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The Accounting Standardization System in Portugal and Its First-Time Adoption Effects in the Olive and Cork Tree Cultures

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Abstract *This study examines the quantitative impact of the first-time adoption of the Portuguese Accounting Standardization System on individual annual reports of Portuguese unlisted companies in the cork and olive tree culture sector. Findings indicate that the items which showed significant changes in the transition from the previous accounting frame of reference to the Portuguese Accounting Standardization System are mainly those regarding to biological assets, inventories, liabilities, current ratio, and return on assets. The adoption of the Portuguese Accounting Standardization System has led generally to less conservative accounting practices, indicating that characteristics of code-law countries such as cultural aspects and country enforcement regimes did not influence the adoption of IAS/IFRS-based accounting standards by Portuguese unlisted companies in the cork and olive tree culture sectors.*

Key words *Accounting, harmonization, agriculture, olive, cork*

JEL Codes: M41

1. Introduction

In 2002, the European Commission released Regulation (EC) 1606/2002 requiring all firms with securities traded on a European regulated market to prepare consolidated accounts in accordance with International Financial Reporting Standards (IAS/IFRS) from 1 January 2005 onwards. This Regulation allowed Member States to extend this requirement to other companies. In July 2009, the Portuguese Accounting Committee (CNC - *Comissão de Normalização Contabilística*) approved a new accounting standardization model titled Accounting Standardization System (SNC – *Sistema de Normalização Contabilística*) based on International Accounting Standards/ International Financial Reporting Standards (IAS/IFRS). The SNC superseded the previous Portuguese Accounting Plan (POC – *Plano Oficial de Contabilidade*), and was implemented by Portuguese unlisted companies from 1 January 2010 onwards.

The present study seeks to analyze the impact of SNC adoption in the financial information reported by Portuguese unlisted companies involved in the olive and cork tree culture sectors. More specifically, the study intends to assess the effects of the first time adoption of SNC's Accounting and Financial Reporting Standard (NCRF – Norma Contabilística e de Relato Financeiro) 17 (*Agriculture*). Internationally, there are studies which offer an analysis of the impact of the adoption of IAS 41 (*Agriculture*) in different countries (Elad and Herbohn, 2011; PriceWaterhouseCoopers (PWC), 2009 and 2011). However, there are no research studies on the impact of the adoption of IAS/IFRS adapted standards by unlisted companies in specific countries. In Portugal, so far, very few studies have focused on the impacts of SNC adoption, but are related to the analysis of factors influencing the preparedness of Portuguese unlisted companies to adopt SNC (Guerreiro *et al*., 2012), the analysis of the degree of compliance with NCRF 7 (*Property, Plant & Equipment*) (Botelho *et al*., 2015), and the development of a fair model value model to dairy sector (Oliveira *et al*., 2015).

We have chosen the sector of olive and cork tree culture because Portugal leads the world's production of cork and is considered the fourth largest producer of olive oil. In Portugal, olive tree cultivation and cork tree production are the most important activities in the agriculture sector. The olive and cork tree cultures cover the entire territory of Portugal. According to the Portuguese National Institute of Statistics (INE – *Instituto Nacional de Estatística*) around 52 percent of land is dedicated to these two activities (INE, 2009).

The olive tree culture occupies around 336 thousand hectares, 99 percent producing olives and olive oil. In five southern European countries (Portugal, Spain, France, Italy and Greece) the olive tree culture occupies more than 5 million hectares and 2 million farms. Portugal has been the world's fourth largest producer of olive oil, reaching more than 100,000 tones during the fifties and the sixties. According to the Alentejo Studies Center for the Promotion of Olive Oil (CEPAAL – *Centro de Estudos e Promoção do Azeite do Alentejo*), the financial funds from the European Union to support and promote olive tree growing have contributed to the stabilization of olive oil production by 40,000 tones. Nowadays, Portugal is the fourth biggest producer in the European Union and the eighth biggest producer worldwide (CEPAAL, 2011).

Cork tree production covers only 8 percent of the territory of Portugal, but it represents a market share of 60 percent worldwide, and around 3% of all Portuguese exports (Cork Information Bureau, 2010). About 300,000 tons of corks are produced around the world. The Portuguese production share represents 53 percent, followed by Spain with 30 percent worldwide (Cork Information Bureau, 2010). In 2009, around 90 percent of the Portuguese cork production was exported, which has represented an income of 698.3 million euros (about 0.7 percent of the Portuguese GNP). On the other hand, the cork production has a massive impact in other economic sectors worldwide such as the

wine-making industry and construction industries, which consumes on average 66 percent and 21 percent of cork national production (INE, 2009).

Moreover, Portugal is a code-law country characterized by a weak legal enforcement regime, compared to common-law countries (Leuz *et al*., 2003). Literature has concluded that different institutional and legal restrictions affect countries' accounting environments (Leuz *et al*., 2003; Daske *et al*., 2008). Daske *et al*. (2008) found that the effect of IAS/IFRS application depends on how they are implemented and the level of enforcement and reporting incentives in each country. Therefore, the Portuguese setting is relevant to assess how a code-law country with a weak legal enforcement regime can influence the potential differences between SNC and POC.

The first year of SNC adoption was 2010. In 2010 companies were required to restate their 2009 financial statements according to the new accounting frame of reference. This would allow companies to present in 2010 both the end period data of the financial statements and its comparatives under SNC. The present study analyses the following financial statements: the end period data of the financial statements from 2009 (under POC) and the initial period data of the financial statements from 2010 (under SNC). This methodology will allow to assess how conservative were POC accounting rules compared to SNC standards, to detect any significant differences between them, and to investigate the effects of the first mandatory application of SNC on the economic position and performance of first-time adopters – specifically the effects of SNC's accounting standards in agriculture.

