in coefficients that could not be interpreted or taken for inference purposes. This result may be due to a smaller number of observations, given the larger cutoff period for defining the persistently low market to book ratio, and due to lack of variability in data. Nonetheless, given that Brazilian firms are part of a highly volatile environment, we ponder whether a four-year period may be considered a too long period for the purpose of our investigation. This question remains unanswered.

Banker, Basu, and Byzalov (2014) argue and report empirical confirmation to the notion that earnings exhibits asymmetric timeliness with respect to multiple signals, including stock return, sales change, and operating cash flow change. Banker, Basu, and Byzalov (2016), based in Basu's (1997) asymmetric timeliness model, modified the original model through the inclusion of changes in sales and operating cash flows, and the substitution of the dependent variable, earnings scaled by the beginning of year market value of the entity, by asset write-downs. The authors predicted and confirmed empirically a complex chain of interactions between indicators of changes in sales and operating cash flows. We take the variables in Banker, Basu, and Byzalov's (2016) including those from Riedl (2004), which are practicable to our analysis of Brazilian data, as control variables in order to build our model. These variables are presented in table 1.

Table 1 – Definition of Control Variables

Variable	Definition and data items
$RET_{i,t}$	= stock return for the 12-month period of fiscal year *t*;
$DR_{i,t}$	= dummy variable that equals 1 if stock return RET_t is negative. zero otherwise;
$\Delta CF_{i,t}$	= change in operating cash flow from year *t*–1 to year *t*, scaled by total assets at the beginning of the year;
$DC_{i,t}$	= dummy variable that equals 1 if cash flow change ΔCF_t is negative, zero otherwise;
$\Delta SALES_{i,t}$	= change in sales from year *t*–1 to year *t*, scaled by total assets at the beginning of the year;
$DS_{i,t}$	= dummy variable that equals 1 if sales change $\Delta SALES_t$ is negative, zero otherwise;

$\Delta E_{i,t}$	= change in pre-writedown earnings in year *t*, scaled by total assets at the beginning of the year;
$DE_{i,t}$	= dummy variable that equals 1 if $\Delta Et < 0$, zero otherwise;
ΔGDP_t	= GDP growth in year t;
$\Delta INDROA_{i,t}$	= change in median industry ROA for the industry of the firm in year *t*;
$BATH_{i,t}$	= ΔEt if ΔEt is below the median of the negative tail of ΔEt, zero otherwise;
$SMOOTH_{i,t}$	= ΔEt if ΔEt is above the median of the positive tail of ΔEt, zero otherwise;
$Liquidity_{i,t}$	= Liquidity of the stock *i* on year *t, as previously detailed*.

Given that the Brazilian stock market is significantly smaller than the American stock market, and that there is significant variance on the Brazilian Companies market capitalization, we also included stock liquidity as a control variable. This inclusion was operationalized through the exchange liquidity index, provided on the Economática System, and calculated as follows:

ExchangeLiquidity = 100 * p/P * sqrt(n/N * v/V)

where:

p = number of days on which there was at least one trade with the share within the chosen period

P = total number of days in the chosen period

n = number of trades with the share within the chosen period

N = number of trades with all shares within the chosen period

v = volume in cash regarding the share within the chosen period

V = cash volume regarding all shares within the chosen period

As in Banker, Basu, and Byzalov's (2016), we consider interactions between control variables $\Delta CF_{i,t}$ and $DC_{i,t}$, $\Delta SALES_{i,t}$ and $DS_{i,t}$, and $\Delta E_{i,t}$ and $DE_{i,t}$. These interactions should capture the asymmetric timeliness of bad news, measured as negative variation on cash flows, sales and pre-impairment earnings.

Results reported by Wrubel, Marassi, and Klann (2015) regarding the Brazilian market show that changes in cash flow, revenue and debt, and income smoothing practices (Smooth) do determine the recognition of impairment losses. We analyze the Brazilian context regarding the recognition of an impairment loss through Tobit Regressions. The choice of this approach is similar to (Riedl 2004), and considers that in our full sample of 1118 observations, an impairment loss was recognized only on only 57 observations, resulting on a sample censored at zero.

Considering that our sample covers the period after the adoption of IFRS in Brazil, including calendar years from 2010 to 2015, we must consider that the probability of $firm_i$ recognizing an impairment loss on $year_t$ may be related to the same probability in the $year_{t-1}$. This probability arises because of characteristics that are firm-specific. Thus, our Tobit regression were also estimated with panel data characteristics, following (Tobin 1958) and (Woolridge 2010).

