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The application of "fair value" accounting standards to the income statements of companies listed in the Portuguese Stock Index-20 (PSI-20)

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Abstract

Purpose – "Fair value" accounting standards are not consensual. Supporters claim that they offer a methodology to find the "correct" value of accounting items, whereas critics contend that "fair value" accounting reduces the reliability of financial statements through a complex and unpractical method based on subjective information. Still, the impacts of "fair value" accounting upon taxes and public revenues are rarely discussed.

Design/methodology/approach – The Portuguese case allows us to study taxation and public revenues. Through European Union norms, "fair value" standards have become mandatory after 2005 for companies listed in European stock-exchanges. Nevertheless, Portuguese corporate tax law was reformulated in 2010 to strongly restrict the use of "fair value" for taxation purposes. We study the use of "fair value" in the Income Statements of the largest companies listed in the Portuguese exchange between 2005 and 2012.

Findings –If Portugal had not adopted "fair value" standards, its tax revenue would have been higher. Over all analyzed years and in almost all studied companies, average "fair value" adjustments are negative. Although a statistical association between negative adjustments and the economic cycle was found, this statistical association is not very strong. Therefore, the economic cycle cannot be used as the only explanation for the use of "fair value".

Originality/value – This paper demonstrates that discussions concerning the "fair value" accounting method must not ignore its possible impacts on government taxes and public revenue.

Keywords – "Fair value", historical cost, taxes, public revenue.

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1 Introduction

In 2002, with Regulation EC-1606, later enhanced by Regulation EC-1725/2003, the European Commission sought to harmonize the accounting standards of European Union countries. The main goal was to increase the comparability of organizational financial statements across Europe. Furthermore, the European Commission also took on the objective of reporting several accounting items according to their eventual market value, understood as "fair value".

From 2005 onwards, these European regulations instruct companies listed in European Stock Exchanges to adopt International Accounting Standards (IAS) produced by the International Accounting Standards Board (IASB). Hence, this supranational accounting body began to produce accounting regulations for the entire European Union. To some extent, European Union countries transferred their accounting standard production skills to the IASB (Sunder, 2011 Oehr & Zimmerman, 2012). The IASB is a supranational institution, based in London, which was created in 2001 to replace the International Accounting Standards Committee (IASC), founded in 1973 by nine countries (Australia, Canada, France, Germany, Japan, Mexico, Netherlands, United Kingdom and Ireland). The IASB also produces accounting standards for many other countries outside the European Union (e.g. Brazil, Australia, Turkey, Mexico, Israel and Canada, among others). The change in accounting standards within the European Union was a complex process. The receptivity to the regulatory modification has depended upon developments from various countries regarding the accounting policies, as well as of their own economic institutions (Oehr & Zimmerman, 2012).

The IASB believes that traditional accounting, that is, the registration of items and events with reference to historical transaction values, must be replaced, whenever possible, by the market value of the referred accounting items. In this sense, the IASB defines "fair value" as "the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in a transaction that where there is no relationship between them." To this end, a market should be used when a comparable market for the item exists. As an alternative, a theoretical model to predict the market value should be used (§ 11, IAS 32).

This drastic change in accounting regulations has not been able to obtain a consensus. Advocates of "fair value" accounting argue that the traditional historical cost criterion provides a static record, especially for non-monetary assets. The "fair value" method, through incorporating market values (those considered as the "fair value"), would provide a more accurate description of companies' value. On the other hand, critics describe the "fair value" record as a method of subjective accounting measurement and difficult practical application. This method's subjectivity may, ultimately, be abusively used by less well-intentioned economic agents. Authors that tend to disagree with the use of the "fair value" method argue that it unreasonably complicates the interpretation of accounting information.

This article studies the introduction of "fair value" norms in the profits and taxes of the 31 largest Portuguese companies listed on the Portuguese stock exchange (NYSE-Euronext-Lisbon). These 31 companies have been part of the Portuguese Stock Index-20 (PSI-20) over the 2005-2012 period. Portugal is quite an interesting case. Before the adoption in 2005 of the European normative for listed companies, the Portuguese legislative framework tried to avoid records in Income Statements by the "fair value" method. After 2005, listed companies received authorization to make "fair value" records in their Income Statements, and as such with tax implications. Interestingly, from 2010 onwards, Portugal implemented a new corporate tax code that strongly restricts applying international

accounting standards for tax clearance, seeming to indicate that not all is well in applying "fair value" norms.

To identify records made by the "fair value" method, we have researched the consolidated income statements of those 31 companies over 2005-2012. Note that the turnover of these companies at the end of 2012 was equivalent to 51% of Portuguese GDP. Our findings seem to indicate that the use of the "fair value" method by large Portuguese companies had a negative impact on Portugal's tax revenues. However, we must note that this tax effect is a consequence of the adoption of "fair value" norms in the Portuguese and European regulatory framework. When companies use this accounting method, generally, they only do so because it is defined in the existing regulations. We contribute to the literature with objective data about advantages and disadvantages of adopting the "fair value" method. Moreover, this study allows us to better understand the impact of adopting the "fair value" method in the results, business taxation and national states' revenues.

2 Literature review

2.1 The adoption of "fair value" accounting by largest Portuguese corporations

2.1.1 *The transference of regulatory competences to a supranational agency*

As mentioned earlier, European Union's countries have transferred their competence of producing accounting standards to the IASB. The European Union adopted the IASB standards on the grounds of seeking to harmonize standards leading to the preparation of financial statements (Sunder, 2011). The process of reform referred to above has begun with the partial transference of accounting standards production to the IASB. Later, the States have adopted the IASB standards on their countries. In most cases, with full adoption or with small national settings modifications. This "remodeling" is rather complex and depends on the receptivity of countries and national institutions (Oehr & Zimmerman, 2012).

In Portugal, the entity that has power to adopt IASB standards is the National Accounting Commission – CNC, which represents public and private institutions in the area of accounting. The CNC is an entity with administrative autonomy operating under the umbrella of the Ministry of Finance. Its functions are to issue regulations, opinions and recommendations to harmonize financial procedures with European and international standards of the same nature, promoting actions in order that those norms are properly applied by the entities subject. With Portugal's adoption of European regulations, it was through the CNC that since 2005 domestic companies listed on the stock exchange are no longer linked to the previous National Plan of Accounts (POC), and are required to follow International Accounting Standards (IAS / IFRS) when preparing financial statements[1].