Main findings indicate that the transition from the POC to the SNC has brought significant changes in the financial statements (such as biological assets, inventories, and liabilities), affecting some financial ratios (such as current ratio and return on assets). The SNC's accounting standard with greater impact in the financial statements was NCRF 17 (Agriculture). SNC required the recognition of biological assets as an autonomous item (previously recognized as Plant, Property & Equipment), and recommended the application of fair value less costs to sell to measure biological assets and inventories related to agriculture produce harvested from an entity's biological assets at the point of harvest. Therefore, findings indicate that, generally, in the cork and olive sectors, the adoption of SNC has led to less conservative accounting practices than POC. Following Trombetta *et al*. (2012) studies of this nature are of crucial importance, both for the users of financial information as to the proper regulators, as they help understand and improve the effects of accounting standards.

In the following section, we will describe the recognition/measurement criteria for agriculture activities proposed by POC, SNC (NCRF 17 – *Agriculture*), and IAS/IFRS (IAS 41 – *Agriculture*). Then we will review previous literature, describe our research method, report the results, and present our conclusions.

2. SNC's Accounting Standard and Financial Reporting 17 (*Agriculture*)

The POC did not express a clear accounting treatment for Agriculture. In 1986, the Portuguese Government issued *Portaria nº 715/86* and *Portaria nº 725/86* demanding the implementation of simplified accounting systems for those farmers who have benefited from EU funds. The main purpose of this regulation was to control and manage EU funds.

In 1997, the Portuguese Accounting Committee issued Accounting Directive 18 (*The Objectives of Financial Statements and Generally Accepted Accounting Principles*), establishing the permission to apply IASB standards for all those topics not properly addressed by the Portuguese Accounting Plan.

After January 2005, the European Commission released Regulation (EC) 1606/2002 requiring companies with securities traded on a regulated market to prepare consolidated accounts in accordance with IAS/IFRS. Accounting treatment for Agriculture was established by International Accounting Standard (IAS/IFRS) 41 (*Agriculture*).

After the adoption of SNC, in January 2010, accounting treatment for biological assets and for agriculture produce harvested from an entity's biological assets at the point of harvest is established by NCRF 17 (*Agriculture*). NCRF are based on IAS/IFRS. IAS 41 and NCRF 17 require that both biological assets and agricultural produce harvested from an entity's biological assets at the point of harvest shall be measured on initial recognition and at the end of each reporting period at its fair values less costs to sell. If market-determined prices or values are not available, or alternative estimates of fair value are unreliable, biological assets shall be measured on initial recognition at its cost less any accumulated depreciation and any accumulated impairment losses. Table 1 presents the main differences on the recognition and measurement criteria for biological assets under POC, SNC and IAS 41.

Table 1. Agricultural accounting: recognition/measurement criteria

Accounting frame of reference	Recognition criteria	Measurement criteria
Portuguese Accounting Plan (POC)	Biological assets shall be recognized as property, plant and equipment assets.	Biological assets shall be measured at their acquisition or production costs, less any accumulated depreciated amounts.
Portuguese Accounting Standardization System (SNC)	An entity shall recognize a biological asset when and only when: a) The entity controls the asset as a result of	A biological asset shall be measured on initial recognition and at the end of each reporting period at its fair value less costs to sell. A biological asset shall be measured at its

Accounting frame of reference	Recognition criteria	Measurement criteria
	past events. b) It is probable that future economic benefits associated with the asset will flow to the entity. c) The fair value or cost of the asset can be measured reliably.	cost less any accumulated depreciation and any accumulated impairment losses, only and only if the presumption that fair value can be measured reliably is rebutted on initial recognition
International Accounting Standards Board (IAS 41	An entity shall recognize a biological asset when and only when: a) The entity controls the asset as a result of past events. b) It is probable that future economic benefits associated with the asset will flow to the entity. c) The fair value or cost of the asset can be measured reliably.	A biological asset shall be measured on initial recognition and at the end of each reporting period at its fair value less costs to sell. A biological asset shall be measured at its cost less any accumulated impairment losses, only and only if the presumption that fair value can be measured reliably is rebutted on initial recognition

3. Literature review

Prior research studies on the impact of IAS/IFRS adoption focus on the following matters:

- Level of preparedness to adopt IAS/IFRS (Guerreiro *et al*., 2008; Sucher and Jindrichovska, 2004).
- Determinants of the level of disclosures regarding the transition to IAS/IFRS (Guerreiro, 2006; Tsalavoutas, 2011).
- Users' perception of IAS/IFRS (Navarro-García and Bastida, 2010).
- Quantitative impacts of IAS/IFRS adoption (Callao *et al*., 2007; Lantto and Sahlström, 2009; Haller *et al*., 2009; Callao *et al*., 2010; Beuren et al., 2008; Iatridis and Rouvolis, 2010).
- IAS/IFRS adoption and value relevance (Daske *et al*., 2008; Morais and Curto, 2008; Aharony *et al*., 2010; Armstrong *et al*., 2010; Devalle *et al*., 2010).
- Conservatism (Tsalavoutas and Evans, 2007; Lopes and Viana, 2008; Fifield *et al.* 2011; Liu, 2011).
- IAS/IFRS adoption and earnings management (Tendeloo and Vanstraelen, 2005; Yu, 2005; Gassen and Sellhorn, 2006; Goncharov and Zimmermann, 2006; Barth *et al*., 2008; Jeanjean and Stolowy, 2008).

The present study focuses on the analysis of the first-time adoption effects of SNC by Portuguese unlisted companies in the olive and cork tree culture sectors. In Portugal the literature on the impacts of SNC adoption has been scarce and only relates to the analysis of the factors influencing the preparedness of Portuguese unlisted companies to adopt SNC (Guerreiro *et al.,* 2012).