We present the definition of our variables of interest in Table 2. Our model is defined in the form or Eq.1., and includes log of total assets as an additional variable of interst, as this varable is not considered in Banker, Basu, and Byzalov's (2016). Since we first estimate a set of Tobit regressions, subsequently we estimate a set of unbalanced Panel Data Random Effects

Tobit Model, and finally we estimate GLM models, the error structure regarding the term $v_{i,t}$ is dependent on the model being estimated.

$$\text{Impairment}_{i,t}=\beta_0 + \beta_1 (\text{Persistent Impairment Indicator}_{i,t}) + \beta_2 (\text{D\_State\_Chg}_{i,t}) + \beta_3 (\textit{Log of total assets}_{i,t}) + \beta_4 (\text{Leverage}_{i,t}) + \beta_5 (\text{Leverage}_{i,t}) \text{x} (\text{Persistent Impairment Indicator}_{i,t}) + \beta_6 (\text{Earnings volatility}_{i,t}) + \beta_7 (\text{Earnings volatility}_{i,t}) \text{x} (\text{Persistent Impairment Indicator}_{i,t}) + \beta_8 (\text{Fixed assets dummy}_{i,t}) + \beta_9 (\text{Fixed assets dummy}_{i,t}) \text{x} (\text{Persistent Impairment Indicator}_{i,t}) + \beta_{10} (\text{Goodwill dummy}_{i,t}) + \beta_{11} (\text{Goodwill dummy}_{i,t}) \text{ x} (\text{Persistent Impairment Indicator}_{i,t}) + \beta_{12} (\text{Payout}_{i,t}) + \sum_{k=1}^{13} \{\gamma_k \text{Control}_{k,i,t}\} + v_{i,t}$$

(Eq. 1)

Table 2 – Variable definition

Variable	Definition
Dependent Variable	
$\text{Impairment}_{i,t}$	impairment loss of firm $_i$ on year $_t$ scaled by total assets on year $_{t-1}$
Independent Variables	
Persistent Impairment $\text{Indicator}_{i,t}$	dummy variable that equals 1 if market to book ratio is lower than one in the last one to three calendar years;
$\text{D\_State\_Chg}_{i,t}$	dummy variable that equals 1 the company i changed from a Market-to-book ratio greater than one to a ratio lower than one
$\text{Leverage}_{i,t}$	leverage of the company $_i$ on year $_t$;
Log of total $\text{assets}_{i,t}$	total assets of firm $_i$ on year $_{t-1}$
Fixed assets $\text{dummy}_{i,t}$	dummy variable that equals 1 if the firm has a percentage of fixed assets in excess of 30% of its total assets. zero otherwise;
Earnings $\text{volatility}_{i,t}$	volatility of the firm is quarterly earnings in the past two calendar years
$\text{Payout}_{i,t}$	payout of the firm I in the year t, calculated from the firm Statement of Cash Flows
Goodwill $\text{dummy}_{i,t}$	dummy variable that equals 1 if the firm has a percentage of goodwill assets in excess of 10% of its total assets. zero otherwise;
$\text{Controls}_{k\ i,t}$	Control variables from table 1

Summary statistics for the Dependent and all of the numeric explanatory variables are presented in Table 3. The $\text{Impairment}_{i,t}$ variable has a mean close to its minimum, reflecting the small number of observations with impairment losses. Considering only the 57 observations in which an impairment loss was recognized, $\text{Impairment}_{i,t}$ has a mean value of 0.03 with standard deviation of 0.06 and a maximum value of 0.43.

Table 3 – Summary Statistics of the dependent variable and numeric explanatory variables

Statistic	N	Mean	St. Dev.	Min	Max
$Impairment_{i,t}$	1,118	.0017726	.0166378	0	.4392326
Log of total $assets_{i,t}$	1,118	15.0304	15.17945	11.70378	20.49181
$Payout_{i,t}$	1,118	-.6832428	3.863771	-86.04489	11.41567
$Earnings\_Vol_{i,t}$	1,118	.0172918	.0263015	.0004274	.4400728
$LEV_{i,t}$	1,118	.9072663	9.207466	-199.7381	218.2164
$RET_{i,t}$	1,118	-.1405531	.507568	-3.264293	3.454244
$\Delta CF_{i,t}$	1,118	.0045677	.0786399	-.4630538	.4575791
$\Delta SALES_{i,t}$	1,118	.0693884	.1663262	-1.028247	1.556462
$\Delta E_{i,t}$	1,118	-.0020298	.070426	-.5248144	.6907132
$\Delta INDROA_{i,t}$	1,118	-.8007062	4.105744	-41.9446	32.58654
$\Delta GDP_{i,t}$	1,118	.015	.0438455	-.06	.07
$Liquidity_{i,t}$	1,118	.3355396	.8273929	0	8.66541

