The informational content of revaluation reserves in the Brazilian capital market

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Abstract

The use of accounting numbers for evaluation of firms has deserved local and international researches, mostly in the capital market. Multiple studies try to analyze the relevance of revaluation reserves (SHARPE; WALKER, 1975; STANDISH; UNG, 1982; BARTH; CLINCH, 1998; ABOODY; BARTH; KASZNIK, 1999; LOPES, 2006; PAIK, 2009). However, owing to Law nº. 11.638/07, forbidding to revaluate assets in Brazil, the significance of assets revaluation is being questioned. Hence, the following research issue: Does the assets revaluation exhibit anyrelevanceinformation when evaluating capital market firms? The purpose of this work is to verify whether the assets revaluation really brings in a significant informational content for the capital market in Brazil. In order to accomplish that purpose, we employed an approach originating from the Ohlsonmodel (1995), aiming at testing the importance of the revaluation reserves and the market value of Brazilian companies listed by the São Paulo Stock Exchange - BOVESPA, by using quarterly panel data for period 1995-2007. The results showed that nearly 33% of the companies selected in the sampling presented significant information regarding assets revaluation for the capital market. Durable Goods, Construction and Transports, Cyclic and Non-cyclic Consumption industries were among the most reserve-based representative economy sectors. It is, therefore, suggested that the assets revaluation does have the informational power and is effectively meaningful for the Brazilian capital market.

Keywords: Value Relevance; Assets Revaluation; Ohlson Model.

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1 INTRODUCTION

Business analysis and valuation have deserved efforts by the most diverse researchers about the accounting variables and firm value relationship. In fact, since the beginning of the 80's, Garman and Ohlson (1980) were already developing studies inserting accounting variables when evaluating organizations. Among many inspiring studies, those done by Ball and Brown (1968) stand out. They assessed the reaction of stock price withfirms' abnormal accounting results.

Another seminal work was developed by Ohlson (1995), evidencing the relationship among abnormal profit, net assets'book value and firm value. In that same year, Feltham and Ohlson (1995) disclosed an extension of the previous model, which would be the most notorious extension of the Ohlson Model, according to Lopes (2002). Several attempts were observed later on aiming at relating firm value and accounting variables (OHLSON, 1999; FELTHAM and OHLSON, 1996; 1999; GODE and OHLSON, 2000; LOPES, 2002; BAGINSKI and WAHLEN, 2003).

In Brazil, many studies (LOPES, 2002; ALENCAR; DALMACIO, 2006) analyzed accounting information content and their relationship with the capital market. Lopes (2002) studied the relation between accounting information and stock price, and the results evidenced that the accounting information is significant for theprecing in capital market.

Owing to the local society legislation, effective January 1, 2008, Brazilian public and private firms were forbidden to make new assets revaluation. For Iudícibus*et al* (2010, p. 378) that prohibition "disagrees with the Accounting International Standards, which allow the procedure". As a matter of fact, they also state that:

> The main justification for not making new revaluations in Brazil was the wrong use of the mechanism. There are multiple examples of organizations that revaluated their assets to change negative net assets into positive assets to reduce the dividends to be distributed, for obtaining arrangements with creditors or any other type of legal favoring or even to participate in public bids (IUDÍCIBUS *et al*, 2010, p. 378).

In spite of the permission of that revaluation by the international standards issued by the International Accounting Standard Board - IASB, Brazil forbade the assets revaluation for preventing the use of the technique to produce inputs that are not consistent for their users. It is worthwhile pointing out that the legislation includes two alternatives for the revaluation reserves account balance (net assets) existing on December 31, 2007, originating from previous revaluations: a) eliminating the existing revaluation reserve against retained earnings, or; b) keep on making the amortization of reserve based on criteria adopted previously.

However, some studies (BROWN, IZAN, LOH, 1992; WHITTRED, CHAN, 1992; EASTON, EDDY, HARRIS, 1993; LOPES, 2006) meant to verify the relationship of assets revaluation and firm performances or prices, which might explain the incentive of the revaluation for improving the financial rates and the relationship between the alterations in the revaluation reserves and the firm's stock value. On the other hand, Paik (2009) verified the importance of assets revaluation in common law and code-law system countries. They evidenced that the revaluation reserves are more relevant in common law system countries than in code law system countries.