2.1.2 *The accounting values produced by the "fair value" method*

The "fair value" system considers that accounts should be presented with reference to market values, instead of historical transaction values, as occurs on the historical cost method. In the absence of a market that can be used as a basis for comparison, models can be used to simulate eventual markets (IAS 39, §48A Pulido, 2012, IFRS 9, Paragraph 1, 25-27, IFRS 13). When there is a direct market for the element, the obtained value is called "fair value" level 1. When there is a market for a product with some similarities and therefore used as a basis for comparison, it is called "fair value" level 2. Level 3 corresponds to the use of a theoretical model to identify possible market prices, in the absence of a directly or indirectly comparable market. The approach by the yield is the calculation through estimates of future cash flows and discount rates. Thus by the "fair value" method, companies have

gained a high autonomy to identify markets or models for accounting values that are to be inscribed in financial statements. As we will see later, the critics of this valuation methodology seek to demonstrate the complexity and difficult to apply this methodology. On the one hand, a real market value for the item may be nonexistent, only temporary, or highly volatile. On the other hand, the inputs necessary for the calculation of future values estimates may involve high subjectivity with concrete impact on the book values that are to be presented. Both cases can eventually lead to abuse.

2.1.3 *The adoption of the "fair value" method in Portugal*

European Commission's regulation CE 1606/202 has defined that after 1st January 2005 all companies listed in a stock exchange in the European Union's space must adopt the international accounting norms from IASB. This change has represented a major modification to the Portuguese accounting and taxation framework. Before 2005, there was an hierarchy of regulations in the country, which puts in the first and foremost level the National Accounting Plan (POC), on the second level the Accounting Directives (DC), and on the third and least important level the international accounting standards (DC 18). For companies listed after 2005, the international accounting standards have moved straight to the top of the normative hierarchy. In itself, such a vast modification is an interesting purpose of study.

The concept of "fair value" already existed on the Portuguese normative framework, at least since 1993. However, it had a very small incidence.[2] The tax law code for corporate income (CIRC) was supported on the POC, and the POC was based on the historical cost method. For instance, before 2005, several DCs already mention the "fair value" method. For instance, for corporate concentrations (DC 9), or future contracts (DC 17). Published in 1994, DC 13's definition for the "fair value" method is quite similar to the international regulator's definition. However, lawmakers had specific norms to prevent records by the "fair value" on Income Statements. For example, when used on corporate concentrations, the "fair value" must have been registered directly on the equity. Even for derivative contracts as futures, for which there are active functioning markets from where to extract market prices, the gains and losses could only be registered on Income Statements when the position was closed. Before that, gains and losses should be registered in deferred accounts (DC 17).

When listed companies were required to produce financial statements observing the international accounting standards after 2005 onwards, they were allowed to make "fair value" records directly onto their Income Statements. Thus, with impact upon results before taxes. Some "fair value" records can be made directly each year. Other records are divisible throughout the item's expected life cycle (Regulation CE 1606/2002 e 1725/2003). Further legislation has clarified that listed companies are no longer restricted by the former POC and related legislation (Art. 11º do DL 35/2005 de 17/2). However, in 2005 the corporate tax code was not reformulated in order to adapt to this modification at listed companies' accounting. This code refers that taxable profit is produced by accounting, and these companies have received new accounting rules. Although legislation states that all companies must comply with national accounting normalization, the situation of "fair value" accounting becomes ambiguous for listed companies, since it receives a tacit acceptability status, because the tax code applied then makes no specific mention to "fair value" accounting. This tax code relies on accounting rules that used to be historical cost based. Moreover, banks and insurers receive specific legislation stating that the international accounting norms are valid either for accounting and taxation (Law # 53-A/2006, de 29/12 and DL # 237/2008, de 15/12).

Nevertheless, a few years later in 2010, the corporate tax code was reformulated in order

to deliberately address "fair value" accounting. This tax code modification was implemented along an extension of the Portuguese accounting normalization whereby the international accounting norms have become mandatory to generally all companies, with the exception of very small companies. However, by then the new tax code strongly prevents the use of "fair value" accounting for taxation purposes. A specific article (Art. 18º) expressly prohibits the use of "fair value" accounting for tax computation, with exception of specifically predicted cases in the new code, which are very restricted. They include just a few specific accounting items such as financial instruments with a price formed in a regaled market, and for which the company's participation is less than 5% of equity (Art. 18), derivative financial instruments used to hedge risks (Art. 49), or some specific biological assets (arts. 20 n. 1 g e 23, n. 1j).

Furthermore, Portuguese lawmakers have become very reserved and cautious about accepting imparities due to the subjectivity concerns that may arise from estimations (Rodrigues, 2011, Castro, 2015). The new tax code predicts the possibility of imparities over fixed assets, intangible asset, some biological assets, and investments (art. 35, n.1c). However, article 38 clarifies that these imparities are altogether exceptional in nature. They must be related to natural phenomena, exceptionally fast and impacting technical innovations, or alterations with negative impacts or legal consequences. Furthermore, these imparities are only acceptable when formally validated by the National Tax Revenue Office (Direcção-Geral dos Impostos), after claimants have presented a demonstration established on evidence that is subject to be confirmed by the Tax Revenue Office.

Therefore, in 2010 Portugal contradicts the spirit of international accounting standards adoption launched in 2005 under the auspices of the European Commission, and where the "fair value" method is understood as a key methodology to identify profits and losses. One can see, for instance, the case of fixed assets. According to IASB standards (IAS 16), companies must carry out regular revaluations of fixed assets, whereby positive revaluations ought to be registered on the equity, and negative revaluations on Income Statements. However, the Portuguese tax code (CIRC) rejects the use of the "fair value" method as a valuation criterion for fixed assets, which has great impact upon the taxation basis (Amorim, 2016). Concretely, Portugal's non-integral adoption of international accounting norms for taxation purposes may indicate concern for a possible loss of tax revenues, a subject studied in this paper. The Portuguese case may result in an interesting case study about what may happen when international accounting norms became acceptable both in accounting and taxation for a group of companies.

2.2Arguments in favor and against the "fair value" method

In this section, we review key arguments from supporters and critics of "fair value" accounting.