Finally, we present in Table 4 the correlation matrix regarding the Dependent and all of the numeric explanatory variables, indicating that no pair of variables has correlation coefficient suggesting multicollinearity issues. $Impairment_{i,t}$ is correlated with many of the numeric explanatory variables considered in our models, suggesting that there is a statistically significant association between these variables, to be analyzed in depth in the next session.

Table 4 – Correlation Matrix

	1	2	3	4	5	6
$Impairment_{i,t}$	1.00					
Log of total $assets_{i,t}$	0.07*	1.00				
$Payout_{i,t}$	-0.01	-0.10***	1.00			
Earnings	0.10***	-0.20***	0.00	1.00		
$\_Vol_{i,t}$						
$LEV_{i,t}$						
$RET_{i,t}$	-0.01	-0.00	0.00	-0.00	1.00	
$\Delta CF_{i,t}$	-0.13***	-0.03	0.04	-0.04	-0.02	1.00
$\Delta SALES_{i,t}$	0.12***	0.07*	0.01	0.02	0.00	0.06
$\Delta E_{i,t}$	-0.00	0.02	0.03	-0.01	0.01	0.30***
$\Delta INDROA_{i,t}$	-0.25***	-0.06*	-0.03	0.15***	-0.03	0.33***
$\Delta GDP_{i,t}$	-0.26***	-0.01	-0.06	0.03	-0.00	0.19***
$Liquidity_{i,t}$	-0.05	-0.05	0.01	-0.04	-0.05	0.27***
$Impairment_{i,t}$	0.12***	0.57***	-0.10**	-0.05	-0.01	-0.01

	7	8	9	10	11	12
$Impairment_{i,t}$						
Log of total $assets_{i,t}$						
$Payout_{i,t}$						
Earnings						
$\_Vol_{i,t}$						
$LEV_{i,t}$						
$RET_{i,t}$						
$\Delta CF_{i,t}$						
$\Delta SALES_{i,t}$	1.00					
$\Delta E_{i,t}$	0.05	1.00				
$\Delta INDROA_{i,t}$	0.17***	0.27***	1.00			
$\Delta GDP_{i,t}$	0.13***	0.16***	0.55***	1.00		
$Liquidity_{i,t}$	-0.03	0.17***	0.13***	0.13***	1.00	
$Impairment_{i,t}$	0.05	0.02	-0.01	-0.03	0.01	1.00

* p<0.05, ** p<0.01, *** p<0.001

4. RESULTS

In Table 5, we present the results of our first set of Tobit regressions based on Eq.1. Through models (1) to (3), we estimate Tobit Regressions considering 1 to 3 calendar years as a cutoff for the definition of the Persistent Impairment $Indicator_{i,t}$ variable. The same cutoff was considered on determining the value of the variable $D\_State\_Chg_{i,t}$. The constant term is omitted for brevity. Regarding model (1), one might ponder that a market-to-book ratio lower than one for one year is not a sufficient sign of impairment for firms to consider. However, since there is no clear theoretical reason to rule out periods of one year, we report within our results the corresponding regression results for these cutoffs.