Specifically, in the Brazilian environment, Lopes (2006, p.3) showed evidences that "asset revaluations have a significant relation to firm performance and prices in Brazil". His research utilized a sample compound Brazilian public firms, excluding financial entities, with data of the years from 1995 to 2003. He estimated the parameters, by cross-sectional regression, of model used by Aboodyet all (1999) to analyze future firm performance and model used by Bath and Clich (1996) to find evidences about price and returns. The results of Lopes' research (2006) suggest that revaluation reserves explain future performance measured by prices and operational profits, but it don't explain current returns.

With the assets revaluation reserves prohibition in Brazil and with the continuation of the researches on the accounting variables, we must also check, in the Brazilian case, whether the assets revaluation

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is or is not a relevant information; or whether there was a relationship with the BOVESPA listed companies' market value. Therefore, we have the following research problem: Is the assets revaluation information-wise relevant in the evaluation of firms in the capital market? This study's objective is to verify whether the assets revaluation presents a significant informational content for the Brazilian capital market. For attaining that purpose, we employed an approach originating from the Ohlson Model (1995), to test the importance of the revaluation reserves and the market value of Brazilian public firms, by using quarterly panel data for period 1995-2007. The results evidence that almost 33% of the companies selected in the sampling did present significant information regarding assets revaluation for the capital market in the assessed period. Durable Goods, Construction and Transports, Cyclic and Non-cyclic Consumption industries were among the most reserve-based representative economy sectors. It is, therefore, suggested that the assets revaluation does have informational power and is effectively meaningful for the evaluation in Brazilian capital market.

In relation to previous researches, this study increased the time of the sample (1995-2007) and it used complement analysis with quarterly data of the Brazilian firms. This paper searched to give large strength to evidences, we employed Ohlson model (1995) to analyze informational content of revaluation reserves. Farther,we quested if economy industries affect relevance of accounting information.

The structure of this paper is as follows: In this section we present the theme's introduction, the issue and the study's objective, as well as a brief description of the methodology adopted and the research results. On the next section we review the literature about the value relevance of the accounting inputs and the value of the assets revaluation for the capital market. On the third section we present the procedures adopted in the research. On the fourth section we present and analyze the results. Finally, in the fifth section, we supply the conclusions about the study.

2 VALUE RELEVANCE AND ASSETS REVALUATION

2.1 Value Relevance

According to Kothari (2001), the search for information has been one of the major stockholders, investors and creditors concerns, who have used accounting variables to evaluate organizations. Alencar and Dalmácio (2006, p. 1) emphasize that the assets revaluation value relevance"has been a research objective by financial academics", but not in Brazil, though, where the accounting variables stemming from the results and their accumulation (profit and equity) are used as proxies to evaluate the firm price. For Holthausen and Watts (2001), the essence of the studies on value relevance is in the accounting's informative function when providing estimated values about the stock market or for enabling such estimated values.

Among the main studies on accounting variables and market price, we highlight those by Garman and Ohlson (1980), Ohlson (1995) and Feltham and Ohlson (1995). Essentially, those studies used accounting information when evaluating the company. The two latter studies are being widely praised in the international literature, since the authors describe and analyze the relationship among abnormal profit, net assets'book value and firm value. The more recent studies start and/or stem from the models of Ohlson, 1995, Feltham, and Ohlson, 1995, known as the Ohlsonmodel. However, according to Lopes (2002), the more robust model being used is the FOM (Feltham-Ohlson Model) which is frequently known simply as "Ohlson Model", without recognizing Prof. James Feltham's merit.

In Brazil, Lopes (2002) studies the relationship between profit and stock price, where he noticed that profit and dividends are significant when compared with cash flow. Such results are consistent with the studies done by Ball, Kothari and Robin (2000) and by Ball and Shivakumar (2001).

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2.2 Assets Revaluation

Assets revaluation is important owing to the misalignment between the fixed assets' history value and the market value (IUDÍCIBUS, *et. al.*, 2010). That is to say: it leaves off the recorded history cost and includes a new value for the fixed assets. For Niyama (1992), the assets revaluation was important for some organizations to recover the impact of the inflationary distortions caused in the 70's and 80's.

In Brazil, the institution of assets revaluation was created by Law 6.404/76, which allowed companies to evaluate assets and recognized the assets for the value of the evaluation and, in counterpart, we entered the exceeding value in a specific account of the equity (Revaluation Reserve). On the other hand, the Brazilian Securities Commission – CVM's Instruction 183/95, restricted the fixed assets items' revaluation. In case the public firm opted for revaluating its fixed assets, it should have to revaluate them continuously every 2 or every 4 years.