2.2.1 *Arguments in favor of "fair value" accounting*

Proponents of "fair value" accounting argue that the traditional method for registering accounting items, namely, the historical cost methodology provides a static record (especially for assets that are not monetary), and thus it does not reflect the items' "real" value. Moreover, for some financial elements the historical cost methodology would carry inertia and lack of representation. Accordingly, the "fair value" method is usually presented as a methodology to measure accounting items according to their market values. In general, advocates of "fair value" follow the dominant economic theory – in which it is believed that markets are suitable processors of existing information, and that analysts can explain market values using discounted projections of companies' future cash flows. According to this

argument, the historical cost method would not have relevance value, that is, relevance for market values (Lev, 1989 Barth, 1994 Barth & Landsaman 1995, Lev & Sougiannis, 1996 Venkatachalam, 1996 Brown, Lo & Lys, 1999 Barth, Beaver & Landsman, 2001 Duke, 2008). A variant of this argument claims that the market value can capture the value of companies' intangible assets, which would not be observable through the historical cost method (see for example, Canibano, Garcya-Ayuso, Sanchez, 2000 Villalonga, 2000 Holland 2001 , Powel, 2003, Garcia-Ayuso, 2003 Antunes & Alves, 2008).

The "fair value" method has been linked to the recent economic crisis post-2007 in Western societies. However, "fair value" advocates argue that this method cannot be blamed for this financial crisis, to the extent that this methodology only shows the "real" value of financial information available for transaction. The "fair value" method is seen as a decisive element in the interactions of financial agents in the economy because it would help in measuring investors' exposures to risk of financial investments. Laux and Leuz (2010) and Barth and Landsman (2010) reinforce the idea by claiming that amounts entered in financial reports through the "fair value" method are residual in influencing financial indicators. Thus, they seek to highlight the idea that there is no preponderance of "fair value" in the recent financial crisis. Those who defend this method say there must be trade-off between relevance and trust in financial statements produced through the "fair value" system – because, in "normal" economic situations, "fair value" registers "potential expenses/income", which generate oscillations in the financial statements and impact the interactions of financial participants; on the other hand, it is this anticipation that "prevents" large impacts on financial results and eventual internal crises (e.g. Laux & Leuz, 2009).

2.2.2 *Arguments against "fair value" accounting*

However, there are schools of thought that oppose the adoption of "fair value" accounting standards. The very term "fair value" is considered as inducing errors, because it appears to assign a fair value to a value that is necessarily subjective (Biondi & Suzuki, 2007). Furthermore, it is argued that the economic theory that founds the "fair value" method has weak empirical evidence (Bougen & Young, 2012, Cardao-Pito & Ferreira, 2013). Whittington (2008) claims that if financial regulators as IASB could accept the fact that we do not live in a world of perfect competition, the model of "fair value" would lose its importance. Furthermore, as it is not good in theory, it would also not be relevant nor logically consistent.

The "fair value" method is regarded by its critics as a difficult and complex method. The complexity is related to a lack of uniform interpretation and direction, often also at the government or institutional level (Jermakowicz & Gornik-Tomaszewski, 2006). The very idea that one can use a quantitative method as the "fair value" to measure accurately the intangibility has characteristics of a paradox. Intangibility by definition cannot be measured (Cardao-Pito, 2012, 2016). Economics and accounting can only measure the tangible elements associated with intangibility, such as money spent (Cardao-Pito, 2016, Zanoteli, Amaral & Souza, 2015)

Changes in accounting standards based on the labeled "fair value" affect not only market participants, but also government and company activities, due to factors such as the subjectivity of valuation methods (Posner, 2010, Biondi & Suzuki, 2007 Power, 2010 Martins, 2006). Hilton and O'Brien (2009), show that, at Inco Ltd. (mining company), the market value of tangible assets influenced managers' silent strategies, because they made decisions as impairments at specific times. Those decision had an impact on the accounting value of tangible fixed assets. During assets' useful life,

the recognition of impairments occurred in very specific occasions. When comparing assets' market values to what was actually recorded, several discrepancies were found.

Freedom/availability of information appears here, then, as a potential added value for those who own companies and can influence the behavior of financial stakeholders. Nissim (2003) and Ahmed and Takeda (1995) find that certain banks used "fair value" in loans to influence the assessment of the market in terms of risk and performance. Decision-making was influenced by incentives given to managers in advance by shareholders, as if for match-fixing.

There are also some practical difficulties in implementing "fair value" regulations which are often cited by its critics. For example, from the point of view of financial supervision, Marques (2007) notes that "Portugal does not have an auditing standard to establish rules and criteria that must be followed in the auditing of 'fair value'".

Furthermore, opponents of the "fair value" method have serious concerns about the possible misuse of this method. In extreme situations, critics claim this method can be used as a tool for results manipulation due to its subjective character, which can often occur due to surrounding reality, and may take on an embodied role depending on the interactions of financial agents.

2.3 Portuguese Stock Index-20 (PSI-20)

Depending on arguments for and against the "fair value" accounting method, this method is presented as bringing an improvement in accounting standards or an impoverishment of accounting objectivity. The rules imposed by the European Union for financial stakeholders in recent years can, to some extent, have changed their behavior (Barlev & Haddad, 2003). In our study, we will try to identify the tax impact "fair value" accounting had on companies that were integrated in the Portuguese Stock Index-20 (PSI-20) over the 2005-2012 period. This index includes the Portuguese stock exchange's largest companies by market capitalization. The capitalization requirements are evaluated periodically (EURONEXT, 2003). There is a "waiting list" to "identify the companies most likely to be included in the index when there is need to carry out an emission replacement sample" (EURONEXT, 2003). Because they are listed in a European stock exchange, all companies included in this index have been linked to IASB standards since 2005.

Appendix I identified the studied companies. Over these eight years, there were 31 companies that took part in the PSI-20 index. The table in Appendix I identifies these companies, while distinguishing the 20 companies that were integrated in the index at the end of 2012. In addition, the table identifies the sector, turnover and net results of those 31 companies in 2012. These companies are very relevant for the Portuguese economy. Its turnover in 2012 was equivalent to 51% of the Portuguese Gross Domestic Product (GDP). This group of 31 companies includes the four largest Portuguese private banks (Banif, BCP, BES and associated company Espírito Santo Financial Group, and BPI). Note also that there is a relevant group of seven former national enterprises that have been privatized, such as the fuel and gas company (GALP), electricity companies (EDP and EDP Renováveis), the electrical infrastructure (REN) the cement company (Cimpor), the telecommunications company (Portugal Telecom) and the motorway company (BRISA).

Some interesting questions seem to request attention. For example, how much did the country lose (or gain) in taxes due to "fair value" norms? What is the behavior of companies that face new financial accounting rules? What degree of receptivity did "fair value" accounting have in the largest listed Portuguese companies? Which sectors most used the "fair value" method? Is the IASB structure more focused on calculating economic results than tax results (Jermakowicz, 2004)? Thus, what challenges might the country face?