Table 5 - Tobit Models - Dependent Variable = $Impairment_{i,t}$

	(1)		(2)		(3)	
Persistent Impairment Indicator$_{i,t}$	0.07743	(0.05637)	**0.11530***	**(0.05406)**	**0.19051****	**(0.06691)**
D_State_Chg$_{i,t}$	-0.00131	(0.01419)	0.00038	(0.01406)	-0.00289	(0.01625)
Log of total assets$_{i,t}$	0.00015	(0.00418)	-0.00034	(0.00424)	-0.00130	(0.00498)
Payout$_{i,t}$	-0.00072	(0.00077)	-0.00061	(0.00077)	-0.00081	(0.00074)
Earnings volatility$_{i,t}$	-2.11647^{+}	(1.25783)	-0.04236	(0.89920)	1.27088	(0.94618)
Leverage$_{i,t}$	-0.01157	(0.00984)	-0.00068	(0.00135)	-0.00005	(0.00173)
Fixed assets dummy$_{i,t}$	0.03603	(0.03786)	**0.06467^{+}**	**(0.03548)**	**0.07651^{+}**	(0.04579)
Goodwill dummy$_{i,t}$	0.07399	(0.06392)	0.06796	(0.06210)	0.11200^{+}	(0.06511)
Earnings Volatility$_{i,t}$ x Persistent Impairment Indicator$_{i,t}$	1.12954^{+}	(0.65835)	-0.01628	(0.55172)	-1.03936	(0.78650)
Leverage$_{i,t}$ x Persistent Impairment Indicator$_{i,t}$	0.00574	(0.00493)	0.00033	(0.00081)	-0.00020	(0.00140)
Fixed assets dummy$_{i,t}$ x Persistent Impairment Indicator$_{i,t}$	-0.03371	(0.02259)	**-0.05145***	**(0.02241)**	**-0.08574***	(0.03772)
Goodwill dummy$_{i,t}$ x Persistent Impairment Indicator$_{i,t}$	-0.03648	(0.03910)	-0.03086	(0.03863)	-0.06539	(0.04382)
sigma						
Constant	0.06571***	(0.00698)	0.06669***	(0.00706)	0.06215***	(0.00739)
AIC	142.91977		144.15952		105.23492	
BIC	298.51797		299.11332		254.17797	
pseudo r2	0.598		0.587		0.749	
Log likelihood	-40.460		-41.080		-21.617	
chi2	120.315		116.752		128.956	
Observations	1118		1095		902	

Standard errors in parentheses. Control variables omitted for brevity.
$^{+}$ p<0.1 * p<0.05, ** p<0.01, *** p<0.001

Our main interest lies on the coefficients of the variables that indicate a state with a higher impairment loss probability, including their interaction with other variables. As shown in Table 5, the variable Persistent Impairment Indicator$_{i,t}$ has statistically significant coefficients whether we consider two or three calendar years of persistently low market to book ratios. Both on models (2) and (3), Persistent Impairment Indicator$_{i,t}$ is a positive predictor of an impairment loss. Contrary to our theoretical expectations, the change of state, represented by D_State_Chg$_{i,t}$, which measures the effect when a given firm enters a state of persistently low market to book ratio, is not statistically significant in any of our Tobit Regressions.

The interaction terms Earnings Volatility$_{i,t}$ x Persistent Impairment Indicator$_{i,t}$, Leverage$_{i,t}$ x Persistent Impairment Indicator$_{i,t}$, and Goodwill dummy$_{i,t}$ x Persistent Impairment Indicator$_{i,t}$ are not statistically significant, indicating the rejection of the H_3, H_4 and H_7 hypotheses. Contrary to our theoretical expectation, the interaction term Fixed assets dummy$_{i,t}$ x Persistent Impairment Indicator$_{i,t}$ although statistically significant, has a negative signal, indicating that that firms with a higher percentage of fixed assets (more than 30% of its total assets) are less likely to record an

impairment loss. This result is somehow similar to that reported by (Oler 2015), in which asset specialization increases the length of time a firm's BTM ratio is above one.

Regarding the control variables, it is worth commenting that the variables $Liquidity_{i,t}$, $RET_{i,t}$ and $RET_{i,t}$ x $DR_{i,t}$ behaves consistently as expected on all of the Tobit Regressions. Negative stock returns are a statistically significant predictor of impairment losses at the 1% level, indicating accounting conservatism. The variable $\Delta INDROA_{i,t}$ is also statistically significant for models (2) e and (3), indicating that a negative shock to the industry's returns on assets increases firms' recognition of impairment losses.

Since we have 6 years of data for 62% of sample firms, the characteristics of our dataset lead us to an unbalanced panel dataset. With this dataset, we estimate Random Effects Tobit Models though Stata's (StataCorp 2015) "xttobit" function, which is able to handle unbalanced panels. Firms with less than 6 years of data arise mostly because of the exclusion criteria adopted herein. Firm-years in which the shareholders' equity of the previous year became negative, with missing market value or extreme ROA were excluded from our sample.

In Table 6, we report the results of our second of Tobit regressions based on Eq.1, this time with a panel data treatment. Through models (4) to (6), we estimate Random Effects Tobit Regressions considering respectively 1 to 3 calendar years as a cutoff for the definition of a persistently low market to boo ratio (Persistent Impairment $Indicator_{i,t}$). The same cutoff was considered on determining the value of the variable $D\_State\_Chg_{i,t}$, repeating the procedure adopted on models (1) to (3). The Constant and sigma terms are omitted for brevity.