However, due to the wrongful use of the assets revaluation, aiming at transforming negative net assets into positive ones, reducing dividends and provoking arrangements with creditors and other legal favoring practices (IUDÍCIBUS, *et. al.*, 2010), Brazilian Law 11.638/07, effective 01/01/2008, discarded the possibility of companies doing revaluations. The revaluation reserve should be reverted or remaining without reversion until its total amortizing, but then being tested for impairment.

Nonetheless, the IASB still permits assets revaluation, as per the International Accounting Standard - IAS 16, that addresses the revaluation model in its paragraph 31, deciding that, after their initial recognition, the fixed assets may be entered for reliably revaluated values, and that new depreciation rates should be calculated and recognized in the firm's equity.

While international accounting policies allow assets revaluation, the Brazilian society legislation forbids it, owing to the lack of reliability in the assets revaluation, as well as owing to the wrongful use in the revaluation.

The assets revaluation and its relationship with accounting variables and/or performance indicators, is something rather well studied in the international literature, although not so intensively in Brazil. Brown, Izan,

and Loh (1992), studied Australian organizations to check what motivates assets revaluation. The research consisted in two phases: The first, with 240 companies, from 1974 to 1977; and the second with 206 companies, from 1984 to 1986. The results showed that highly leveraged and large organizations revaluated their assets for attended the debt covenants.

Additionally, on Australia, Whittred and Chan (1992) carried out a few empirical tests and supported the hypothesis that revaluation is closely linked to the presence of growth opportunities, financial leverage and limitation of debt financing policy, and negatively related to the capability of a company to finance the internal growth. On the other hand, Easton, Eddy and Harris (1993) demonstrated that revaluation reserves' alterations are statistically significant when explaining stock revenues. They checked 100 Australian organizations in the period 1981-1990.

These studies confirm Sharpe and Walker (1975) that show the relation between price of shares and revaluation of fixed assets in Australian public companies which announced assets revaluation. Barth and Clinch (1998) also studied 776 Australian companies in 1996 to identify accounting variables and their relationship with stock prices. They showed that revaluated assets are value relevant in stock's valuation and also relate to the company's profitability.

Another study that evidenced the assets revaluation relevance was done by Jaggi and Tsui (2001) with Hong Kong companies in the period 1991 to 1995, where they identified that the assets revaluation is positively relevant as a company market value.

However, Standish and Ung (1982) didn't find any significant result in Britain using a sample of 232 companies between 1964 and 1973, using a CAPM test. They showed that revaluations alone didn't result in significant positive signals with returns.

In the other side, Aboody and Barth (1999) showed that current revaluations are significantly related with the annual prices of shares, using relations between future performance and revaluations of UK firms.

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In the Brazilian environment, there are few studies about this accounting practices. Rangel *et al* (2003) studied Brazilian organizations from 1998 to 2001. They used the market-to-book index with and without revaluating the assets and expense deferral and concluded that there is no difference among the averages after the exclusion of the two assets components in the market-to-book index.

Lopes (2006) researched Brazilian firms about the relevance of revaluation of assets between 1995 and 2004. He found that fixed assets revaluation provide a little relevance, about 5% and 7% using the value relevance model with annual data.

However, in more recent studies on the relevance of the information included in the assets revaluation, done in the beginning of year 2000, only Paik's (2009) used a sample of 15 countries, in 2005, aiming at making a relationship between the country's legal system and the revaluation reserve. He noticed that the information relevance relationship included in the revaluation with countries governed by the common law legal system are meaningful, while it was not value relevant in the code law countries.

Therefore, some studies announce that the assets revaluation researches show that the revaluation alterations are relevant for users of some countries, and that they are used to improve the performance indicators aiming at obtaining loans, using the company as collateral.

3 METHODOLOGY PROCEDURES

3.1 Sample and Data Collection

The date collected for this study were obtained from Economática®'s database and is formed by companies listed at the São Paulo Stock Exchange, BOVESPA. It covers 316 open firms with quarterly data, covering the first quarter 1995 thru the last quarter 2007. There were 52 items for each firm, totaling 16,432 observations.

It was defined that the analyzed period would not include the alterations introduced by Brazilian Law 11.638/2007 that forbade the assets revaluation effective in 2008, which would jeopardize the data analysis. Until then the assets revaluation was permitted. That is to say: the revaluation reserves alterations, when revaluated, might or might not be perceived by the capital market. After the assets revaluation prohibition, effective only in 2008, the Law allowed companies to revert all the constituted reserves or they kept them until their total realization. Including periods from 2008 on would affect the data analysis, since there is no uniformity in the data treatment adopted by the local organizations regarding the remaining balance at the end of the year 2007.