3 Research methodology

3.1 Research Aims

As mentioned earlier, this study attempts to identify impact of changes brought by "fair value" accounting standards in the Income Statements of the largest listed Portuguese companies over the 2005-2012 period.

3.2 Database

Our database has been produced with financial information that is available online[3]. The collected information shows how the sample's companies have developed "fair value" accounting operations on their Consolidated Income Statements. We do not seek to identify the initial registration of items in financial statements, in which, according to IASB, the "fair value" criterion matches the historical cost criterion. IASB's reasoning is that, at the initial moment, the historical cost tends to coincide with the market value, and, as such, with "fair value". Our study addresses the subsequent rectifications through the "fair value" method recorded as expenses or income on the Income Statements. Furthermore, we have excluded from the database the provisions of some items that were already accepted by the POC. Those include, for instance, difficult credits from customer, adjustment of stocks, or other items that do not involve the "fair value" methodology. Changes in "fair value" with an impact on business results were categorized into four main fields, namely: i) *variation (+/-) on hedging derivatives*, ii) *variation (+/-) on covered items*, iii) *impairment losses,* and iv) *other changes (+ / -) of "fair value"*.

In the rubric *variation (+/-) on hedging derivatives* are inserted variations (explicit and isolated) of "fair value" of these derivatives. Herein are contained variations that affect the company's results after the initial registration of these instruments, which are constantly being adjusted to the reality of the hedged item;

In the *variation (+/-) on covered items* were included the (eligible) subsequent evaluations of the instruments covered, inter alia, cover effectiveness tests (tests that are made periodically to this type of financial instruments to ensure that coverage corresponds to actual market requirements);

In *impairment losses* of "fair value" are included all losses or reversals (gains) associated with this criteria, except customers' impairment losses, as this class is highly reversible regarding the cancellation of these impairments. In other words, the impairment losses associated with customers are associated with the known concept of difficult credits from customers, which was already predicted on the previous POC. In this situation, losses are only recognized when the services billed have not been paid. Such situations do not attend to the core of this study. In this item was also assumed that the impairment losses associated with inventories / stocks have nothing to do with normal or abnormal breakage of stock, but with the devaluation or appreciation of its contents.

And in *other changes (+ / -) of "fair value"* includes all subsequent changes in the financial instruments that are not hedging derivatives and hedged items, or impairment losses through the "fair value" method.

The methodology for collecting information was to consult the sample's companies' management reports in pdf files. We have used search tools, with the aim of finding the "fair value" expression in each financial statement. We have built a sample comprising 31 companies and 8 years, from which have resulted 243 management eligible yearly reports. Two companies have no reports in the early years[4]. Of these reports, 217 (89%) had positive net income (and as such payable taxes) and 27 (11%) had negative net results.

4 Presentation and discussion of results

4.1 Utilization of the "fair value" method at the largest listed Portuguese companies' Income Statements: an overview

Annex 1 identifies the amount of rectifications through the "fair value" method that has been found in the Income Statements of the sample companies over the 2005-2012 period. The net balance of rectifications has mostly a negative impact on those companies' results and as such in the tax base and taxes received by Portugal. A negative net balance of rectifications of 6.153 million euros during the studied period was found, which corresponds to approximately 3.7% of GDP Portuguese of 2012.

As is evident in Figure 1, the item with greater use and negative impact were the impairment charges through the "fair value" method, representing 106% of the total adjustments. Changes in hedging derivatives also had a negative impact on the results (16% of the total "fair value" over the period). In turn, the other two rubrics in net terms helped to increase the results, but in a very limited way. The variation in the hedged items represent -11%, as well as other changes in "fair value" found that also represent - 11%.

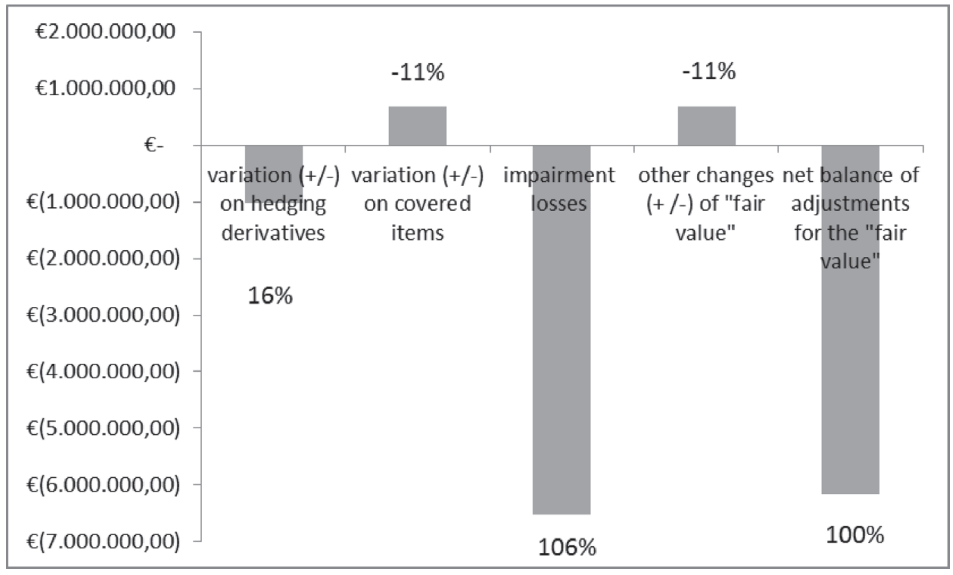

Figure 1. Breakdown of rectifications by "fair value" in the largest Portuguese Companies

Annex 1 also describes the average negative, positive and total adjustments by the "fair value" method in Consolidated Income Statements as a proportion of each company's assets, along the respective standard deviation. In all these companies, the net annual adjustment is negative, which reduces profits before taxes and eventually the tax basis. It is on average minus 0.3% of total assets (standard deviation 0.9%). At a first glance, this value may seem relatively small. However, as the yearly average of results before tax is 3% of total assets (standard deviation 4.7%), we can conclude that the net adjustments through the "fair value" may have an approximate impact of 10% on the taxable amount where the corporate income tax is computed. This first observation is extracted without making a distinction between positive and negative results as made in section 4.3. Therefore, the "fair value" method may have had a significant impact on Portugal's corporate

taxes, given to the fact that these companies include some of the largest companies operating in Portugal. Furthermore, it can be seen in Annex 1 that only one company has a positive net adjustments average in this period, and two other companies have null average. All other companies have a negative average of net "fair value" adjustments, and as such with possible effects of reducing the payable corporate income tax/tax basis. Hence, the vast majority of the largest Portuguese listed companies showed a net increase of expenses through the "fair value" method with effect on results before taxes. Such behavior would only not bring tax consequences if Portugal refused to accept the "fair value" method for quantification of payable taxes.