Moreover, the agricultural sector is under-researched. At an international level, there are studies which offer an analysis of the impact of the adoption of IAS 41 (*Agriculture*) in different countries (Elad and Herbohn, 2011; Fisher *et al*., 2010; Silva *et al*., 2012; Argilés *et al.,* 2011; Argilés *et al*., 2012). However, these studies concern the relevance of fair value model compared to historical cost model.

On this regard, Elad and Herbohn (2011) found that in the agricultural sector financial statements under fair value accounting lacked comparability. Fisher *et al.* (2010) findings corroborate this argument. The flexibility of IAS 41 allowing several methods to assess fair value and the possibility to opt by historical cost model generates discrepancies in companies' earnings. Silva *et al.* (2012) concluded that in terms of decision-making process historical cost is more reliable, more objective, and easier to perceive than fair value. However, fair value model show predictive power of future earnings (Argilés *et al.,* 2011) and accountants/managers make larger miscalculations and poorer judgments under historical cost model than under fair value model (Argilés *et al*., 2012).

The present study does not intend to contribute to this debate. Instead, it seeks to investigate the first-time adoption effects of SNC. Due to the fact that the NCRF with greater impact in the agricultural sector was NCRF 17 (*Agriculture*) the present study intends to analyse the transition effects from POC to SNC related to this accounting standard. Basically, it aims to find out if there are any significant changes in specific balance sheet and income statements items reported by companies in the transition period from POC to SNC, and assess how far POC is more conservative than SNC.

Prior literature on the adoption of IAS/IFRS has found that the industry sector, the auditor type, and the change in the shareholders' equity/net profit explain the levels of compliance with IAS/IFRS mandatory disclosure requirements (Tsalavoutas, 2011). The adoption of IAS/IFRS had a significant quantitative impact on financial reporting by British and Spanish companies (Callao *et al.,* 2007, 2010). However, Spanish companies continue to provide conservative financial information, probably due to cultural issues (Callao *et al*., 2007). The adoption of IAS/IFRS also changed the magnitudes of the key accounting ratios (Lantto and Sahlström, 2009). Findings commonly indicate that differences found are due to fair value issues and the recognition of construction contracts, tangible/intangible assets, provisions and contingent liabilities/assets, and business combinations (Haller *et al*., 2009; Lantto and Sahlström, 2009).

On the other hand, Lopes and Viana (2008) studied the impact of IAS/IFRS transition for Portuguese listed companies. Using Gray's conservatism index (1980), the authors concluded that Portuguese standards based on POC were more conservative than those based on IAS/IFRS. Similarly, Tsalavoutas and Evans (2007, p. 20) analyzed the transition from the Greek GAAP to IAS/IFRS, and concluded that "*the transition to IFRSs affected materially (both positively and negatively) the companies' net income, although the average positive impact was nonmaterial and insignificant. This finding supports the argument that Greek GAAP is more conservative than IFRSs with reference to income in particular. Similarly, [some authors], report that the change to IFRSs led to less conservative accounting practices in Portugal and Italy with regard to profit*". Bellas *et al.* (2007) also analyzed the transition from the Greek GAAP to IAS/IFRS, and concluded that the Greek GAAP is more conservative than IAS/IFRS. Furthermore, others studies have explored the impact of IFRS adoption regarding the level of conservatism to understand its possible effects on China (Liu, 2011), and explored its effects on the United Kingdom, Italy and Ireland (Fifield *et al*., 2011). Both of them concluded that the impact of the implementation of new accounting standards was significant.

Research on the adoption effects of IAS/IFRS adapted standards by unlisted companies in specific countries (such as Portugal) and in specific economic sectors (such as olive and cork tree culture sectors) is scarce. The present study seeks to overcome this gap, providing information to help understand and improve the effects of accounting standards (Trombetta *et al.,* 2012). Moreover, literature has indicated that different institutional and legal restrictions, enforcements systems, and cultural aspects affect countries' accounting environments (Leuz *et al.,* 2003; Daske *et al.,* 2008). Portugal has been considered a code-law country, with a weak legal enforcement regime (Leuz *et al.,* 2003). Therefore, findings will elucidate on the potential effects of these characteristics over the differences found between SNC and POC.

4. Methodology of research

4.1. Sample

The study sample comprises the total number of unlisted Portuguese companies in the olive and cork industries. Table 2 presents the selection criteria used to extract the sample. We excluded the following companies: companies that did not adopt NCRF 17, that were not active during the research period, individual farmers, foundations, small and medium sized companies. Annual reports from unlisted companies are very difficult to accessing, basically because companies do not have the obligation to upload them in their website. Therefore, sampled companies were contacted and asked to send their annual reports by email/post-mail to authors. Only five companies in each sector have sent their annual reports, as shown in Table 2. Although the response rate was low, the focus of the study was concentrated on investigating the effects of the first

mandatory application of SNC on the economic position and performance of first-time adopters – specifically the effects of SNC accounting standards in agriculture, even knowing that findings cannot be generalized.

Table 2. Sample

	Olive Culture	Cork Culture
Companies in the sector	108	20
Companies excluded:		
- Individual Farmers		-2
- Foundations		-2
- Companies not active in 2009 and 2010		-3
- Companies which did not adopt NCRF 17	-3	-1
- Small and Medium sized companies		-7
- Companies which did not send their Annual Report & Accounts	-100	
Final Sample	5	5

4.2. Data Collection

The methodology used is consistent with prior literature on the quantitative effects of IAS/IFRS adoption on the economic and financial position of first-time adopters (Aharony *et al*., 2010; Callao *et al*., 2010; Tsalavoutas, 2011). The purpose of the present study is to analyze if specific individual balance sheet and income statement items reported by companies were significantly affected by the adoption of SNC. For this purpose we considered the individual annual reports from 2009 and 2010. Portuguese unlisted companies were required to adopt the SNC from January 2010 onwards. In 2009 the financial statements were prepared under POC. But in 2010, both the end period data of the financial statements and its comparatives were prepared under SNC. Thus companies were required to restate the financial statements from 2009 according to the new accounting frame of reference. To analyze the quantitative effects of SNC the present study uses the following data: the end period data of the financial statements from 2009 (under POC) and the initial period data of the financial statements from 2010 (under SNC). This methodology will allow us to control the effects of the application of different accounting rules upon financial statements.