Results reported in table 6 show no statistical significance for Persistent Impairment $Indicator_{i,t}$ (although the coefficient's p-value for the 3-year cutoff specification is close to 0.05). The variable $D\_State\_Chg_{i,t}$, however, is significant for the 3-year cutoff specification. Our interactions terms of interest are not statistically significant with the exception of Earnings $Volatility_{i,t}$ x Persistent Impairment $Indicator_{i,t}$ and $Leverage_{i,t}$ x Persistent Impairment $Indicator_{i,t}$. Both interaction variables, however, are only significant for the1-year cutoff period.

Table 6 – Random Effects Tobit Models - Dependent Variable = $Impairment_{i,t}$

	(4)		(5)		(6)	
Persistent Impairment Indicator$_{i,t}$	-0.00940	(0.04440)	-0.03340	(0.04902)	0.09783^{+}	(0.05305)
D_State_Chg$_{i,t}$	-0.01163	(0.00875)	-0.01853^{+}	(0.00957)	**-0.01693***	**(0.00752)**
Log of total assets$_{i,t}$	0.00598	(0.00456)	0.00777	(0.00551)	**0.01085***	**(0.00505)**
Payout$_{i,t}$	**-0.00067***	**(0.00034)**	**-0.00078***	**(0.00037)**	-0.00026	(0.00032)
Earnings volatility$_{i,t}$	**-1.93852****	**(0.65692)**	-0.88456	(0.80183)	**1.74144***	**(0.77380)**
Leverage$_{i,t}$	**-0.01397****	**(0.00474)**	-0.00157^{+}	(0.00094)	**-0.00121***	**(0.00058)**
Fixed assets dummy$_{i,t}$	0.01578	(0.03113)	0.04949^{+}	(0.02917)	0.03009	(0.03622)
Goodwill dummy$_{i,t}$	-0.05395	(0.04651)	**-0.14484***	**(0.06001)**	0.08628	(0.07937)
Earnings Volatility$_{i,t}$ x Persistent Impairment Indicator$_{i,t}$	**1.12325****	**(0.36419)**	0.53872	(0.47904)	-1.10094^{+}	(0.58374)
Leverage$_{i,t}$ x Persistent Impairment Indicator$_{i,t}$	**0.00691****	**(0.00238)**	0.00082	(0.00057)	0.00067^{+}	(0.00037)
Fixed assets dummy$_{i,t}$ x Persistent Impairment Indicator$_{i,t}$	-0.01079	(0.01784)	-0.03079^{+}	(0.01773)	-0.03146	(0.02214)
Goodwill dummy$_{i,t}$ x Persistent Impairment Indicator$_{i,t}$	0.01578	(0.03388)	0.07560^{+}	(0.04185)	-0.03656	(0.04433)
sigma_u						
Constant	0.07166***	(0.00647)	0.07525***	(0.00781)	0.08188***	(0.01077)
sigma_e						
Constant	0.01897***	(0.00220)	0.02065***	(0.00249)	0.01237***	(0.00226)
AIC	-8.89126		1.15036		-2.19953	
BIC	151.72623		161.10267		151.54813	
Log likelihood	36.446		31.425		33.100	
chi2	127.325		118.066		83.913	
p value	0.000		0.000		0.000	
Observations	1118		1095		902	

Standard errors in parentheses. Control variables omitted for brevity.
$^{+}$ p<0.1 * p<0.05, ** p<0.01, *** p<0.001

Although the results presented in Tables 5 and 6 show a mixed response to market indicators of impairment, measured through the persistently low market to book ratio, one must take these results with caution. An analysis of the residuals from models presented in both tables shows that these residuals are not normally distributed, which could impair the ability of making statistical inferences about the coefficients. Nonetheless, given the size of our sample, we expect the estimators to be approximately asymptotically efficient.

We must emphasize that the recent econometrics literature presents an increased critique of the usage of Tobit Models for analyzing dependent variables that are limited from below and above (see Papke & Wooldridge, 2008;Gallani & Wooldridge, 2015). Given that our dependent variable, being scaled by total assets, represent a fraction of a firm's total assets, in order to provide additional evidence regarding the object of our research, we also run Generalized Linear Models with a Logit link. This kind of model is defined by Papke and Wooldridge (2008)

as a Fractional Response Model, adequate for dealing with the possible shortcomings of Tobit models for fractional data. Results for the GLM estimations are presented in table 7. Through models (7) to (9), we estimate GLM regressions considering respectively 1 to 3 calendar years as a cutoff for the definition of a persistently low market to boo ratio (Persistent Impairment Indicator$_{i,t}$). The same cutoff was considered on determining the value of the variable D_State_Chg$_{i,t}$. The constant and sigma terms are omitted for brevity.