4.2Absolute and relative application of the "fair value" method to income statements

In absolute terms, the largest users of "fair value" are essentially the five financial sector companies (Banif, BCP, BES, Espírito Santo Financial Group, and BPI) representing 60% of net corrections, and seven former government companies which were privatized (GALP, EDP, EDP Renováveis, REN, Cimpor, Portugal Telecom, BRISA), representing 30% of net corrections. The Figure A in Annex 2 describes the largest users of the "fair value" method over the studied period. The highest concentration of adjustments (87.64%) is in years 2011 (54%) and 2012 (33.7%), that is, after the reformulated corporate tax code in 2010, and not before it. Interestingly, those were the years in which Portugal faced a severe economic crisis. At that time, Portugal was being intervened by what was called the "Troika", made up of European Central Bank (ECB), European Commission and International Monetary Fund (IMF) members. The eventual decline in tax revenues may have further increased the country's financial difficulties.

This finding is confirmed in Annex-2 Figure B. In absolute values, the greatest users of the "fair value" method are financial companies and former national enterprises. For example, as other banks, BCP had an estimated impairment on Greek debt of 826.925 million euros, namely, 19.9% of the "fair value" over the 2005-2012 period, and 56.53% of IRC collected in the financial sector over the period under study. Although it is not possible to identify whether these impairments were accepted for tax purposes, the post-2010 tax code accepts "fair value" impairments on financial investments when the participation on equity is lower than 5%, as it is the case.

However, when "fair value" adjustments are weighted by the companies' assets, no statistically significant relationship between these adjustments and the recently privatized companies has been found. Spearman correlations are merely $r = 0.05$ ($p < 0.46$) with negative adjustments and -0.07 ($p < 0.28$) with positive adjustments. Still, a statistical association remains with the financial industry, where the correlation is $r = -0.15$ ($p < 0.02$) with negative adjustments and 0.43 ($p < 0.01$) with positive adjustments.

4.3Average effects of "fair value" adjustments on profits before tax (tax base)

This section examines the 216 observations with positive earnings before taxes over 2005-2012. Thus, in this sub-sample of observations "fair value" adjustments are likely to impact upon the respective tax basis and payable taxes. Figure 2 depicts the corrections' mean as a proportion of results before taxes. As is evident, there is a clear downward effect on profit before taxes, as the net annual average of rectifications is negative, and represents 18.3% of earnings before tax. Negative average rectifications represents almost one third of the earnings before tax (29%), while positive average rectifications are only 11%. In financial companies, rectifications as a proportion of earnings before taxes are much higher if we consider positive and negative records. However,

in net terms they are below the overall average. In the former national companies currently privatized a higher value than the sample average was not found. However, in both cases the adjustments to the "fair value" decrease income before taxes. Once again, the statistical evidence seems to clearly show that the "fair value" adjustments may have had a negative effect on tax revenues collected by Portugal.

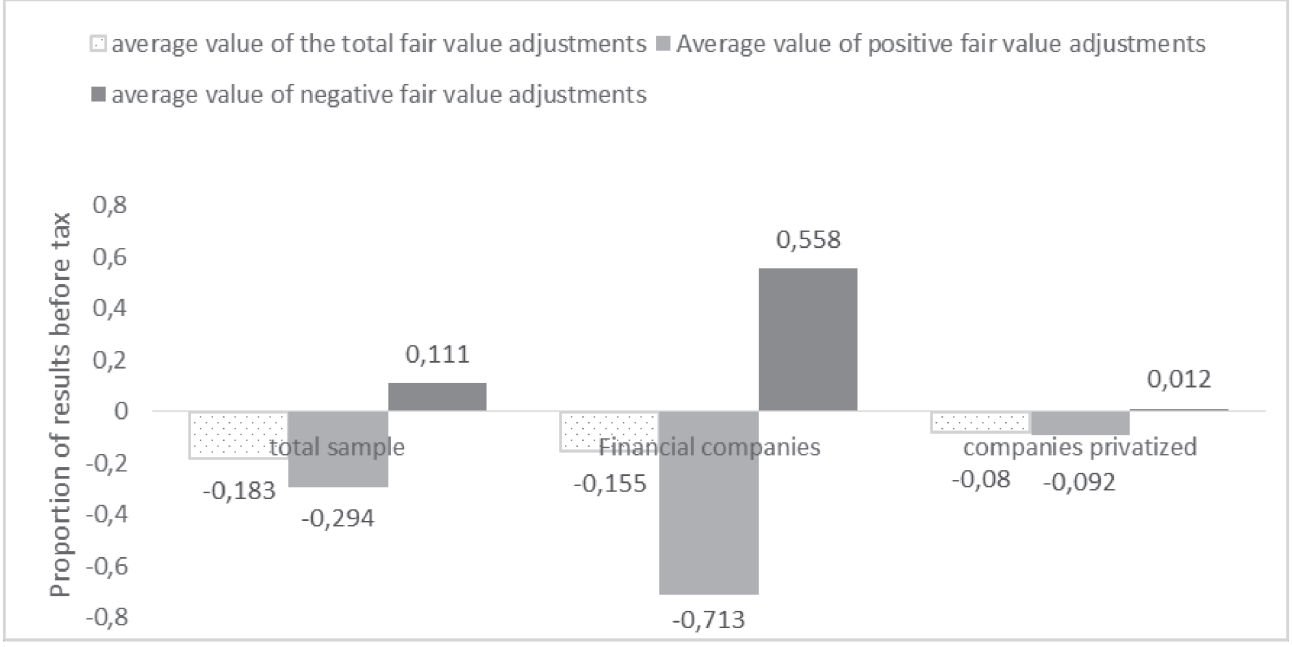

Figure 2. Average "fair value" as proportion of results before taxes (tax base) at observations with profits over the 2005-2012 period

Note: Figure 2 considers only observations where the results before tax are positive, and as such there is likely to be payable corporate income taxes.