4.3. Variables Selection

Following Callao *et al.* (2010) we tested for the existence of significant differences between the accounting figures prepared under POC and SNC for each variable. Table 3 presents the several balance sheet and income statement items used in this study, and how they were measured.

Table 3. Accounting figures and financial ratios

	Definition
Accounting figures	
Fixed assets	Intangible assets + Property, plant and equipment + Long-term investments + Goodwill
Biological assets	Biological assets
Inventories	Inventories
Other current assets	Debtors + Cash
Total assets	Fixed assets + Current assets (Inventories + Debtors + Cash)
Equity	Funds contributed by shareholders + Retained earnings + Other reserves + Net income + Minority interest + Deferred income
Liabilities	Creditors + Provisions
Net Income	Income before taxes – Taxes
Financial ratios	
Leverage	Total liabilities/Total assets
Current ratio	Current assets/Short-term liabilities
Return on assets	Operating income/Total assets
Return on equity	Net income/Equity

Following Tsalavoutas and Evans (2007), as well as Lopes and Viana (2008), a set of methodologies were used to assess the level of conservatism between POC and SNC. A comparability index based on Gray's (1980) index of conservatism was computed to assess the differences between the accounting figures prepared under SNC and POC. The comparability index was determined for the company *j* concerning caption *i* of the balance sheet (total amounts of assets, equity, net income and liabilities):

$$CIji = 1 - \left(\frac{SNCji - POCji}{|\,SNCji\,|}\right) \quad (1)$$

Where,
POCji = amount according to POC from caption *i* of company *j* balance sheet;
SNCji = amount according to SNC from caption *i* of company *j* balance sheet.

Conservatism is connected to the quality of financial information, which must possess some characteristics, namely objectivity, verifiability, reliability, neutrality and substance over form. According to SNC's Conceptual Framework (§. 37) on *Aviso nº 15652/2009* from 7th July, conservatism is the inclusion of a degree of precaution when exercising the necessary judgments to proceed with the necessary estimations under uncertain conditions so that assets or earnings are not overrated and liabilities or expenses not underrated.

Gray (1980) assessed conservatism using profits-measurement behavior. The present study intends to assess conservatism in the following balance sheet items: total assets, equity, net income, and total liabilities. Moreover, the present study considers SNC as the yardstick, for comparative purposes, to assess the differences between the accounting practices pursued by the two accounting frames of reference.

Considering "Net Income" item, based on Gray's (1980) work, conservatism can be assessed using the following rationale: if "Net Income" under POC is higher (lower) than the one under SNC, this would indicate that the previous POC accounting practices resulted in optimistic (pessimistic) outcomes in relation to the yardstick (SNC). Therefore, POC accounting practices would be less (more) conservative than SNC accounting practices.

Increases in the value of "Net Income" are related to the recognition of assets and derecognition of liabilities. On the other hand, decreases in the value of "Net Income" are related to the derecognition of assets and recognition of liabilities. Finally, increases in the value of "Equity" are related to the recognition of assets, derecognition of liabilities, and increases in net income. However, decreases in the value of "Equity" are related to the derecognition of assets, recognition of liabilities, and decreases in net income.

Thus, for the items "Total Assets", "Equity", and "Total Liabilities", conservatism can be assessed using the following rationales:

a) If "Total Assets" under POC is higher (lower) than the one under SNC, this would indicate that the previous POC accounting practices resulted in optimistic (pessimistic) outcomes in relation to the yardstick (SNC). Therefore, POC accounting practices would be less (more) conservative than SNC accounting practices.

b) If "Equity" under POC is higher (lower) than the one under SNC, this would indicate that the previous POC accounting practices resulted in optimistic (pessimistic) outcomes in relation to the yardstick (SNC). Therefore, POC accounting practices would be less (more) conservative than SNC accounting practices.

c) If "Total Liabilities" under POC is higher (lower) than the one under SNC, this would indicate that the previous POC accounting practices resulted in pessimistic (optimistic) outcomes in relation to the yardstick (SNC). Therefore, POC accounting practices would be more (less) conservative than SNC accounting practices.

Table 4. Interpretation of Gray's (1980) conservatism index

	Total Assets	Equity	Net Income	Liabilities
Pessimistic	< 0.95	< 0.95	< 0.95	>1.05
Neutral	[0.95; 1.05]	[0.95; 1.05]	[0.95; 1.05]	[0.95; 1.05]
Optimistic	>1.05	>1.05	>1.05	< 0.95

Table 4 sums up the interpretation of Gray's (1980) conservatism index results in terms of these four balance sheet items: total assets, equity, net income and total liabilities.
The typology followed by Gray (1980) includes the adoption of three classification categories: *pessimistic*, *neutral* and *optimistic*. The present study uses these categories with the following meaning:

- *Pessimistic*: comprising ratios lower than 0.95 for Assets, Net Income and Equity, and higher than 1.05 for Liabilities;
- *Optimistic*: comprising ratios higher than 1.05 for Assets, Net Income and Equity, and lower than 0.95 for Liabilities.
- *Neutral*: comprising ratios between 0.95 and 1.05, allowing some tolerance.