The sampling companies were selected according to the economic sub-sectors mentioned in BOVESPA's website (2010) and listed on CHART 1, as follows.

CHART 1
Number of companies by economy sector

Economy Sector	Quantity
Durable Goods	5
Construction and Transports	41
Cyclic Consumption	52
Non-Cyclic Consumption	38
Basic Materials	55
Oil, Gas and Bio-Fuels	6
Information Technology	2
Telecommunications	13
Public Services	37
Others	67
Total	**316**

Source: BOVESPA (2010).

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Financial and insurance firms' data were excluded because they are specifically regulated. In addition, organizations that had no market value, a variable depending upon the analysis of this study, were also excluded. So, from the initial total of 340 firms, 24 were excluded because no information was available during the analyzed period (1995 to 2007).

3.2 Hypothesis Development and Model Specification

Considering the revaluation reserves and the company market value evaluation particularly in the range of open companies, the following research hypothesis was adopted:**Hypothesis:** *The revaluation reserves presented in the financial reporting is statistically meaningful when evaluating the Brazilian open companies' market value.*

As described above, the Ohlson (1995) and Feltham and Ohlson (1995) models have been widely used for verify the relationship between the accounting variables and the company market value. The validity of this study is in the possibility of testing the meaning of the variables.

Based on the models mentioned in the previous paragraph, this study used Paik's (2009) approach and model, which related the revenue with the accounting value, the net profit and the revaluation reserve, the used model for the *Value Relevance* evaluation of the assets revaluation, adjusting the variables according to a methodology similar to the model used by Ohlson (1995) and Feltham and Ohlson (1995).

Additionally, it is necessary to emphasize that the assets relevance was pointed out by Lopes (2002), who described the relationship between the company's market value and its accounting value:

$$MVe = a_1 + a_2 VCA - a_3 VCP + e \qquad (1)$$

where the firm's market value (*MVe*) is an asset accounting value function (*VCA*) subtracted from the firm's liabilities accounting value (*VCP*), being e the error, that is to say, a measuring error between the market

value and the accounting value. That relationship suggests that the smaller the error, the smaller should be the accounting's informational capability in informing users on the accounting information.

Starting from the above specification, and using the definition that the net assets result from the assets value subtracting the liabilities values, the utilized evaluation model is given as follows:

$$VE_t = a_1 + a_2 LL_{t-1} + a_3 VCA_{t-1} + a_4 RR_{t-1} + e_t \quad (2)$$

where:

VE_t = firm market value grouped by the total assets in t;

LL_{t-1} = firm net profit grouped by the total assets in $t-1$;

VCA_{t-1} = net assets accounting value less the sum of the net profit and the revaluation reserves grouped by the total assets in $t-1$;

RR_{t-1} = accounting balance of the revaluation reserves grouped by the total assets in $t-1$;

e_t = regression error;

a_1; a_2, a_3 and a_4 = parameters to be estimated.

Considering the hypothesis adopted here, we have assumed that the coefficient á$_4$ of the model presented in Equation 2, is statistically significant, that is to say: variable RR_{t-1} (Revaluation Reserve) contributes to explain the firm's market value.

The estimated regression mentioned in this study was done in panel data. Estimates with panel data use the observation of time-series and-cross-sectional data which, according to Greene (2003, p. 283) is usually utilized in economy. For Baltagi (2005, p.4-6), the following advantages stand out when using panel data: an individual heterogeneity control, a better capability to study the adjustments' dynamics and the possibility of modeling and analyzing more complex behavioral models. The data

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analysis was carried out starting from the regression with fixed, random and pooled effects. Aiming at improving the parameters' estimates and, consequently, extract more adequate inferences about the analyzed models, we used the White's estimator to obtain the strong standard error regarding heteroscedasticity(WOOLDRIDGE, 2002, p.252).

4 RESULTS PRESENTATION AND ANALYSIS

4.1. Global Analysis

The analyses were conducted as described in the methodology, and all tests for unit root were done to check the variables' stationarity (BROOKS, 2008). The ADF-Chi-square and PP-Chi-square tests, presented on TABLE 1, evidence the non-existence of unit root in the analyzed sample.