Through the specifications in table 7, we report statistical significance of the Persistent Impairment Indicator$_{i,t}$ variable in all of the persistency cutoffs, with the expected signal. In accordance with the results from tables 5 and 6, results from table 7 suggest that a persistently low market to book ratio is associated with the recognition of impairment losses. The same statistical significance in all cutoffs is observed for the Fixed assets dummy$_{i,t}$ x Persistent Impairment Indicator$_{i,t}$ interaction variable. Again, results indicate that firms with a percentage of fixed assets higher than 30% of their total assets are less likely to recognize an impairment loss. Untabulated results with a lagged variables approach for the construction of the dummy variable Persistent Impairment Indicator$_{i,t}$ suggest the same association between a persistently low market to book ratio and the recognition of impairment losses.

Table 7 – GLM Models (link=LOGIT). Dependent Variable = Impairment$_{i,t}$

	(7)		(8)		(9)	
Persistent Impairment Indicator$_{i,t}$	**4.36303***	**(1.73036)**	**5.69151****	**(1.89416)**	**6.20908****	**(2.35820)**
D_State_Chg$_{i,t}$	**-0.75117^{+}**	(0.41364)	-0.24919	(0.54905)	-0.35767	(0.67277)
Log of total assets$_{i,t}$	**-0.27432****	**(0.10360)**	**-0.30494****	**(0.11657)**	**-0.28078***	**(0.12494)**
Payout$_{i,t}$	**-0.02143***	**(0.00955)**	-0.01617	(0.01042)	-0.01620	(0.01285)
Earnings volatility$_{i,t}$	**-53.69965^{+}**	**(30.70174)**	-21.28059	(35.03145)	9.67594	(44.62232)
Leverage$_{i,t}$	0.06171	(0.16564)	-0.00104	(0.04468)	0.00531	(0.04593)
Fixed assets dummy$_{i,t}$	**1.99387***	**(0.93920)**	**2.73676****	**(1.06030)**	**2.12626^{+}**	**(1.17831)**
Goodwill dummy$_{i,t}$	**3.76012****	**(1.45158)**	**3.88571***	**(1.53833)**	**4.54194***	**(1.91003)**
Earnings Volatility$_{i,t}$ x Persistent Impairment Indicator$_{i,t}$	22.98102	(14.65407)	0.09736	(20.17904)	-22.49821	(26.29854)
Leverage$_{i,t}$ x Persistent Impairment Indicator$_{i,t}$	-0.03386	(0.08272)	-0.00226	(0.02256)	-0.00691	(0.02320)
Fixed assets dummy$_{i,t}$ x Persistent Impairment Indicator$_{i,t}$	**-1.92032****	**(0.64110)**	**-2.49966****	**(0.79698)**	**-2.39531***	**(0.95749)**
Goodwill dummy$_{i,t}$ x Persistent Impairment Indicator$_{i,t}$	**-1.91845^{+}**	**(1.09730)**	**-1.94316^{+}**	**(1.12942)**	**-2.52948^{+}**	**(1.48256)**
AIC	75.83307		75.78927		73.20054	
BIC	226.41197		225.74456		217.33898	
Log likelihood	-7.917		-7.895		-6.600	
chi2	1626.602		2104.201		1876.793	
Observations	1118		1095		902	

Standard errors in parentheses. Control variables omitted for brevity.
$^{+}$ p<0.1 * p<0.05, ** p<0.01, *** p<0.001

Our other interactions terms of interest are not statistically significant with the exception of Fixed assets $dummy_{i,\ t}$ x Persistent Impairment $Indicator_{i,\ t}$ interaction variable, which is significant and negatively associated with the recognition of impairment losses only for models (7) to (9). This negative relation, also observed on our Tobit and Random Effects Tobit is contrary to our theoretical expectation. Firms with a higher percentage of fixed assets are expected to be more likely to recognize impairment losses due to the fact of the superior quality of fair value measures when it comes to reporting outstanding values of long term assets as indicated by the extant literature.