4.4 "Fair value" adjustments and the economic cycle

Figure 3 includes all the 243 sample observations. It relates "fair value" adjustments in proportion to the companies' assets and the Portuguese economic cycle, measured through the Portuguese GDP growth. There is some statistical relationship between the negative "fair value" adjustments and GDP growth, but it is rather small, namely r = 0.13 (p <0.04). This correlation between GDP and net "fair value" adjustments is reflected on a correlation of r = 0.17 (p <0.01). However, Figure 3 also anticipates that there is no statistically significant correlation between the GDP and positive "fair value" adjustments[5] (r = 0.00, p <0.96). Therefore, we can conclude that in this period although negative "fair value" adjustments have been somehow slightly influenced by the economic cycle, the "fair value" adjustments cannot be seen as a merely automatic consequence of the Portuguese economic cycle. As displayed in Figure 3, the positive adjustments remain very similar over the period. Furthermore, there are years in which GDP and negative "fair value" adjustments move in opposite directions (e.g. 2006, 2009 and 2010). It should also be noted how the negative "fair value" adjustments are

consistently higher than the positive adjustments in each year of the sample. In 2007 only, positive and negative adjustments are roughly equivalent. This behavior seems to be systematic. It is in line with the average of the total adjustments being negative for the vast majority of the sample's companies.

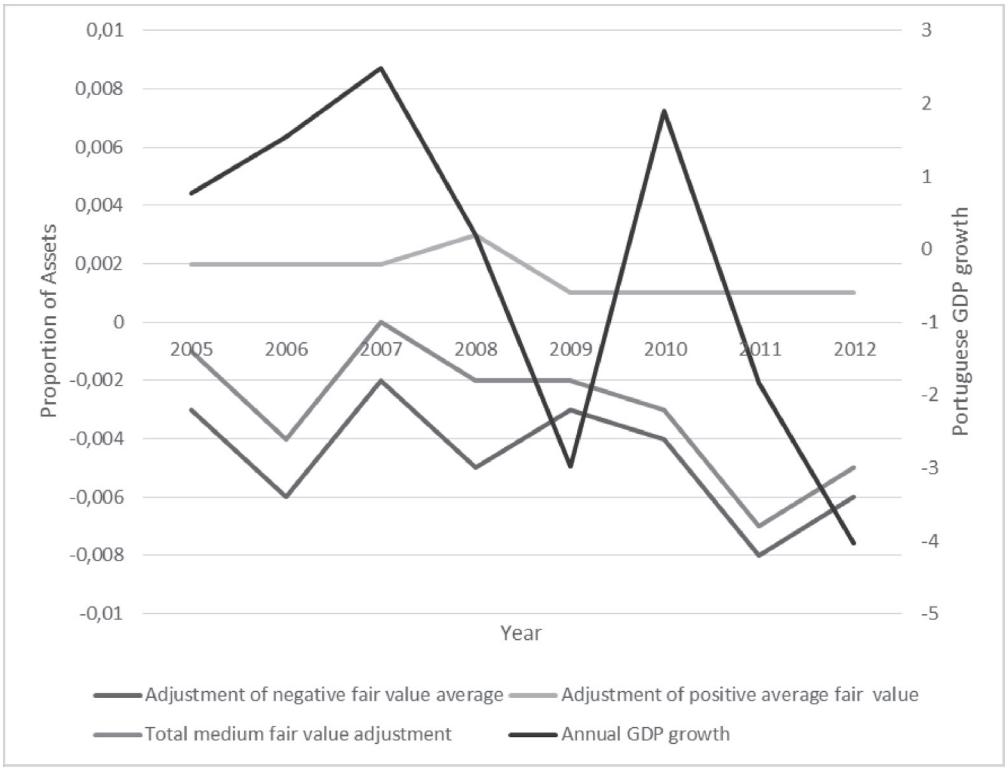

Figure 3. "Fair value" adjustments as a proportion of assets, and the economic cycle

4.5 Discussion of results in the context of studied literature

As described earlier in the Literature Review, the defenders of the "fair value" accounting method have two major arguments. First, it is argued that this valuation method would be the most appropriate to find the "correct" value of accounting items. Furthermore, it is claimed that this method would be appropriate to capture intangible assets, which are allegedly observed by market prices, but invisible for traditional accounting methods.

On the other hand, opponents of the "fair value" method draw attention to the inherent subjectivity of these two arguments. Evidently, to know the appropriate value of the accounting items is quite difficult. Changes in market prices can be very volatile and unpredictable (Schiller, 1981, 2005), are embedded in complex social structures (Granovetter 1985 Lawson, 2012, Polanyi, 1957), and are accomplished by some complex intangible flow human dynamics (Cardao-Pito, 2012, 2016). In contrast, historical financial facts can be confirmed through formal documentation.

Contributing to this important debate, our study demonstrates that debates about accounting valuation cannot be limited to an ethereal and possibly irresoluble discussion about the "correct value" of accounting items. On the contrary, the specific effects of accounting policies and standards on different organizational stakeholders must be studied. In concrete, some effects can have high economic and societal impacts, which are empirically demonstrable.

In the years immediately following the adoption of the "fair value" accounting system, our study demonstrates an effective loss of tax revenues to the Portuguese State. If the discussion would remain on the subjective ground of knowing the "correct" value for accounting items, our findings could not be recognized. Although questions regarding the "correct value" of accounting items are indeed much discussed in the literature, the material consequences of different policies and accounting standards are generally neglected. In our view, the material consequences are quite relevant in terms of possible alternative methods for financial reporting.

As noted above, with effect from 2010 onwards, the Portuguese government revamped its corporate income tax code in order to strongly restrict application of the "fair value" method for taxation purposes. Although the "fair value" adjustments are toughly forbidden in most tax computations, this method continues to be applicable for taxation in a few accounting operations. Therefore, it continues to have implications in terms of Portuguese companies' corporate taxes, even if those implications are much more restricted than if all the international accounting standards were fully operational from a fiscal point of view.

5 Conclusions and limitations

5.1 Conclusions

Post-2005 adoption of "fair value" accounting at the largest Portuguese corporations' Income Statement has resulted in a loss to Portugal's tax revenues. Such a loss would not occur if the previous accounting methodology was fully in place. This finding is an objective fact. The Portuguese state seems to have identified the risk of further substantial tax revenue losses deriving from "fair value" accounting. In 2010, the reformulated corporate tax law strongly limits the use of "fair value" accounting for tax purposes, which thus drives against applying international accounting standards to taxation matters. Although some "fair value" operations are stills condoned, one can note that the Portuguese state has adopted a prudent attitude, if not altogether distrust, in regard to the use of "fair value" in taxation affairs.