TABLE 1

Variables' Stationarity Tests Results

	Method	Statistics	p-value	Cross-sections	NOTES
VE	*ADF*	512,930	0.000	194	5,885
	PP	750,205	0.000	257	7,641
LL	*ADF*	4,132,060	0.000	290	10,458
	PP	4,827,680	0.000	299	10,650
VCA	*ADF*	1,184,230	0.000	291	10,421
	PP	1,574,600	0.000	299	10,648
RR	*ADF*	562,697	0.000	140	5,792
	PP	1,061,220	0.000	164	6,898

As shown on TABLE 1, the p-value was significant on both tests for the study's variables, indicating the absence of unit root, which reflects the data stationarity. That collaborates for the regression not to be spurious, that is to say: if the data were non-stationary, then the regression could have been spurious (BROOK, 2008).

TABLE 2 is now presented for obtaining the expected results, where these are shown by using pooled data, fixed and random effects.

TABLE 2
Compared Results: Pooled, Fixed and Random Effects

	Variable	C	VCA_{t-1}	LL_{t-1}	RR_{t-1}	R^2	DW
Pooled	a_n	0.659248	1.666636	-5.595843	-9.683714	0.131991	1.415559
	t-stat	3.473822	3.003692	-1.545167	-2.925731		
	p-value	0.0005	0.0027	0.1223	0.0034		
Fixed Effects	$â_n$	0.755474	1.428905	-3.011706	-9.824191	0.32959	1.225033
	t-stat	2.937773	3.310641	-1.476031	-3.037009		
	p-value	0.0033	0.0009	0.1400	0.0024		
Random Effects	$ã_n$	1.157139	1.507387	-3.587371	-10.21232	0.099701	1.375789
	t-stat	1.66457	2.846097	-1.429355	-2.594127		
	p-value	0.0960	0.0044	0.1529	0.0095		

NOTES: Used Model (Equation 2): $VE_t = a_1 + a_2LL_{t-1} + a_3VCA_{t-1} + a_4RR_{t-1} + e_t$ **(2)** where : VE_t = firm's market value grouped by the total assets in t; LL_{t-1} = firm's net profit grouped by the total assets in $t-1$; VCA_{t-1} = net assets accounting value less the sum of the net profit and the revaluation reserve, grouped by the total assets in $t-1$; RR_{t-1} = revaluation reserve's accounting balance grouped by the total assets in $t-1$; e_t= regression error; a_1; a_2; a_3 and a_4 = parameters to be estimated

The analyzed pooled data show that the variables are significant, and just the net profit (LL_{t-1}) was not value relevant for the purpose of the analysis (*p-value*: 0.122300) and with an explaining power (R^2) of 13.19%, meaning that it is not significantly relevant in the model. On the other hand, variable RR_{t-1} (Revaluation Reserve), which is the object of this research, proved to be more value relevant (*p-value*= 0.003400).

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The results constraints obtained with the pooled data originated from the non-capture of the effects in each analyzed company. Therefore, in order to provide more robustness to the research, the data were obtained with fixed and random effects.

When considering the fixed or random effects regression, the results were diverging: the fixed effects estimates have the explaining power of 33% ($R^2 = 0.329590$) and the random effects was inferior to 10% ($R^2 = 0.099985$).

Comparing these results with Lopes (2006), it can be concluded that the power of R-squared is increased to 33%, in fixed effects. So, the relevance of fixed assets revaluation is greater than in that study.

While the estimators presented a low Durbin-Watson test (*pooled*:1.415559; fixed effects: 1.225033; random effects: 1.375789), the coefficients are not biased, although not efficient for forecasting, but we may consider that the regression estimates are consistent, since this study is not interested in making forecasts (GREENE, 2003, p.269).

Another point to bear in mind is which of the two models can better evidence the information: the fixed or the random effects model? Johnson and DiNardo (1997 *apud* GUJARATI, 2006, p. 525) explain that *"there is no simple rule to help the researcher"* when choosing among the types of effects. So we used the Hausman Test to check whether both models can be used in the analysis, without the intention to say which one is better. The Hausman Test did not reject the null hypothesis, so the fixed effects model provides the best specification (SILVA AND CRUZ JÚNIOR, 2004).

4.2 Analysis by Economy Sector

This analysis was conducted according to the firm categorization done by the São Paulo Stock Exchange (BOVESPA, 2010). TABLE 3 describes all data considering solely the fixed and random effects since, as mentioned before, it bears in mind the heterogeneity of the analyzed companies, in

addition to have the researched variable investigated by this article (Revaluation Reserve) with a value relevant variable for this research.