5. CONCLUSION

The persistent observation of Brazilian firms with low market-to-book ratios contrasted with the low frequency of impairment losses recognition is puzzling. As of December 31st, 2015, more than 50% of the publicly traded companies in our sample have market-to-book ratio lower than one. Among these companies, 72% have market-to-book ratios of 0.6 or lower. Although our study is performed on a large number of firm-year observations, our sample do suffer from a small number of impairment recognizing firms. The fact that the literature on fractional response models is still under development provides an even greater challenge to the interpretation of our results. Despite these caveats, our results show a statistically significant relation between the persistent impairment indicator (low market-to-book ratio) and the recognition of impairment losses.

IFRS commands that, whenever there is any indication that an impairment loss has occurred, an impairment test should be carried out, and a loss should be recognized when the assets are no longer recoverable. When the market price of a firm is lower than its book value of shareholders' equity, the market indicates that assets are no longer recoverable at their accounting outstanding value. Firms with a book value of assets in excess to their market value can be considered as examples of lack of accounting conservatism. Watts and Zuo (2016), in their historical account of the development of the accounting profession, argue that accounting conservatism is a critical information control and governance mechanism that should be reintroduced explicitly by standard setters into the Conceptual Framework for financial reporting.

Our results are supportive of the claim that Brazilian firms do not adopt conservative accounting behavior regarding the impairment of their assets. Some of our sample firms recognize impairment losses when their market-to-book ratios remain persistently low. However, in 61% of our firm-year observations, firms do not recognize impairment losses contrary to market expectations. In terms of statistical significance, however, the conservatism found in our sample is similar to that reported by Banker, Basu, and Byzalov (2014) with a sample of American firms, in which earnings exhibit asymmetric timeliness with respect to multiple signals, including stock return, sales change, and operating cash flow change. Why Brazilian firms collectively fail to recognize impairment losses in such scenario is an interesting question still to be addressed by future research.

As the period of IFRS adoption in Brazil grows, we will be able to collect further data in order to increase the number of observations in which a firm has effectively recognized an impairment loss. We expect an increase in sample size to result in a significant increase of the

explanatory power of econometric tests. In addition to that possibility, researchers will be able to test whether the lack of impairment puzzle can be attributed to a difficult learning curve faced by Brazilian firms. The impairment related policies of these firms could also be compared with the corresponding policies of firms from other IFRS countries, in order to investigate the role played by different institutional settings in the phenomenon we observe in Brazil.

The widespread presence of the low market-to-book ratio firms in the Brazilian stock market may indicate that firms are not conservative enough regarding their impairment-related practices. We believe that there is a fertile avenue for future research on the level of disclosure of impairment tests, its methodology, and its subjectivity. In this sense, firms with low market-to-book ratio should consider providing detailed and convincing disclosure of the reason their net assets are stated by amounts not supported by the market view of the firms' future cash flows. An approach with multiple case-studies, including the analysis of the disclosure of impairment tests of firms on variable states of their market-to-book ratio should contribute further to the understanding of the complex phenomenon of impairment losses.

REFERENCES

Ball, R. & Brown, P., 1968. An Empirical Evaluation of Accounting Income Numbers. *Journal of Accounting Research*, 6(2), pp.159–178.

Ball, R., Kothari, S.P. & Nikolaev, V. V., 2013a. Econometrics of the basu asymmetric timeliness coefficient and accounting conservatism. *Journal of Accounting Research*, 51(5), pp.1071–1097.

Ball, R., Kothari, S.P. & Nikolaev, V. V., 2013b. On estimating conditional conservatism. *Accounting Review*, 88(3), pp.755–787.

Banker, R., Basu, S. & Byzalov, D., 2014. The Role of Multiple Impairment Indicators in Conditional Conservatism. *SSRN Working Paper*, pp.1–50.

Banker, R., Basu, S. & Byzalov, D., 2016. Implications of impairment decisions and assets' cash-flow horizons for conservatism research. *The Accounting Review*, forthcomin, pp.1–49.

Basu, S., 1997. The conservatism principle and the asymmetric timeliness of earnings: An event-based approach. *Journal of Accounting and Economics*, (24), pp.3–37.

Beaver, W.H. & Ryan, S.G., 2005. Conditional and Unconditional Conservatism:Concepts and Modeling. *Review of Accounting Studies*, 10(2/3), pp.269–309. Available at: http://www.redi-bw.de/db/ebsco.php/search.ebscohost.com/login.aspx?direct=true&db=bth&AN=17551093&site=ehost-live.

Choi, T.H., 2008. Asset Write-offs: An Empirical Investigation of Timeliness. *Asia-Pacific Journal of Accounting & Economics*, 15(1), pp.11–27. Available at: http://www.tandfonline.com/doi/abs/10.1080/16081625.2008.9720806.