Some statistical relationship between negative "fair value" adjustments in Income Statements and the economic cycle was found. However, this relationship is not very strong. Furthermore, there was no significant statistical relationship between positive adjustments and the economic cycle. Therefore, the economic cycle cannot be considered as the only explanatory factor for accounting records at "fair value". For companies with positive results, and as such subject to tax on their corporate income, the average net "fair value" adjustments over the 2005-2012 period was negative, representing 18.3% of earnings before tax. If all "fair value" adjustments were accepted from a fiscal point of view, this amount would correspond to an equivalent loss in corporate income taxes to Portugal.

Our findings exhibit that although debates about "fair value" and historical cost accounting tend to focus on necessarily subjective discussions related to eventually "correct" values for accounting items, accounting methods have strong repercussions on taxes and public revenues. One needs also to note that companies using "fair value" accounting are only allowed to do so to the extent that regulations enable this possibility. Law makers and regulators make laws and regulations, but can also reflect on the advantages and disadvantages of different accounting methods. Decisions must be made after those analyses are carried out. There may be great concern as to the adoption of an accounting methodology such as "fair value" accounting, which contains an explosive mixture of subjectivity and the possibility of reducing taxes to be paid to the country.

As explained below, the findings obtained are the result of an analysis that harbors several limitations. These limitations lie in the quality of the financial information available and in its

segregation at the content and temporal levels. Nevertheless, this study demonstrates the need for further research concerning the possible effects – for contemporary companies and societies – of the adoption of the "fair value" accounting method.

5.2 Limitations

Naturally, limitations exist in a study based upon companies' public information. "Fair value" operations in income statements can only be detected when expressly mentioned in notes to financial statements. However, the contents of these notes are not always clear in terms of employed "fair values". The values attributed to this method are often placed alongside other values with a similar profile. Therefore, to avoid giving the investigation any bias, these types of values were not put in the database to avoid duplication. Moreover, when a "fair value" operation is detected, it is sometimes hard to identify what type of fair value has been used (that is, level 1, 2 or 3 according to IFRS 13) because companies infrequently identify the level used. Nonetheless, when accounting items do not have a comparable market, as in the case of many imparities, level 3 must be used. To compare registered values with recoverable values, companies need to use methodologies capable of producing "fair values," and therefore estimations, even though in some cases those estimations might be close to market reality.

Other limitations refer to the temporal comparability of financial statements. In some cases financial statements of different years have accounting values for the same items and year that diverge, without an apparent explanation for the variation. Accordingly, we have chosen by presuppose to find the values for each year on the respective year's financial statements.

Thus, with a set of considerations and limitations, we have produced an adjusted database, through which the possible information has been extracted. Our study tried to understand the behavior of the largest Portuguese companies as to adopting "fair value" accounting in their Income Statements over 2005-2012. However, we cannot provide quantitative causal explanations, for instance using regressions to identify empirical variables capable of predicting the use of "fair values" by companies. There are several endogenous components – such as governance models, industries, shareholder composition, capital structure, etc. Our study is restricted to identifying the major variations that have arisen from the "fair value" method in the largest Portuguese companies' Income Statements. We do not have enough information to conclude what the major motivations from economic agents when using "fair value" accounting are.

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1. Definition of research problem	√	√
2. Development of hypotheses or research questions (empirical studies)	√	√
3. Development of theoretical propositions (theoretical Work)	√	√
4. Theoretical foundation/ Literature review	√	√
5. Definition of methodological procedures	√	√
6. Data collection		√
7. Statistical analysis	√	√
8. Analysis and interpretation of data	√	√
9. Critical revision of the manuscript	√	√
10. Manuscript Writing	√	√
11. Other (please specify which)		

Annex 1 - Integrated companies in the PSI-20 index during the study period [2005-2012], its net balance of adjustments by the criterion of "fair value" [values 000] in the period, and average values and annual variability of these adjustments According to their assets.