TABLE 3
Comparative Results by Economy Sector

Comparative Results by Economy Sector

		Variable	c	VCA_{t-1}	LL_{t-1}	RR_{t-1}	R^2	DW
Industrial Goods	Fixed Effects	a_n	-1.083	13.200	2.908	-2.013	0.641	0.244
		t-stat	-3.650	3.149	6.062	-1.637		
		p-value	0.000*	0.002*	0.000*	0.104		
	Random Effects	$â_n$	-0.784	13.244	2.898	-2.023	0.310	0.243
		t-stat	-0.846	3.097	5.165	-1.746		
		p-value	0.399	0.002*	0.000*	0.083*		
Construction and Transports	Fixed Effects	a_n	1.295	0.019	0.006	-0.490	0.711	0.566
		t-stat	14.027	0.799	4.015	-2.396		
		p-value	0.000*	0.425	0.000*	0.017*		
	Random Effects	$â_n$	2.337	0.022	0.005	-0.481	0.005	0.473
		t-stat	3.053	0.739	3.020	-2.551		
		p-value	0.002*	0.460	0.003*	0.011*		
Cyclic Consumption	Fixed Effects	a_n	0.469	-0.518	0.056	0.599	0.366	0.241
		t-stat	23.964	-10.575	17.069	5.713		
		p-value	0.000*	0.000*	0.000*	0.000*		
	Random Effects	$â_n$	0.516	-0.498	0.052	0.564	0.147	0.222
	t-stat	7.450	-10.286	16.428	5.450			
		p-value	0.000*	0.000*	0.000*	0.000*		
Non-Cyclic Consumption	Fixed Effects	a_n	0.934	-0.076	-0.015	0.472	0.700	0.587
		t-stat	14.514	-1.641	-1.250	3.136		
		p-value	0.000	0.101	0.212	0.002*		
	Random Effects	$â_n$	1.258	-0.071	-0.014	0.450	0.078	0.536
		t-stat	3.090	-1.479	-1.132	3.089		
		p-value	0.002*	0.140	0.258	0.002*		

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TABLE 3
Comparative Results by Economy Sector

(be continued)

Comparative Results by Economy Sector

		Variable	c	VCA_{t-1}	LL_{t-1}	RR_{t-1}	R^2	DW
Basic Materials	Fixed Effects	a_n	0.657	0.387	0.025	-0.418	0.579	0.611
		t-stat	10.951	1.291	1.333	-1.362		
		p-value	0.000*	0.197	0.183	0.173		
	Random Effects	$â_n$	0.828	0.378	0.012	-0.491	0.026	0.567
		t-stat	2.144	1.310	0.758	-1.600		
		p-value	0.032	0.190	0.449	0.110		
Oil, Gas and Bio-Fuels	Fixed Effects	a_n	0.518	1.135	0.290	0.346	0.402	0.353
		t-stat	6.115	2.887	1.633	0.501		
		p-value	0.000*	0.004*	0.104	0.617		
	Random Effects	$â_n$	0.553	1.100	0.287	0.082	0.022	0.346
		t-stat	3.489	2.418	1.613	0.124		
		p-value	0.001*	0.017*	0.109	0.901		
Public Services	Fixed Effects	a_n	0.156	2.734	0.821	-0.143	0.518	1.187
		t-stat	2.080	3.184	6.382	-0.333		
		p-value	0.038*	0.002*	0.000*	0.739		
	Random Effects	$â_n$	0.375	2.859	0.762	-0.208	0.043	1.110
		t-stat	1.556	3.259	5.833	-0.437		
		p-value	0.120	0.001*	0.000*	0.662		
Others	Fixed Effects	a_n	0.954	0.005	0.104	-0.089	0.274	0.409
		t-stat	12.164	0.134	1.877	-0.486		
		p-value	0.000*	0.894	0.061*	0.627		
	Random Effects	$â_n$	1.257	0.010	0.093	-0.302	0.010	0.375
		t-stat	3.640	0.316	1.536	-0.778		
		p-value	0.000*	0.752	0.125	0.437		

Source: Elaborated with quarterly sector data collected in the period 1/1995 to 4/2007.

The Information Technology and Telecommunications sectors did not present values referring to the variable *RR* (Revaluation Reserve) and were consequently excluded from the tests by economy sector.

Based on TABLE 3, variable RR_{t-1} was significantly value relevant in the 3 sectors, when analyzed with the fixed effects model: Construction and Transports, Cyclic and Non-Cyclic Consumption; while for the random effects model, the significant ones were Industrial Goods, Construction and Transports, Cyclic and Non-Cyclic Consumption. Additionally, we can see that, when analyzed individually, the explaining power of some sectors increased significantly (for example, the Construction and Transports sectors R^2 was 0.711)

5 FINAL CONSIDERATIONS

The use of accounting variables to check the explaining power of the user information has been an issue by the most varied current studies.