5. Results

5.1. Descriptive analysis

Table 5 (Panel A) shows the results of the descriptive statistical analysis of some accounting items and ratios based on POC. Biological assets shows a zero value, which is due to the fact that under POC biological assets were recognized as Property, Plant & Equipment. Fixed assets have on average a significant influence in total assets, and the value of inventories has a lower influence in total assets.

Table 5. Descriptive statistics for variables under POC and SNC

	Measurement	N	Minimum	Maximum	Mean	Std. Deviation
Panel A: Accounting figures and ratios under POC						
Fixed assets	10^3 Euros	10	648.88	26,221.23	6,543.68	7,922.78
Biological assets	10^3 Euros	10	0.00	0.00	0.00	0.00
Inventories	10^3 Euros	10	0.00	1,338.96	333.17	454.56
Other current assets	10^3 Euros	10	78.70	5,227.95	1,087.31	1,514.98
Total assets	10^3 Euros	10	1,035.58	28,280.44	7,964.16	8,573.69
Equity	10^3 Euros	10	-945.34	25,226.41	3,290.21	7,827.70
Liabilities	10^3 Euros	10	339.07	8,743.64	3,046.02	3,073.63
Net Income	10^3 Euros	10	-553.45	335.31	-96.80	249.16
Leverage	Ratio	10	0.02	0.90	0.55	0.31
Current ratio	Ratio	10	0.19	3.12	0.72	0.87
Return on assets	Ratio	10	-0.14	0.06	-0.03	0.06
Return on equity	Ratio	10	-39.09	0.59	-3.82	12.40
Panel B: Accounting figures and ratios under SNC						
Fixed assets	10^3 Euros	10	465.79	22,309.18	4,270.36	6,682.76
Biological assets	10^3 Euros	10	0.00	7,372.30	1,905.30	2,477.31
Inventories	10^3 Euros	10	0.00	857.00	163.05	270.00
Other current assets	10^3 Euros	10	152.99	5,227.95	1,137.50	1,526.67
Total assets	10^3 Euros	10	926.77	31,491.60	7,476.21	9,020.48
Equity	10^3 Euros	10	-799.46	30,839.38	4,628.60	9,415.79
Liabilities	10^3 Euros	10	277.52	8,108.35	2,847.66	2,926.95
Net Income	10^3 Euros	10	-1,502.29	114.25	-298.37	476.42
Leverage	Ratio	10	0.02	1.16	0.58	0.40

	Measurement	N	Minimum	Maximum	Mean	Std. Deviation
Current ratio	Ratio	10	0.37	14.08	3.14	5.14
Return on assets	Ratio	10	-0.16	0.02	-0.06	0.06
Return on equity	Ratio	10	-39.09	0.62	-3.94	12.35

Regarding the descriptive statistical analysis of some accounting items and ratios based on SNC (Table 5, Panel B), it is possible to observe that biological assets have a strong influence in total assets. When analyzing the financial ratios, it can be noticed that the major change is at the level of current ratio (POC mean value = 0.72; SNC mean value = 3.14). This change is favorable for companies, since current ratios higher than 1 indicates a company's ability to meet short-term debt obligations. This result is consistent with prior literature (Callao *et al*., 2007).

Prior literature indicate that the items which were significantly influenced by the adoption of IAS/IFRS were intangible assets, goodwill, tangible assets, financial instruments, deferred taxes and deferred costs (Lopes and Viana, 2008). They were influenced basically because commonly the main differences found were due to fair value issues, recognition of construction contracts, tangible/intangible assets, provisions and contingent/assets, and business combinations (Haller *et al.,* 2009; Lantto and Sahlström, 2009). In the present study, sampled companies belonging to agriculture, have a family-based structure, and are not subject to consolidation procedures. Therefore, it is expected that the items more significantly changed with the adoption of SNC are: a) fixed assets and biological assets (under SNC biological assets are not considered fixed assets); b) inventories and net income (under SNC inventories must be measured at fair value); c) and equity (due to other transition changes).

Table 5 shows a significant variation in the mean values of fixed assets (POC mean value = 6,543.68; SNC mean value = 4,270.36), biological assets (POC mean value=0; SNC mean value = 1,905.30), equity (POC mean value = 3,290.21; SNC mean value 4,628.60), and liabilities (POC mean value = 3,046.02; SNC mean value = 2,847.66). The notes were analysed to detect the accounting policies followed. Companies were very narrow on these aspects, only indicating that Plant, Property and Equipment assets were measured at cost, and that biological assets and inventories related to agricultural produce harvested from an entity's biological assets at the point of harvest were measured at its fair value less costs to sell.

Table 6 presents the analysis of the differences in financial reporting under POC and SNC in order to check the effect of the adoption of SNC. Findings indicate that based on the number of positive and negative ranks, as well as the sum of ranks of each sign provided by the Wilcoxon test, it is possible to determine the sign of the variations experienced by the variables. Focusing on the variables generating statistically significant variations as a result of the change from POC to SNC, we conclude that:

- There are statistically significant increases in biological assets and current ratio.
- There are statistically significant decreases in inventories, liabilities, and return on assets.

Table 6. Descriptive statistics for variables under POC and SNC

	N	Z statistic	Exact Sig. (2-tailed)
Panel A : Accounting Figures			
Fixed assets	10	-1.581	0.109
Biological assets	10	2.475	0.008
Inventories	10	-1.789	0.063
Other current assets	10	-1.061	0.289
Total assets	10	-0.667	0.508
Equity	10	1.333	0.180
Liabilities	10	-2.667	0.004
Net Income	10	-1.155	0.250
Panel B: Financial ratios			
Leverage	10	0.000	1.000
Current ratio	10	2.214	0.021
Return on assets	10	-2.000	0.039
Return on equity	10	0.000	1.000

Consistent with prior literature (Callao *et al*. 2007; Haller *et al*., 2009), we can conclude that the transition from POC to SNC has brought significant changes in some individual items in financial statements, as well as in some financial ratios. After the adoption of SNC, companies show higher amounts in biological assets and a higher current ratio. This is due to the mandatory recognition of biological assets in financial statements under SNC as an autonomous caption, which did not happen in POC. The current ratio showed a significant positive increase after the adoption of SNC. Contrarily, inventories, liabilities, and return on assets presented a significant decrease, which corroborates Tendeloo and Vanstraelen (2005) findings. We have also observed that assets management is not efficient in the analyzed companies, since they show a negative return on assets.