Firm	Sector	Volume of business VB (2012)*	Net Income (2012)*	Total "fair value" adjustments [2005-2012]	"Fair Value" adjustments as a proportion of assets					
					Net adjustment average	S. D.	Negative adjustment average	S. D.	Positive adjustment average	S. D.
Altri	Manufacturing	530,107.00	52,205.00	-11,394.00	-0.001	0.003	-0.001	0.003	0.000	0.001
Banif	Financial	184,192.00	-576,353.00	-205,014.00 Parte inferior do formulário	-0.002	0.003	-0.002	0.003	0.000	0.000
BCP	Financial	1,596,806.00	-1,483,362.00	-1,449,272.00	-0.002 Parte inferior do formulário	0.003	-0.013	0.007	0.011	0.007
BES	Financial	2,632,150.00	119,836.00	-562,041.00	-0.001	0.001	-0.001	0.001	0.000	0.000
BPI	Financial	1,330,012.00	249,135.00	-869,481.00	-0.003	0.005	-0.007	0.006	0.004	0.002
Brisa	Motorways	564,964.00	46,022.00	-393,611.00	-0.009	0.010	-0.009	0.010	0.000	0.000
Cimpor	Cement	1,509,956.00	-425,712.00	-254,345.00	-0.004	0.014	-0.006	0.014	0.001	0.002
Cofina	Media	99,632.00	4,247.00	-7,502.00	-0.004	0.005	-0.004	0.005	0.000	0.000
Corticeira Amorim	Manufacturing	534,240.00	31,733.00	-13,812.00	-0.003	0.007	-0.005	0.006	0.002	0.003
EDP	Energy	16,339,854.00	1,182,155.00	-677,468.00	-0.002	0.003	-0.002	0.003	0.000	0.000
EDP Renováveis	Energy	1,157,796.00	136,050.00	-98,918.00	-0.002	0.002	-0.002	0.002	0.000	0.000
Espírito Santo Financial Grp.	Financial	3,535,751.00	482,706.00	-594,281.00	-0.001	0.001	-0.002	0.002	0.001	0.002
Galp Energia	Energy	18,507,037.00	343,300.00	-203,209.00	-0.003	0.002	-0.004	0.003	0.001	0.002
GLINTT / PARAREDE	Software	91,124.00	1,247.00	-4,509.00	-0.004	0.003	-0.004	0.003	0.000	0.000
Grupo Media Capital	Media	135,484.00	11,939.00	-19,098.00	-0.006	0.009	-0.007	0.009	0.001	0.001
Impresa	Media	226,064.00	-4,889.00	-52,377.00	-0.014	0.027	-0.014	0.027	0.000	0.000
INAPA	Manufacturing	963,994.00	-5,856.00	-43,268.00	-0.008	0.023	-0.008	0.023	0.000	0.000
Jerónimo Martins	Distribution	10,875,897.00	366,268.00	-37,436.00	-0.001	0.003	-0.002	0.002	0.001	0.002
Mota Engil	Construction	2,243,167.00	74,007.00	-26,658.00	-0.001	0.001	-0.001	0.001	0.000	0.000
Novabase	Software	212,075.00	9,761.00	-4,888.00	-0.003	0.004	-0.003	0.004	0.000	0.000
Portucel	Manufacturing	1,501,615.00	211,169.00	-37,910.00	-0.002	0.003	-0.003	0.002	0.001	0.001
Portugal Telecom	Mult & Tlcm	6,392,631.00	325,617.00	-246,444.00	-0.002	0.007	-0.004	0.004	0.002	0.003
Reditus	Software	124,379.00	280.00	-837.00	-0.001	0.002	-0.001	0.002	0.000	0.000
REN	Energy	588,973.00	123,892.00	-1,035.00	0.000	0.000	0.000	0.000	0.000	0.000
Semapa	Manufacturing	1,952,588.00	170,560.00	-64,173.00	-0.002	0.002	-0.003	0.002	0.001	0.001
Soares Costa	Construction	801,849.00	-47,512.00	-3,606.00	0.000	0.001	0.000	0.001	0.000	0.000
Sonae	Distribution	5,378,523.00	71,690.00	-94,554.00	-0.001	0.018	-0.012	0.011	0.011	0.010
Sonae Indústria	Manufacturing	1,321,030.00	-100,052.00	-224,833.00	-0.017	0.012	-0.019	0.013	0.002	0.005
Sonaecom	Mult & Tlcm	825,438.00	75,432.00	-16,197.00	-0.001	0.001	-0.001	0.001	0.000	0.000
Teixeira Duarte	Construction	1,383,326.00	26,057.00	90,125.00	0.003	0.008	-0.003	0.003	0.007	0.006
ZON	Mult & Tlcm	852,086.00	36,888.00	-25,346.00	-0.002	0.003	-0.002	0.003	0.000	0.000
	Total	84,392,739.00	1,508,460.00	-6,153,391.00	-0.003	0.009	-0.005	0.009	0.001	0.004
	Comparison GDP									
	Portugal 2012	51%		-4%						

Notes:

i) O *Portuguese Stock Index- 20* (PSI-20) integrates the 20 companies with the highest capitalization in the Portuguese stock market

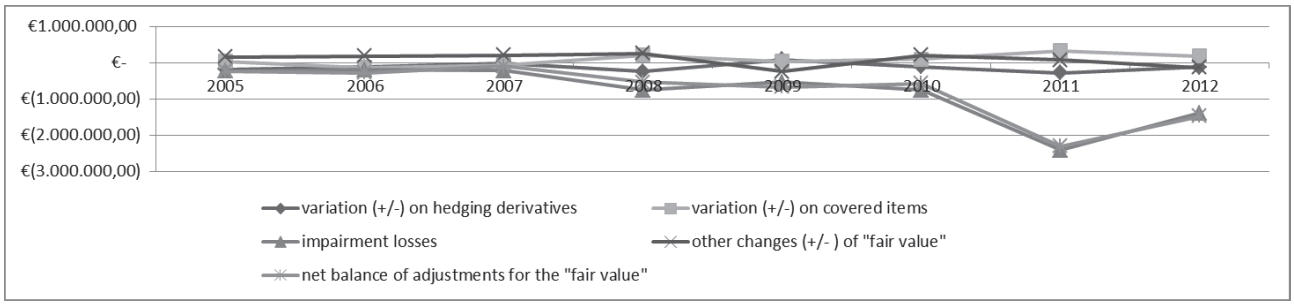
ii) Companies in the table were part of the PSI-20 at least some time during the study period.

iii) The study period was [2005-2012]

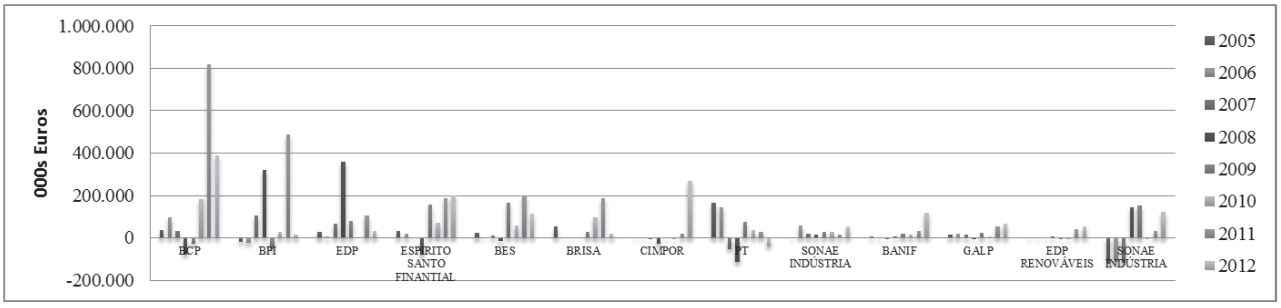
iii) underlined companies were not included in the index in 2012.

Annex 2 – Use the "fair value" for the large Portuguese companies over the 2005-2012 period

A - Breakdown by items



B - Companies that have the largest net "fair value" adjustments in absolute values



Notes

1 *International Accounting Standards (until 2000), and International Financial Report Standards (after 2001).*

2 Diretriz Contabilística n.º 13 (DC 13, § 2), Diretiva 2001/65/CE, § (11) – Jornal Oficial das Comunidades Europeias L283/29.

3 Financial statements. CMVM, [S.l.], [between 2005 and 2013]. Available in: <http://web3.cmvm.pt/sdi2004/emitentes/contas_anuais.cfm>. Access: Jan. to Jun. 2013.

4 EDP Renováveis and REN, two companies previously integrated in the energy public company, EDP, which was privatized.

5 Note that according to the international accounting standards, while value reductions tend to be recorded in the income statement, some revaluations are recorded directly in equity, only transiting to the Income Statement when a significant event occurs.