The assets revaluation, used to correct the high divergences between an asset's history value and its market value, has been used by many markets, and the analysis of its informational contents shows that this variable is an information source for the capital market (EASTON, EDDY, HARRIS, 1993; BARTH, CLINCH, 1998; PAIK, 2009).

In the case of Brazil, the assets revaluation was vetoed by Brazilian Law 11.638/07 owing to its use for accounting manipulation (IUDÍCIBUS et al, 2010). No study has been identified, however, to evaluate the relevance of the information originating from the assets revaluation in the local market.

Based on that, this study analyzed the Brazilian open firms between 1995 and 2007, regarding the relevance of the assets revaluation reserves information for the capital market. The results presented previously evidence that the RR variable, reflecting the revaluation reserve, is statistically significant to explain the company's market value.

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Therefore, the results suggest that, while the assets revaluation has not been well conducted in Brazil, it did have informational power to evaluate the open firms' market value. The evidences of this work may arouse new debates about the use or non-use of the assets revaluation in this country, as recommended by international accounting norms and by the Accounting Pronouncements Committee, but that were vetoed by the Brazilian society legislation.

REFERENCES

ABOODY, D., BARTH, Mary;KASZNIK, R. Revaluations of fixed assets and future firm performance.**JournalofAccountingandEconomics**.v. 26, p.149-178, 1999.

ALENCAR, Roberta Carvalho de; DALMACIO, Flavia Zoboli. A relevância da informação contábil no processo de avaliação de empresas brasileiras – Uma análise dos investimentos em ativos intangíveis e seus efeitos sobre value-relevance do lucro e patrimônio líquido. In: ENCONTRO DA ASSOCIAÇÃO NACIONAL DE PÓS-GRADUAÇÃO E PESQUISA EM ADMINISTRAÇÃO — ENANPAD, 30., 2006, Salvador/BA. **Anais...** Rio de Janeiro: ANPAD: 2006.

BAGINSKI, S. P.; WAHLEN, J. M. Residual income risk, intrinsic values, and share prices.**The Accounting Review**, v. 78, n. 1, p. 327-351, 2003.

BALL, R., KOTHARI, S. P., ROBIN, A.The effect of international institutional factors on properties of accounting earnings.**Journal of Accounting and Economics**, v. 29, p. 1-51, 2000.

BALL, R.; BROWN, P.An empirical evaluation of accounting income numbers.**Journal of Accounting Research**, v. 6, nº 6, p.159-178, 1968.

BALL, R.; SHIVAKUMAR, L. Earnings Quality in UK private firms.**Working Paper**.London Business School and University of Chicago.2001. Disponível em: <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=335420> Acesso em: 21 maio 2010.

BARTH, M.E., CLINCH, G. Revalued financial, tangible and intangible assets: Associations with share prices and non-market based estimates. **Journal of Accounting Research**, v. 36, p. 199-233. 1998

BROOKS, C. **Introductory econometrics for finance**. Cambridge: Cambridge University Press, 2008.

BROWN, P.; IZAN, H.; LOH, A. Fixed asset revaluations and managerial incentives.***Abacus***,v. 28, nº 1, p. 36-57, 1992.

COMISSÃO DE VALORES MOBILIÁRIOS (CVM). **Deliberação nº 183, de 19 de junho de 1995. Aprova Pronunciamento do IBRACON sobre Reavaliação de Ativos**. Disponível em:<http:www.cvm.gov.br>. Acesso em: 20 de jul 2010.

COMISSÃO DE VALORES MOBILIÁRIOS (CVM). **Deliberação nº 583, de 31 de julho de 2009.Aprova o Pronunciamento Técnico CPC 27 do Comitê de Pronunciamentos Contábeis, que trata de ativo imobilizado**. Disponível em:<http:www.cvm.gov.br>. Acesso em: 20 jul. 2010.

EASTON, P.; EDDY, P.; HARRIS, T.An Investigation of revaluations of tangible long-lived assets.**Journal of Accounting Research**, v. 31, nº 3, p. 1-38, 1993.

FELTHAM, G. A.; OHLSON , J. A.. Residual earnings valuation with risk and stochastic interest rates.**The Accounting Review**, v. 74, p. 165-183, 1999.

ELTHAM, G. A.; OHLSON, J. A. Uncertainty Resolution and the Theory of Depreciation Measurement.**Journal of Accounting Research**, v. 34, n. 2, p. 209-234, 1996.