5.2. Analysis of Conservatism

Table 7 shows the results of the comparability index to assess the level of conservatism of SNC and POC. In the olive culture sector, Table 7 (Panel A), indicates that some accounting figures fall mainly into the pessimistic category (biological assets= 80%; other current assets = 40%; total assets = 40%; equity = 60%) and into the neutral category (inventories = 80%; other current assets = 40%; total assets = 40%). Moreover, the mean value of the comparability index is lower than 1.05 (biological assets = 0.20; other current assets = 0.64; total assets = 0.82; equity = 0.87) suggesting that these items were significantly affected by the transition to SNC.

Findings indicate that in these items SNC accounting practices regarding their recognition and measurement are less conservative than POC accounting practices, which is consistent with previous literature (Lopes and Viana, 2008; Bellas *et al.,* 2007). On the other hand, under POC around 80% of the companies adopted optimistic accounting practices in the recognition of fixed assets. In fact, the mean values of either fixed assets (CI mean value = 1.54) and inventories (CI mean value = 4.2) are higher than 1.05, which means that in these items the SNC's recognition and measurement policies were more conservative than those required by POC. Regarding "Total Net Income" all companies fall into the neutral category (CI mean value = 1), suggesting equal levels of conservatism in both accounting frames of reference. This means that there were no impacts in the transitions from POC to SNC. In the item "Total Liabilities" all companies fall into the pessimistic category (CI mean value>1.05), indicating that the change to SNC has led to less conservative accounting practices. These findings are consistent with Tsalavoutas and Evans (2007).

Table 7. Conservatism

Accounting Figures	N	Conservatism Categories			Comparability Index			
		Pessimistic	Neutral	Optimistic	Maximum	Minimum	Std. Deviation	Mean
Panel A: Olive culture sector								
Fixed Assets	5	0%	20%	80%	2.02	0.97	0.4	1.54
Biological Assets	5	80%	20%	0%	1	0	0.45	0.2
Inventories	5	0%	80%	20%	17	1	7.16	4.2
Other Current Assets	5	40%	40%	20%	1.09	0	0.54	0.64
Total Assets	5	40%	40%	20%	1.27	0.28	0.39	0.82
Equity	5	60%	20%	20%	2.43	0.10	0.94	0.87
Net Income	5	0%	100%	0%	1.00	1.00	0.00	1.00
Liabilities	5	100%	0%	0%	1.58	1.08	0.20	1.24
Panel B: Cork sector								
Fixed Assets	5	0%	0%	100%	5.16	1.18	1.65	2.27
Biological Assets	5	40%	40%	20%	1.34	0.62	0.27	0.94
Inventories	5	20%	40%	40%	1.47	0.74	0.27	1.08
Other Current Assets	5	60%	20%	20%	1.29	0.00	0.58	0.54
Total Assets	5	20%	0%	80%	2.31	0.90	0.54	1.44
Equity	5	60%	20%	20%	1.15	-1.07	0.90	0.51
Net Income	5	0%	40%	60%	2.22	1.00	0.51	1.34
Liabilities	5	20%	80%	0%	1.07	1.00	0.03	1.03

In the cork culture sector, Table 7 (Panel B), shows that some accounting figures fall mainly into the pessimistic category (biological assets=40%; other current assets=60%; equity=60%). The mean values of the comparability index is lower than 1.05 (biological

assets=0.94; other current assets=0.54; equity=0.51) suggesting the SNC accounting practices are less conservative than POC accounting practices. On the other hand, some accounting figures fall mainly into the optimistic category (fixed assets = 100%; inventories = 40%; total assets = 80%; net income = 60%). The mean values of the comparability index are higher than 1.05 (fixed assets = 2.27; inventories = 1.08; total assets = 1.44; net income = 1.34) indicating that SNC accounting practices are more conservative than POC accounting practices. Finally, in the item "Total Liabilities", around 80% of the companies fall into the neutral category (CI mean value = 1.03), expressing similar degrees of conservatism in both accounting frames of reference.

Between the olive and cork sector results found in liabilities were controversy. However, we did not find any evidence that could explain this fact. Results found in fixed assets and biological assets are due to the fact that SNC required that all biological assets recognized as fixed assets under POC were recognized as biological assets in an autonomous item. Moreover, findings in inventories and biological assets, as indicated in the notes, are also due to the adoption of fair value to measure biological assets and inventories related to agricultural produce harvested from an entity's biological assets at the point of harvest. Therefore, since biological assets were reclassified from fixed assets, main findings indicate that the transition to SNC generally has led to less conservative accounting practices, which corroborates the findings of Fifield *et al*. (2011).

6. Conclusions

The present paper provides an analysis of the quantitative impact of the first adoption of SNC on the accounting figures and financial ratios of Portuguese unlisted companies in the olive and cork sectors. Based on Gray's (1980) work we examined the level of conservatism to assess differences between the accounting practices of SNC and POC. Significant changes were observed on some items of the financial statements of the companies analyzed, corroborating previous findings (Tsalavoutas and Evans, 2007; Haller *et al*., 2009; Lantto and Sahlström, 2009). Results present increases in biological assets, and current ratio, and decreases in inventories, liabilities, and return on assets were thus observed.