Danielson, M.G. & Press, E., 2002. Accounting Returns Revisited : Evidence of their Usefulness in Estimating Economic Returns. *Review of Accounting Studies*, (February), pp.493–530.

Du, H., Li, S.F. & Xu, R.Z., 2014. Adjustment of valuation inputs and its effect on value relevance of fair value measurement. *Research in Accounting Regulation*, 26(1), pp.54–66.

Available at: http://dx.doi.org/10.1016/j.racreg.2014.02.005.
Gallani, S., Krishnan, R. & Wooldridge, J.M., 2015. Applications of fractional response model to the study of bounded dependent variables in accounting research. *Harvard Business School Working Paper*, 16–016, pp.1–57.
Herrmann, D., Saudagaran, S.M. & Thomas, W.B., 2006. The quality of fair value measures for property, plant, and equipment. *Accounting Forum*, 30(1), pp.43–59.
Ji, K., 2013. Better late than never, the timing of goodwill impairment testing in Australia. *Australian Accounting Review*, 23(4), pp.369–379.
Kothari, S.., 2001. Capital markets research in accounting. *Journal of Accounting and Economics*, 31(1–3), pp.105–231. Available at: http://linkinghub.elsevier.com/retrieve/pii/S0165410101000301.
Lev, B. & Gu, F., 2016. *The End of Accounting and the Path Forward for Investors and Managers*, John Wiley & Sons, Inc.
Lu, C. & Trabelsi, S., 2013. Information Asymmetry and Accounting Conservatism under IFRS Adoption. *SSRN Working Paper*. Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2201206.
Mazzioni, S. et al., 2014. Fatores Determinantes Na Evidenciação Da Re Dução Ao Valor Recuperável De Ativos (Impairment Test) Em Empresas Listadas Na Bm&Fbovespa. *BASE - Revista de Administração e Contabilidade da Unisinos*, 11(4), pp.276–291. Available at: http://revistas.unisinos.br/index.php/base/article/view/base.2014.114.01.
Oler, M., 2015. Determinants of the length of time a firm ' s book-to-market ratio is greater than one. *Review of Quantitative Financial Accounting*, 45, pp.509–539.
Papke, L.E. & Wooldridge, J.M., 2008. Panel data methods for fractional response variables with an application to test pass rates. *Journal of Econometrics*, 145(1–2), pp.121–133.
Ramanna, K. & Watts, R.L., 2012. Evidence on the use of unverifiable estimates in required goodwill impairment. *Review of Accounting Studies*, 17(4), pp.749–780.
Riedl, E.J., 2004. An Examination of Long-Lived Asset Impairments. *The Accounting Review*, 79(3), pp.823–852.
StataCorp, 2015. Stata Statistical Software: Release 14.
Szczesny, A. & Valentincic, A., 2013. Asset Write-offs in Private Firms - The Case of German SMEs. *Journal of Business Finance and Accounting*, 40(3–4), pp.285–317.
Tobin, J., 1958. Estimation of Relationships for Limited Dependent Variables. *Econometrica*, 26(1), pp.24–36.
Trottier, K., 2013. The effect of reversibility on a manager's decision to record asset impairments. *Accounting Perspectives*, 12(1), pp.1–22.
Uliano, A.L.P., Doná, A.L. & Gonçalves, M.N., 2014. Disclusore of loss by the impairment applied to fixed assets: analysis of the IBrX-50 companies. *Enfoque: Reflexão Contábil*, 33(1), pp.1–18. Available at: http://periodicos.uem.br/ojs/index.php/Enfoque/article/view/21557/.
Watts, R.L., 2003a. Conservatism in Accounting. Part II: Evidence and Research Opportunities. *Accounting Horizons*, 17(4), pp.287–301.
Watts, R.L., 2003b. Conservatism in accounting part I: Explanations and implications. *Accounting Horizons*, 17(3), pp.207–221.
Watts, R.L. & Zuo, L., 2016. Understanding Practice and Institutions: A Historical Perspective.

Accounting Horizons, 30(3), p.acch-51498. Available at: http://aaajournals.org/doi/10.2308/acch-51498.

Woolridge, J.M., 2010. *Econometric Analysis of Cross Section and Panel Data* Second Edition., Massachussets Institute of Technology.

Wrubel, F., Marassi, R.B. & Klann, R.C., 2015. DETERMINANTES DO RECONHECIMENTO DE PERDAS. *RACEF – Revista de Administração, Contabilidade e Economia da Fundace.*, 6(1), pp.112–128.