FELTHAM, G. A.; OHLSON , J. A. Valuation and clean surplus accounting for operating and financial activities.**Contemporary Accounting Research**, v. 11, p. 689-731, 1995.

GARMAN, M.; OHLSON, J. Information and the sequential valuation of assets in arbitrage free economies.**Journal of Accounting Research**, Autumn, p. 420-40, 1980.

Revista Contabilidade Vista & Revista, ISSN 0103-734X, Universidade Federal de Minas Gerais, Belo Horizonte, v. 23, n. 1, p. 75-95, jan./mar. 2012.

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GODE, D.; OHLSON, J. A. Valuation, linear information dynamic, and stochastic discount rates.[S.l.]: **Social Science Research Network**, 2000. Disponível em: <http://papers.ssrn.com>. Acesso em 13 maio 2010.

GREENE, William H. **Econometric analysis**. 5[th]ed. New Jersey: Prentice Hall, 2003.

GUJARATI, Damodar N. **Econometria básica.**Rio de Janeiro: Elsevier, 2006.

HOLTHAUSEN, Robert W.; WATTS, Ross L.The relevance of the value-relevance literature for financial accounting standard setting.**Journal of Accounting and Economics**. N. York: v. 31, n.1-3, p. 3-75, Sept. 2001.

INTERNATIONAL ACCOUNTING STANDARDS BOARD (IASB).**International Accounting Standard 16**:Property, Plant and Equipment.Disponível em: <http://www.iasb.org>. Acesso em: 10 jul. 2010.

IUDÍCIBUS, S. *et al*. **Manual de Contabilidade Societária**. São Paulo: Atlas, 2010.

JAGGI, B.; TSUI, J. Management motivation and market assessment: revaluations of fixed assets. **Journal of International Financial Management and Accounting**, v. 12, n. 2, p. 160-187, 2001.

KOTHARI, S. P. Capital Markets Research in Accounting.**Journal of Accounting and Economics**, v. 31, p. 105-231, 2001.

LOPES, Alexandre B. Empirical evidence on the relation between revaluations of fixed assets and future performance in Brazil.In: CONGRESSO BRASILEIRO DE FINANÇAS, 6., 2006, Vitória. **Anais...** Vitória: SBFIN, 2006. 1 CD-ROM.

_____. **A informação contábil e o mercado de capitais.** São Paulo: Pioneira Tompson Learning, 2002.

MENDES, Paulo César de Melo. **Preços setoriais x índice de preço por atacado**: Possíveis implicações da correção monetária nas demonstrações financeiras no período de 1995 a 2001. Dissertação (Mestrado em Ciências Contábeis). Programa Multiinstitucional e Inter-Regional de Ciências Contábeis UnB/UFPB/UFPE/UFRN. Brasília, 2003.

OHLSON, J. A. Earnings, book values, and dividends in equity valuation.**Contemporary Accounting Research**, v. 11, p. 661-687, 1995.

OHLSON, J. A. On transitory earnings.**Review of Accounting Studies**, v. 4, p. 145-162, 1999.

PAIK, G. The value relevance of fixed asset revaluation reserves in international accounting.**International Management Review**, v. 5, nº 2, p. 74-81, 2009.

RANGEL, Luciene Laurett; DALMÁCIO, Flávia Zóboli; SANTOS, Nelson Seixa dos; TEIXEIRA, Aridelmo José Campanharo. A influência de ativos e diferimento de despesas no marketto book. In: CONGRESSO USP DE CONTROLADORIA AND CONTABILIDADE, 3., 2003, São Paulo. **Anais eletrônicos**.São Paulo: FEA/USP, 2003.

SHARPE, I. G., WALKER, R.G. Asset revaluations and stock market prices.**Journal of Accounting Research**,v. 13, p. 293-310. 1975.

SILVA, Orlando M.; CRUZ JÚNIOR, José César.Dados em painel: Uma análise do modelo estático. In: SANTOS, Maurinho L.; VIEIRA, Wilson da Cruz (Org.). **Métodos quantitativos em economia**.Viçosa (MG): Editora UFV, 2004.

STANDISH, P., UNG, S., 1982.Corporate signaling, asset revaluations and the stock prices of British companies.**The Accounting Review**,v. 62, p. 701-715, 1982.

WHITTRED, G.; CHAN, K. Asset revaluations and mitigations of underinvestment.**Abacus**, v. 28 nº 1, p. 58-74, 1992.

Revista Contabilidade Vista & Revista, ISSN 0103-734X, Universidade Federal de Minas Gerais, Belo Horizonte, v. 23, n. 1, p. 75-95, jan./mar. 2012.

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