The analysis of conservatism indicated that several elements of the financial statements were significantly affected by the adoption of SNC (such as fixed assets, inventories, and liabilities). Generally, in both sectors this has led to less conservative accounting practices. In both sectors, biological assets were also significantly affected by the adoption of SNC, leading to less conservative accounting practices, as previously indicated by some studies (Liu, 2011; Fifield *et al*. 2011). Variations in liabilities were potentially due to changes in the rules for the valuation of debts. Variations in equity were mainly due to direct adjustments and to the indirect adjustments to earnings (for example due to the application of fair value to measure

items such as biological assets and agriculture produce). Finally, variations in fixed assets were due to the adoption of NCRF 17 (*Agriculture*). Companies opted not to change the accounting policy applied (acquisition cost).

SNC's accounting standards are based on IAS/IFRS. Prior literature indicates that IAS/IFRS are nearer to common-law countries than code-law countries (Wallace, 1990). Moreover, common-law countries are less conservative than code-law countries (García and Mora, 2004). Portugal is a code-law country, with weak enforcement mechanisms. Results indicate that these characteristics did not influence the appropriate adoption of SNC. Findings revealed that, generally, in the cork and olive sector the adoption of SNC has led to less conservative accounting practices. However, the SNC's accounting standard with greater impact in the financial statements was NCRF 17 (*Agriculture*). First, because it required the recognition of biological assets as an autonomous item, and second because it recommended the adoption of fair value less cost to sell to measure biological assets and inventories related to agricultural produce harvested from an entity's biological assets at the point of harvest.

These findings should be of interest to standard setters involved in implementing the changes to harmonize European and international accounting. Results may also help the Portuguese Accounting Committee to assess the *status quo* of the *de facto* harmonization of SNC among companies in the olive and cork sector.

The present study has some limitations. First the dimension of the sample does not permit generalization. Another limitation is due to the fact that it only incorporates two agriculture sectors. Further studies are needed using other sectors and larger samples. Finally, our study does not allow quantification of the direct effect of each standard on the accounting figures and financial ratios. Further studies should incorporate new methodologies capable to assess such effects.

References

Aharony, J., Barniv, R. and Falk, H. (2010). The impact of mandatory IFRS adoption on equity valuation of accounting numbers for security investors in the EU. *European Accounting Review*, 19 (3), 535-578.

Argilés J., Aliberch, A. and Blandon, J. (2012). A Comparative Study of Difficulties in Accounting Preparation and Judgement in Agriculture Using Fair Value and Historical Cost for Biological Assets Valuation. *Spanish Accounting Review*, 15 (1), 109-115.

Argilés J., Blandon J.G. and Monllau,T. (2011). Valor razonable versus coste histórico de los ativos biológicos: valor predictivo de la informacion contable. *Revista de Contabilidad-Spanish Accounting Review,* 14 (2), 87-113.

Armstrong, C., Barth, M.E. and Riedl, E.J. (2010). Market reaction to the adoption of IFRS in Europe. *The Accounting Review*, 85 (1), 31-61.

Barth, M.E., Landsman, W.R. and Lang, M.H. (2008). International accounting standards and accounting quality. *Journal of Accounting Research*, 46 (3), 467-498.

Bellas, A., Toudas, K. and Papadatos, K. (2007). The Consequences of applying international accounting standards (IAS) to the financial statements of Greek companies. *30th Annual Congress of European Accounting Association*, Lisbon, Portugal, April 25-27: *working paper*.

Beuren, I., Heion, N. and Klann R. (2008). Impact of the IFRS and US-GAAP on economic-financial indicators. *Managerial Auditing Journal*, 23 (7), 632-649.

Botelho, R., Azevedo, G., Costa, A. and Oliveira, J. (2015). Property, Plant and Equipment disclosure requirements and firm characteristics: the Portuguese Accounting Standardization System. *International Journal of Academic Research in Accounting, Finance and Management Studies*, 5 (1), 58-71.

Callao, S.G., García, C.F., Jarne, J.I. and Gadea, J.A. (2010). IFRS adoption in Spain and the United Kingdom: effects on accounting numbers and relevance. *Advances in Accounting, incorporating Advances in International Accounting,* 26 (2), 304-313.

Callao, S.G., Jarne, J. and Laínez, J. (2007). Adoption of IFRS in Spain: effect on the comparability and relevance of financial reporting. *Journal of International Accounting, Auditing and Taxation*, 16 (2), 148-178.

CEPAAL (2011) *Produção de Azeite. Estatísticas*. Centro de Estudos e Promoção do Azeite do Alentejo. Accessed 23 December 2013.

Cork Information Bureau (2010) *Cork, Culture, Nature, Future*. Cork Sector in numbers, Cork Statistics. Accessed 18 December 2013. Available at: http://www.apcor.pt/userfiles/File/Cork%20Statistics.pdf.

Daske, H., Hail, L., Luez, C. and Verdi, R. (2008). Mandatory IFRS reporting around the world: early evidence on the economic consequences. *Journal of Accounting Research*, 46 (5), 1085-1141.

Devalle, A., Onali, E. and Magarini, R. (2010). Assessing the value relevance of accounting data after the introduction of IFRS in Europe. *Journal of International Financial Management and Accounting*, 21 2, 85-119.

Elad, C., and Herbohn, K. (2011). *Implementing Fair value accounting in the agricultural sector*. The Institute of Chartered Accountants of Scotland. Edinburgh.

Fifield, S., Finningham, G., Fox, A., Power, D., and Veneziani, M. (2011). A cross-country analysis of IFRS reconciliation statements. *Journal of Applied Accounting Research,* 12 (1), 26-42.

Fisher, R., Mortensen, T. and Webber, D. (2010). Fair Value Accounting in the Agricultural Sector: An Analysis of Financial Statement Preparers' Perceptions before and After the Introduction of IAS 41 Agriculture. *Accounting and Finance Association of Australia and New Zealand (AFAANZ) Conference*, 4-6 July 2010, available at: www.afaanz.org/openconf/2010/modules/request.php?module=oc_proceedings&action=proceedings.php&a=Accept+as+Paper (accessed 21 January 2012).

García, J. M., and Mora, A. (2004). Balance sheet versus earnings conservatism in Europe. *The European Accounting Review*, 13, 261–292.
Gassen, J. and Sellhorn, T. (2006). Applying IFRS in Germany: determinants and consequences: *SSRN working paper*.
Goncharov, I. & Zimmermann, J. (2006). Do accounting standards influence the level of earnings management? Evidence from Germany: *SSRN working paper*.
Gray, S. J. (1980). The impact of international accounting differences from a security-analysis perspective: some European evidence. *Journal of Accounting Research*, 18 (1), pp. 64-76.
Guerreiro, M. (2006). Impact of the International Financial Reporting Standards adoption: motivations for information disclosures by Portuguese listed companies. *Portuguese Journal of Accounting and Management*, 3, 7-32.
Guerreiro, M., Rodrigues, L.L., and Craig, R. (2008). The preparedness of companies to adopt International Financial Reporting Standards: Portuguese evidence. *Accounting Forum*, 32 (1), 75-88.
Guerreiro, M., Rodrigues, L.L., and Craig, R. (2012). Factors influencing the preparedness of large unlisted companies to implement adapted International Financial Reporting Standards in Portugal. *Journal of International Accounting, Auditing and Taxation,* 21 (2), 168-184.
Haller, A., Ernstberger, J., and Froschhammer, M. (2009). Implications of the mandatory transition from national GAAP to IFRS: empirical evidence from Germany. *Advances in Accounting, incorporating Advances in International Accounting*, 25 (2), 226-236.
Iatridis, G. and Rouvolis, S. (2010). The post-adoption effects of the implementation of International Financial Reporting Standards in Greece. *Journal of International Accounting, Auditing and Taxation*, 19 (1), 55-65.
INE (2009). Recenseamento Agrícola. *Análise dos principiais resultados, Parte I.* 22-48. Accessed 30 December 2013.
Jeanjean, T. and Stolowy, H. (2008). Do accounting standards matter? An exploratory analysis of earnings management before and after IFRS adoption. *Journal of Accounting and Public Policy*, 27 (6), 480-494.
Lantto, A. and Sahlström, P. (2009). Impact of International Financial Reporting Standard adoption on key financial ratios. *Accounting & Finance*, 49 (2), 341-361.
Leuz, C., Nanda, D. and Wysocki, P. (2003). Earnings management and investor protection: an international comparison. *Journal of Financial Economics*, 69 (3), 505–527.
Liu, C. (2011). IFRS and US-GAAP comparability before release No. 33-8879: some evidence from US-listed Chinese companies. *International Journal of Accounting and Information Management*, 19 (1), 24-33.

Lopes, P. and Viana, R. (2008). The transition to IFRS: disclosures by Portuguese listed companies*, 285*, 1-24: *FEP Working Papers*
Morais, A.I. and Curto, J. (2008). Accounting quality and the adoption of IASB standards: Portuguese evidence. *Revista Contabilidade e Finanças*, 19 (48), 103-111.
Navarro-Garcia, J. and Bastida, F. (2010). An empirical insight on Spanish listed companies' perceptions of International Financial Reporting Standards. *Journal of International Accounting, Auditing and Taxation*, 19 (2), 110-120.
Oliveira, J., Azevedo, G., Santos, C.S.A. and Vasconcelos, S. (2015). Fair value: model proposal for the dairy sector. *Agricultural Finance Review*, 75 (2), 230-252.
PWC (2009). *Forest Industry: Application review of IAS 41 Agriculture: the fair value of standing timber*. PriceWaterhouseCoopers, London.
PWC (2011). *IAS 41 Agriculture: the fair value of standing timber*. PriceWaterhouseCoopers, London.
Silva, A., Machado, M. and Machado, M. (2012). Custo Histórico X Valor Justo: Qual Informação é mais Value Relevant na Mensuração dos Ativos Biológicos?. *12º Congresso Universidade de São Paulo de Controladoria e Contabilidade*, 26-27 July. available at: http://www.congressousp.fipecafi.org/artigos122012/207.pdf (accessed 22 March 2013).
Sucher, P. and Jindrichovska, I. (2004). Implementing IFRS: a case study of the Czech Republic. *Accounting in Europe*, 1 (1), 109-141.
Tendeloo, B.V. and Vanstraelen, A. (2005). Earnings management under German GAAP versus IFRS. *European Accounting Review*, 14 (1), 155-180.
Trombetta, M., Wagenhofer, A. and Wysocki, P. (2012). The usefulness of academic research in understanding the effects of accounting standards. *Accounting in Europe*, 9 (2), 127-146
Tsalavoutas, I. (2011). Transition to IFRS and compliance with mandatory disclosure requirements: what is the signal?. *Advances in Accounting, incorporating Advances in International Accounting*, 27 (2), 390-405.
Tsalavoutas, I. and Evans, L. (2007). Comparing International Financial Reporting Standards (IFRSs) and Greek GAAP: Financial Statements Effects. *Workshop on Accounting in Europe*, France: *working paper*.
Tsalavoutas, I. and Evans, L. (2010). Implementation of International Financial Reporting Standards in the EU – Greek evidence of effects on financial statements. *Managerial Auditing Journal,*25 (8), 814-842.
Wallace, R. (1990). Survival strategies of a global organization: the case of the International Accounting Standard Committee. *Accounting Horizons*, 4, 1–22.
Yu, M.D. (2005). International earnings management and accounting standards: *SSRN working paper*.